Dengie Peninsula
ENERGY PARK

Planning Inspectorate Reference: EN0110046

Dengie Peninsula Energy Park
Environmental Impact Assessment Scoping Report
October 2026



Contents

1. Introduction 1
2. EIA Scoping Site and Surrounding Area 14
3. Proposed Development 19
4. Alternatives Considered 43
5. Consultation 46
6. Environmental Impact Assessment Methodology 50
7. Agriculture and Soils 74
8. Climate Change 99
9. Cultural Heritage 132
10. Ecology and Biodiversity 157
11. Landscape and Visual 224
12. Materials and Waste 272
13. Noise and Vibration 301
14. Socio-economics and Land Use 319
15. Traffic and Transport 339
16. Water Environment 377
17. Other Environmental Topics 439
18. Proposed Structure of the Environmental Statement 588
19. Summary 590
20. Glossary and Abbreviations 599

Tables

Table 1-1: Terminology 3
Table 1-2: Contents of this EIA Scoping Report based on the Planning Inspectorate's Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment 8
Table 3-1: Solar PV Infrastructure Parameters 31
Table 3-2: BESS Parameters 32
Table 3-3: Substation(s) Infrastructure Parameters 32
Table 3-4: Ancillary Infrastructure Parameters 33
Table 3-5: Cabling Parameters 34
Table 3-6: Other Infrastructure Parameters 35
Table 6-1: Magnitude of Change Criteria 61
Table 6-2: Sensitivity Criteria 62
Table 6-3: Example Matrix to Classify Environmental Effects 64
Table 6-4: Generic Effect Descriptions 65
Table 6-5: Summary of How Cumulative and In-Combination Effects will be Reported in the Environmental Statement 66
Table 7-7-1 Indicative Area of Agricultural Land by Predictive ALC Grade within the EIA Scoping Site 80
Table 7-7-2 Indicative Area of Agricultural Land by Predictive ALC Grade within Energy Park Areas A-F 80
Table 7-7-3: Soil Associations within the EIA Scoping Site 82
Table 7-7-4 Sensitivity Criteria for Agricultural Land 90
Table 7-7-5 Sensitivity of Soils Resources 91
Table 7-7-6 Magnitude of Change: Agricultural Land Resource 91
Table 7-7-7 Magnitude of Change Criteria: Soil Resources 92
Table 7-7-8 Significance of Effects Matrix 93
Table 7-7-9 Elements scoped in and out of the BMV agricultural land and soil resources assessment 94
Table 8-1: Historic climate data (1981 – 2010) from the UK Met Office Climate Data Portal (Ref 8-38) for a 12 x 12km grid 106
Table 8-2: Potential Sources of GHG emissions 108
Table 8-3: Climate parameters for the CCRA of the Proposed Development 111
Table 8-4: Climate parameters for the in-combination climate change impact 113
Table 8-5: UK National and Sectoral Carbon Budgets and Indicative Carbon Budgets 117
Table 8-6: Significance Criteria 118
Table 8-7: Likelihood of an impact occurring criteria for risk assessment 120
Table 8-8: Level of Consequence of a climate change impact occurring 121
Table 8-9: Significance Matrix for CCRA 122

Table 8-10: Level of Likelihood of an ICCI occurring..... 123
Table 8-11: Level of Consequence for ICCI Assessment 124
Table 8-12: Significance Matrix for ICCI Assessment 124
Table 8-13: Elements scoped in and out of the Climate Change assessment 125
Table 9-1: Criteria for assessing the value of heritage assets..... 145
Table 9-2: Factors influencing the assessment of magnitude of impact 146
Table 9-3: Assessment of significance of effects..... 148
Table 9-4: Elements scoped in and out of the cultural heritage assessment..... 151
Table 10-1: Ecological surveys that have been, or will be, undertaken to characterise the baseline conditions within the EIA Scoping Site. 170
Table 10-2: UK National Site Network sites within 10km of the Proposed Development 184
Table 10-3: Statutorily designated sites at a national level within 5km of the Proposed Development..... 185
Table 10-4: Non-statutorily designated sites within the 200m ZoI of the Proposed Development..... 187
Table 10-5: Water Framework Directive (WFD) water bodies within 2km of, or hydrologically linked to, the study area 188
Table 10-6: Baseline detail identified at the time of drafting this EIA Scoping Report.. 189
Table 10-7: Summary of sensitivity of ecological features, according to geographic context..... 202
Table 10-8: Magnitude of change criteria..... 205
Table 10-9: Significance criteria for impacts and effects..... 206
Table 10-10: Ecological Features scoped in and out of the ecology and biodiversity assessment..... 208
Table 11-1: Proposed Representative Viewpoints..... 249
Table 11-2: TGN 02-21 Landscape Value 257
Table 11-3: Landscape and Seascape Value Criteria 258
Table 11-4: Landscape and Seascape Susceptibility Criteria 258
Table 11-5: Landscape and Seascape Sensitivity Criteria 259
Table 11-6: Visual Value Criteria 260
Table 11-7: Visual Susceptibility Criteria 260
Table 11-8: Visual Sensitivity Criteria 261
Table 11-9: Landscape, Seascape and Visual Amenity Magnitude of Impact..... 261
Table 11-10: Landscape, Seascape and Visual Amenity Guide to Significance of Effects 263
Table 11-11: Elements scoped in and out of the landscape, seascape and visual amenity assessment..... 265
Table 12-1 Availability of Key Construction Materials..... 277
Table 12-2 Potential Recycled Content of Key Construction Materials 278

Table 12-3 Landfill Capacity in the East of England region (2024) 279
Table 12-4 Historic landfill site details 280
Table 12-5 Standard, Good and Best Practice Recovery Rates by Material 281
Table 12-6 Material Receptor Sensitivity..... 287
Table 12-7 Non-hazardous and Inert Landfill Capacity Sensitivity 288
Table 12-8 Hazardous Landfill Capacity Sensitivity 289
Table 12-9 Materials Magnitude of Change..... 290
Table 12-10 Inert and Non-hazardous Waste Magnitude of Change 291
Table 12-11 Hazardous Waste Management Magnitude of Change..... 291
Table 12-12 Effect Thresholds 292
Table 12-13 Significance of Effect 292
Table 12-14: Elements scoped in and out of the Materials and Waste assessment 294
Table 13-1 Receptor Types 311
Table 13-2 Thresholds of Potential Effects of Construction and Decommissioning Noise at Residential Receptors..... 311
Table 13-3 Construction Vibration Assessment Criteria..... 312
Table 13-4 Operational Noise Assessment Criteria 312
Table 13-5 Construction and Decommissioning Traffic Noise Magnitude of Impact Criteria..... 313
Table 13-6: Elements scoped in and out of the Noise and Vibration assessment 314
Table 14-1: Socio-economic and Land Use Receptor Sensitivity Criteria..... 332
Table 14-2: Socio-economic and Land Use Impact Magnitude Criteria..... 332
Table 14-3: Significance of Socio-economic and Land Use Effects..... 333
Table 14-4: Elements scoped in and out of the Socio-economics and Land use assessment..... 334
Table 15-1: PRoW within the EIA Scoping Site Boundary 347
Table 15-2: Bus Stops and Services near the Energy Park 351
Table 15-3: Sensitivity / Value Criteria for Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation..... 361
Table 15-4: Sensitivity/ Value Criteria for Driver Delay 362
Table 15-5: Sensitivity/ Value Criteria for Road Safety and Hazardous/ Large Loads... 362
Table 15-6: Sensitivity/ Value Criteria for PRoW Diversions and Closures 363
Table 15-7: Magnitude Criteria for Traffic and Transport..... 366
Table 15-8: Additional Magnitude Criteria for Fear and Intimidation 367
Table 15-9: Magnitude Criteria for PRoW Diversions and Closures 369
Table 15-10: Significance of Effects Matrix (Traffic and Transport)..... 369
Table 15-11: Elements scoped in and out of the Traffic and Transport assessment 370
Table 16-1: Water Features within the study area or potentially impacted by the Proposed Development..... 387

Table 16-2: WFD Water Bodies potentially impacted by the Proposed Development (Cycle 3, 2022 (Ref 16-54Ref 16-54)) 394
Table 16-3: Aquifer Designations across the study area 397
Table 16-4: Summary of water quality monitoring stations relevant to the Proposed Development 401
Table 16-5: Sites of Special Scientific Interest (SSSI) present within the study area ... 402
Table 16-6: Flood Risk Vulnerability and Flood Zone 'incompatibility' 404
Table 16-7: Flood Risk from all Sources 404
Table 16-8: Criteria for determining the importance of a receptor (adapted from LA113 (Ref 16-62) 423
Table 16-9: Magnitude of change criteria (adapted from DMRB LA113 (Ref 16-62) 426
Table 16-10: Matrix for Assessment of Significance of Effects (DMRB LA 104 (Ref 11-53) 427
Table 16-11: Elements scoped in and out of the Water Environment assessment 429
Table 17-1 Diffusion Tube Sites and Monitored Concentrations 449
Table 17-2 Background Air Pollutant Concentrations 2026 450
Table 17-3 Air Quality Objectives and Targets 459
Table 17-4 Effects Descriptors at Individual Receptors 461
Table 17-5: Elements scoped in and out of air quality assessment 463
Table 17-6: Elements scoped in and out of the EMF and EMF Interference assessment 474
Table 17-7: Summary of Glint and Glare Assessment Scope 492
Table 17-8 Summary of Aquifer Designations 504
Table 17-9 Environmental Design and Management Measures that could be included in the Outline CEMP 508
Table 17-10 Ground Conditions aspects for consideration in the ES 513
Table 17-11: Human Health Profile 524
Table 17-12: Elements scoped in and out of the human health assessment 531
Table 17-13: Construction Phase Major Accidents and Disasters to be considered further 543
Table 17-14: Operational Phase Major Accidents and Disasters to be considered further 547
Table 17-15: Decommissioning Phase Major Accidents and Disasters to be considered further 552
Table 17-16: Elements scoped in and out of the telecommunications and utilities assessment 568
Table 17-17 Ancient Woodland 575
Table 17-18 Tree Preservation Orders 576
Table 19-1: Summary of Proposed EIA Scope 591
Table 19-2: Proposed Scope of Other Environmental Topics Chapter 596

Plates

Plate 3-1: Solar PV Arrays and Mounting Structures 21
Plate 3-2: Ancillary Infrastructure 23
Plate 3-3: Inverters 24
Plate 3-4: Use of the Marine Transfer Facility during construction of the Middlewick Wind Farm development 27
Plate 3-5: Fencing 28
Plate 11-1: GLVIA 3 Figure 3.5 – The Assessment Process 255
Plate 12-1 The Waste Hierarchy, from DEFRA's Guidance on Applying the Waste Hierarchy, recreated by AECOM 283

1. Introduction

1.1 Background

1.1.1 Dengie Peninsula Energy Park Limited (hereafter referred to as 'the Applicant') has commissioned this Environmental Impact Assessment (EIA) Scoping Report for Dengie Peninsula Energy Park (hereafter referred to as the 'Proposed Development').

1.1.2 The Proposed Development comprises the construction, operation (and maintenance) and decommissioning of solar photovoltaic (PV) panels, interconnecting cables, energy storage, on-site substation(s) and other supporting infrastructure including fencing, access, drainage, and biodiversity and landscape enhancements at a proposed site near the villages of Bradwell-on-Sea and Dengie, and the town of Burnham-on-Crouch in Essex. Each component is described further in **Chapter 3: Proposed Development** of this EIA Scoping Report.

1.1.3 The Proposed Development is located within the Dengie Peninsula and comprises seven main land parcels, hereafter referred to individually as 'Energy Park Areas A, B-West, B-East, C, D, E, and F' and collectively as the 'Energy Park'. The Energy Park encompasses land required for: the generation and storage of electricity through solar PV, battery energy storage systems (BESS), and related infrastructure; the transformation and transmission of electricity through inverters, transformers, switchgear and substations, and areas for landscaping and biodiversity mitigation and enhancements. The National Grid Reference for the approximate centre of the Energy Park is 601131, 201510.

1.1.4 'Connection and Access Corridors' are required for the installation of 'Connection and Access Corridor Cabling' to link the discrete areas of the Energy Park.

1.1.5 There are two potential grid connection options currently under consideration, each requiring 'Grid Connection Corridor(s)' for the installation of 'Grid Connection Cabling', to link the Energy Park to the National Electricity Transmission System (NETS).

1.1.6 The first potential option would link the Energy Park to the National Grid Electricity Transmission (National Grid) via Rayleigh Grid Supply Point (GSP) Substation – this is defined as 'Point of Connection A', which would be linked to the Energy Park via Grid Connection Corridors A, B and/or C which extend west from the Energy Park, likely utilising the existing 'Bradwell-Rayleigh Overhead

Line'. The Applicant has secured a grid connection offer from the National Energy System Operator (NESO) for a Point of Connection at this location.

1.1.7 The second potential option would link the Energy Park to the 'Former Bradwell Substation' – this is defined as 'Point of Connection B'. The Former Bradwell Substation is an industrial electrical installation associated with the decommissioned Bradwell Nuclear Power Station to the north of the Energy Park, and would be linked to the Energy Park by Grid Connection Corridor D (which includes Connection and Access Corridors A-A-1, A-B-1, and A-B-2). Discussions are ongoing regarding the potential future re-commissioning of this offline substation, which is located closer to the Energy Park, and as such the Proposed Development retains flexibility for this optionality regarding future Point of Connection at this stage.

1.1.8 Grid Connection Cabling under either grid connection option may include new sections of up to 400kV cabling (either underground, overhead or a mixture of both) and/or utilisation of sections of the existing Bradwell-Rayleigh Overhead Line.

1.1.9 Collectively the area for the components of the Proposed Development noted above are referred to at this EIA Scoping stage as the 'EIA Scoping Site'. The EIA Scoping Site is illustrated in **Figure 1-1: Proposed Development Location Plan**, with the Proposed Development components shown on **Figure 3-1: EIA Scoping Site and Proposed Development Components**. The EIA Scoping Site is likely to be refined as the Proposed Development design progresses. It is important to note at this stage that **Figure 1-1: Proposed Development Location Plan** shows the expected maximum extent of land that would be included within the Development Consent Order (DCO) Application, which includes all land being considered for the purposes of the Proposed Development and provides a "*plan sufficient to identify the land*" for the purposes of this EIA Scoping Report.

1.1.10 Based on information currently available to the Applicant, and for the purposes of defining the scope of the Proposed Development and undertaking a meaningful EIA, the Applicant has therefore adopted a reasonable working assumption to consider both potential Point of Connection options within the EIA Scoping Site.

1.1.11 Due to its proposed generating capacity being above 100 megawatts (MW), the Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) and therefore requires a Development Consent Order (DCO) under Sections 14(1)(a) and 15(2)(c), as amended, of the Planning Act 2008 (Ref 1-1) for its construction, operation (and maintenance), and decommissioning.

1.1.12 This EIA Scoping Report forms a formal request for an EIA Scoping Opinion from the Secretary of State for Energy Security and Net Zero (SoS) under Regulation 10(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') (Ref 1-2).

1.1.13 **Table 1-1** below provides a summary of the terminology and definitions used throughout this EIA Scoping Report.

Table 1-1: Terminology

Term	Definition
Proposed Development	All components within the EIA Scoping Site, including all infrastructure proposed within the Energy Park, Connection and Access Corridors, and Grid Connection Corridor(s).
EIA Scoping Site	Area considered in this EIA Scoping Report, comprising the Proposed Development.
EIA Scoping Site Boundary	Boundary of the EIA Scoping Site.
Energy Park	Area considered for Solar PV Arrays, BESS, On-Site Substations, and other associated infrastructure, as well as landscape and biodiversity mitigation and enhancement.
Energy Park Area A-F	Refers to the seven areas of the Energy Park (A, B-West, B-East, C, D, E and F)
Solar PV Array	A collection of multiple Solar PV Modules that connect to form a larger, complete power-generating unit.
Solar PV Module / Panel	A collection of multiple solar PV cells within a protective laminate. Also referred to as a Solar PV Panel.
Battery Energy Storage System (BESS)	An energy storage system that stores electrical energy generated by the Solar PV Modules and releases it on demand.
BESS Compound(s)	The area(s) within which the BESS and associated infrastructure would be located for the storage, import, and export of energy.
On-Site Substations	Collective term for the Main On-Site Substation and Collector Substation(s).
Main On-Site Substation	Compound containing 400kV electrical equipment that connects to the Point of Connection (A or B) via a Grid Connection Corridor.
Collector Substation(s)	Compounds containing electrical equipment in the Energy Park that connect via the Connection and Access Corridors to the Main On-Site Substation.
Energy Park Cabling	Cabling required to connect Solar PV Arrays to supporting infrastructure within the Energy Park.
Connection and Access Corridor	Area considered for routeing of Connection and Access Corridor Cabling and access tracks between Energy Park Areas A-F.

Term	Definition
Connection and Access Corridor Cabling	Up to 400kV overhead or underground cabling required to connect Energy Park Areas A-F, positioned within the Connection and Access Corridors.
Grid Connection Corridor(s)	Area considered for routeing of Grid Connection Cabling between the Main On-Site Substation and the Point of Connection (A or B). The Grid Connection Corridor will include the associated access routes from the highways network.
Grid Connection Cabling	400kV overhead or underground cabling, where possible utilising sections of the existing Bradwell-Rayleigh Overhead Line.
Bradwell-Rayleigh Overhead Line	Existing overhead line between the Rayleigh Grid Supply Point (GSP) Substation and the Former Bradwell Substation, comprising the existing overhead line (inclusive of existing towers and cabling).
Point of Connection	The point of connection to the Point of Connection Substation, either at Rayleigh GSP Substation (referred to as 'Point of Connection A'), or the Former Bradwell Substation (referred to as 'Point of Connection B'). Note the Point of Connection Infrastructure included within the Proposed Development is detailed in **Chapter 3: Proposed Development.**
Point of Connection Substation	Collective term for either Rayleigh GSP Substation or the Former Bradwell Substation.
Point of Connection Infrastructure	Infrastructure (such as electrical equipment) required to enable connection with a Point of Connection Substation.

1.2 Need for Environmental Impact Assessment

1.2.1 The Proposed Development is defined as an NSIP under Sections 14(1)(a) and 15(2)(c), as amended, of the Planning Act 2008 (Ref 1-1) as an onshore generating station in England with a capacity exceeding 100 MW. This means that consent to construct the Proposed Development must be sought via a DCO Application.

1.2.2 The requirement to undertake an EIA for NSIP developments is transposed into law through the EIA Regulations (Ref 1-2). The EIA Regulations specify which developments are required to undergo EIA. Schemes relevant to the NSIP planning process are listed under either of 'Schedule 1' or 'Schedule 2'. Those developments listed in Schedule 1 must be subject to EIA, while developments listed in Schedule 2 must only be subject to EIA if they are considered "*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*". The criteria on which this judgement must be made are set out in Schedule 3 of the EIA Regulations.

1.2.3 The Proposed Development is a 'Schedule 2' development under paragraph 3(a) of Schedule 2 of the EIA Regulations (Ref 1-2), as it constitutes an "*industrial installation for the production of electricity, steam and hot water*".

1.2.4 It is considered that due to its size, nature and location, the Proposed Development has the potential to have significant effects on the environment. The Applicant therefore confirms, under Regulation 8(1)(b) of the EIA Regulations, that an Environmental Statement (ES) will be provided in respect of the application for development consent (the 'DCO Application') for the Proposed Development, as it is considered that the Proposed Development meets the criteria set out in Schedule 3 of the EIA Regulations (Ref 1-2).

1.2.5 Following the completion of surveys, assessments and consultation processes outlined in this EIA Scoping Report, and taking into account the EIA Scoping Opinion, a DCO Application will be made to the SoS for determination in accordance with the Planning Act 2008 (Ref 1-1). The DCO Application will be accompanied by an ES, in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations) (Ref 1-3). The ES will set out the methods and findings of a comprehensive EIA undertaken in line with the EIA Regulations.

1.2.6 The Localism Act 2011 (Ref 1-4) appointed the Planning Inspectorate as the government agency responsible for administering the DCO process for NSIPs. The Planning Inspectorate on behalf of the SoS will appoint an Examining Authority who will examine the DCO Application for the Proposed Development and then make a recommendation to the SoS, who will in turn make the decision on whether to grant or refuse the DCO for the Proposed Development.

1.3 Legislative and Policy Context

1.3.1 This section provides an overview of the legislation and planning policy context relevant to the EIA of the Proposed Development, which has informed the scope and method of assessment presented in this EIA Scoping Report.

1.3.2 Legislation and planning policy that is relevant to the topic-specific technical assessments is provided within each environmental topic (**Chapters 7** to **17**) of this EIA Scoping Report.

1.3.3 In accordance with Section 104(2) of the Planning Act 2008 (Ref 1-1), the SoS is required to have regard to "*any National Policy Statement (NPS) which has effect in relation to development of the description to which the application relates*" amongst other matters, when deciding whether to grant a DCO. The Applicant considers that the Overarching NPS for Energy (EN-1) (Ref 1-5), NPS for

Renewable Energy Infrastructure (EN-3) (Ref 1-6) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 1-7) are the NPSs which are relevant for the Proposed Development's DCO Application.

1.3.4 The EIA approach adopted takes account of the NPS documents which have effect; as well as national and local planning policy and other important and relevant considerations in relation to decision making.

1.3.5 The National Planning Policy Framework (NPPF), updated in 2026, (Ref 1-8) sets out the Government's national planning policies for England. Paragraph 13 of the NPPF sets out that the NPPF "*does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include this Framework).*"

1.3.6 On this basis, the NPPF does not carry the same weight as the NPSs in decision-making but may still be important and relevant to the SoS' decision. In addition, the NPPF is supported by the Planning Practice Guidance (PPG) and NPS EN-1 does include footnote references to the PPG. Therefore, reference is made to the NPPF and PPG in this EIA Scoping Report, but in respect only of relevant matters.

1.3.7 Whilst the NPSs are the primary consideration in deciding applications for NSIPs, policies in Local Development Plans are also 'important and relevant' matters and can influence the content of local impact reports (which the host Local Planning Authorities (LPAs) produce following submission of DCO Applications), and which the SoS must have regard to in its decision making in accordance with Section 104(2)(b) of the Planning Act 2008 (Ref 1-1).

1.3.8 The Proposed Development is located within the administrative areas of Maldon District Council, Chelmsford City Council, Basildon Borough Council, Rochford District Council, and Essex County Council. The relevant Development Plans for the Proposed Development include the following:

a. Maldon District Approved Local Development Plan 2014 – 2029 (Adopted July 2017);
b. Rochford District Council Local Development Framework Core Strategy Adopted Version (Adopted December 2011);
c. Rochford District Council Local Development Framework Development Management Plan (Adopted December 2014);
d. Rochford District Council Local Development Framework Allocations Plan (Adopted February 2014);
e. Chelmsford Local Plan: Our Planning Strategy 2013 to 2036 (Adopted 27 May 2020);

f. Basildon District Local Plan Saved Policies September 2007;
g. Essex Minerals Local Plan (Adopted July 2014);
h. Essex and Southend-on-Sea Waste Local Plan (Adopted July 2017);
i. South Woodham Ferrers Neighbourhood Plan 2020-2036 (Made December 2021);
j. Burnham-on-Crouch Neighbourhood Development Plan (Made September 2017); and
k. Mayland Parish Council Neighbourhood Plan 2021-2042 (Made September 2025).

1.3.9 In addition, the following emerging local plans are pertinent to the Proposed Development since they are, or will be, at an advanced stage of preparation once the DCO Application is submitted:

a. Basildon Borough Local Plan 2023-2043 Regulation 19;
b. Chelmsford Local Plan Pre-Submission (Regulation 19) Document: Our Planning Strategy 2022 to 2041 (February 2025); and
c. Draft Rochford Local Plan Regulation 18 (February 2026).

1.3.10 The purpose of this EIA Scoping Report is not to assess the Proposed Development against planning policy; this will be undertaken and set out in a Planning Statement, a separate document that will be submitted as part of the DCO Application. The purpose of considering the above-mentioned planning policies at this EIA Scoping stage is twofold:

a. To identify policy that could influence the sensitivity of receptors (and therefore the significance of effects) and any requirements for mitigation; and
b. To identify planning policy that could influence the methodology of the EIA. For example, a planning policy may require the assessment of a particular impact or the use of a particular methodology.

1.4 Purpose and Structure of the EIA Scoping Report

1.4.1 The Applicant is making a formal request to the Planning Inspectorate, on behalf of the SoS, under Regulation 10(1) of the EIA Regulations to provide its written opinion as to the scope and level of detail of the information to be provided in the ES (this is referred to as the 'EIA Scoping Opinion').

1.4.2 An EIA Scoping Report is produced by an applicant to formally request an EIA Scoping Opinion. Although the EIA Scoping Opinion is sought from the SoS, the process is undertaken by the Planning Inspectorate on behalf of the SoS. An EIA Scoping Report provides information to support such a request and can be used

to help inform both the EIA Scoping Opinion and formal consultation with statutory environmental bodies by the Planning Inspectorate.

1.4.3 Regulation 10(3) of the EIA Regulations (Ref 1-2) sets out the requirements for requesting an EIA Scoping Opinion stating that the request (EIA Scoping Report) must include:

a. A plan sufficient to identify the land;
b. A description of the proposed development, including its location and technical capacity;
c. An explanation of the likely significant effects of the development on the environment; and
d. Such other information or representations as the person making the request may wish to provide or make.

1.4.4 The purpose of this EIA Scoping Report is therefore to fulfil these requirements and also to:

a. Provide a summary of the Proposed Development;
b. Set out the proposed scope of work and methods to be applied in carrying out the EIA;
c. Identify the likely significant environmental effects of the Proposed Development at an early phase of development to ensure they are considered and addressed throughout the design and consenting process;
d. Provide a justification and rationale for scoping out certain topics from further assessment (for example where no likely significant effects are predicted); and
e. Set out the proposed structure and coverage of the ES to be submitted with the DCO Application.

1.4.5 This EIA Scoping Report is set out in accordance with guidance provided by the Planning Inspectorate's 'Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment' (Ref 1-9). **Table 1-2** lists the suggested requirements identified in the Pre-Application Advice (Ref 1-9) and details where they are provided within this EIA Scoping Report.

Table 1-2: Contents of this EIA Scoping Report based on the Planning Inspectorate's Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment

Suggested EIA Scoping Report Contents	Location in this EIA Scoping Report
a description of all elements of the proposed development	**Chapter 3: Proposed Development**

Suggested EIA Scoping Report Contents	Location in this EIA Scoping Report
a description of the location of the proposed development	**Chapter 2: EIA Scoping Site and Surrounding Area**
referenced plans presented at an appropriate scale to ensure legibility and all known features associated with the proposed development	**Figure 1-1: Proposed Development Location Plan** **Figure 2-1: Environmental Constraints** **Figure 3-1: EIA Scoping Site and Proposed Development Components**
an explanation of the approach to addressing uncertainty in relation to elements of the proposed development where this remains, and the clear identification of where flexibility or optionality is likely to be sought	**Chapter 3: Proposed Development**
a description of the development phases and how each phase will be assessed in the ES (construction, operation (and maintenance), and decommissioning)	**Chapter 3: Proposed Development**
an outline of the reasonable alternatives studied and the reasons for selecting the preferred option including any views sought through consultation and/ or engagement and how these have informed decision-making – or, where alternatives remain under consideration, a description of how it proposes to select the preferred option(s) taking into account effects on the environment	**Chapter 4: Alternatives Considered**
results of desktop and baseline studies undertaken to date, where available	**Chapters 7 to 17 (Technical Topics)**
a detailed description of the aspects and matters proposed to be scoped out of further assessment with reasoning and supporting information provided	**Chapters 7 to 17 (Technical Topics)**
a summary table depicting each of the aspects and matters that are requested to be scoped out	**Chapter 19: Summary**
for aspects and matters to be scoped in, a description of the methods to be used to further refine baseline conditions and to assess the significance of effects	**Chapters 7 to 17 (Technical Topics)**
a summary of any measures proposed to avoid, reduce or prevent likely significant effects that are known at this stage and how they may be secured (with reference to a draft commitments register where relied upon to scope matters out)	**Chapters 7 to 17 (Technical Topics)** **Appendix 6-A: Environmental Mitigation and Commitments Register**

Suggested EIA Scoping Report Contents	Location in this EIA Scoping Report
references to any guidance and best practice to be applied when defining the baseline, assessing effects or prescribing mitigation	**Chapters 7 to 17 (Technical Topics)**
evidence of any agreements on the proposed scope of assessment with relevant bodies (e.g. the statutory nature conservation bodies or local authorities)	**Chapters 7 to 17 (Technical Topics)**
an outline of the structure of the proposed ES	**Chapter 18: Proposed Structure of the Environmental Statement**

1.4.6 A glossary and list of abbreviations is presented at the back of this EIA Scoping Report.

1.5 The Applicant

1.5.1 The Applicant is Dengie Peninsula Energy Park Limited, which is a subsidiary of Low Carbon Ltd (Low Carbon); a privately-owned renewable energy company.

1.5.2 Founded in 2011, Low Carbon is committed to making a positive and significant impact on climate change by investing in large-scale renewable energy projects across a range of energy technologies including utility scale solar, onshore wind and battery storage. Deploying capital at scale into renewables, it invests across the full life cycle from concept through to development, construction, and operation (and maintenance).

1.5.3 To date, Low Carbon has deployed more than £1 billion into building renewable infrastructure with more than 1 gigawatt (GW = 1,000 MW) of assets currently either in construction or operation. Its renewable energy pipeline currently stands at more than 16GW. Since becoming an Independent Power Producer (IPP), more than 450 gigawatt hours (GWh) of renewable energy has been produced from assets owned and operated by Low Carbon - the equivalent of more than 200,000 homes powered with clean electricity and around 150,000 tonnes of carbon dioxide equivalent (tCO2e) avoided annually.

1.5.4 Low Carbon has been active in large-scale solar energy since its formation in 2011. With an established track record in the UK, it also has operations across Europe.

1.6 ISEP Quality Mark

1.6.1 AECOM has prepared this EIA Scoping Report on behalf of the Applicant. AECOM is a Registered Impact Assessor with the Institute of Sustainability and Environmental Professionals (ISEP) (formerly known as IEMA) and holds the ISEP EIA Quality Mark as recognition of the quality of its EIA product and continuous training of its environmental consultants. A Statement of Competence will be included within the ES, outlining the relevant expertise or qualifications of the experts who prepared the ES.

1.7 References

Ref 1-1 HM Government, The Planning Act (2008). Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

Ref 1-2 HM Government, The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 1-3 HM Government, The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/2264/contents/made Accessed: October 2026

Ref 1-4 HM Government, The Localism Act (2011). Available at: https://www.legislation.gov.uk/ukpga/2011/20/contents Accessed: October 2026

Ref 1-5 Department for Energy Security and Net Zero (DESNZ), Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 1-6 DESNZ, National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 1-7 DESNZ, National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf Accessed: October 2026

Ref 1-8 Ministry of Housing, Communities and Local Government (MHCLG), National Planning Policy Framework (NPPF) (2026). Available at: https://assets.publishing.service.gov.uk/media/6aabe97844ec1aa417346c0b/National_Planning_Policy_Framework.pdf Accessed: October 2026

Ref 1-9 Planning Inspectorate, Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (2026). Available at:

https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-pre-application-advice-on-environmental-impact-assessment Accessed: October 2026

2. EIA Scoping Site and Surrounding Area

2.1 Introduction

2.1.1 The EIA Scoping Site is situated on the Dengie Peninsula, to the east of Chelmsford and located in the administrative areas of Essex County Council, Basildon Borough Council, Chelmsford City Council, Maldon District Council, and Rochford District Council. The EIA Scoping Site is approximately centred on National Grid Reference 601131, 201510. The total area of the EIA Scoping Site is approximately 5,500 hectares (ha).

2.1.2 The area of land potentially required for the construction, operation (and maintenance), and decommissioning of the Proposed Development is shown in **Figure 1-1: Proposed Development Location Plan**. It is important to note that this may be subject to change, but **Figure 1-1: Proposed Development Location Plan** shows the envisaged extent of temporary and permanent land take at this time.

2.1.3 The EIA Scoping Site consists of the Energy Park, Connection and Access Corridors, and Grid Connection Corridors as shown in **Figure 3-1: EIA Scoping Site and Proposed Development Components**. The EIA Scoping Site is likely to be refined as the Proposed Development design progresses, taking into account environmental and technical factors, and consultation responses.

2.2 Description of the EIA Scoping Site and Surrounding Area

2.2.1 The EIA Scoping Site is located on the Dengie Peninsula which includes the land between the River Blackwater to the north and the River Crouch to the south. The Dengie Peninsula is characterised by an area of low lying and very gently undulating landform, situated between 2m above ordnance datum (AOD) and 30m AOD, comprising mostly medium to large scale arable fields. The Dengie Peninsula is former salt and grazing marsh, which was drained to enable the current agricultural land uses, and due to this there are numerous ditches and watercourses dividing fields. The Dengie Peninsula is crossed by numerous Public Rights of Way (PRoW), including parts of the King Charles III England Coast Path and St Peter's Way.

2.2.2 Land uses across the northern part of the Dengie Peninsula include the Former Bradwell Nuclear Power Station and the disused Royal Air Force (RAF) Bradwell

Bay airfield. Bradwell-on-Sea is a small-scale settlement to the south of the disused RAF Bradwell Bay airfield, concentrated around St Thomas's Church. The existing Bradwell-Rayleigh Overhead Line extends across the northern part of the Dengie Peninsula, from the Former Bradwell Nuclear Power Station in the east to Rayleigh GSP Substation in the west.

2.2.3 Across the central part of the Dengie Peninsula, residential land uses are concentrated adjacent to the B1021 and include Tillingham and Asheldham. There are very small clusters of properties and intermittent farms beyond these settlements, located adjacent to the local road networks. Low lying arable land is the main land use between the B1021 and the coast, characterised by medium to large scale fields. There is a small scale gravel extraction facility bordering Asheldham.

2.2.4 The southern part of the Dengie Peninsula consists of the larger scale settlements of Southminster and Burnham-on-Crouch, which are connected by the Crouch Valley Line railway. The main land use is arable farming, characterised by large scale arable fields divided by numerous watercourses and ditches.

2.2.5 Renewable infrastructure across the Dengie Peninsula includes three onshore wind farms, with Bradwell Marsh wind farm in the northern part of the peninsula, Middlewick wind farm in the central part of the peninsula and Turncole wind farm in the southern part of the peninsula. The turbines across these schemes are approximately 125m in height (to blade tip). Burnham Wick solar farm is located in the southern part of the peninsula, between Burnham-on-Crouch and the Energy Park. There is also a single wind turbine at Burnham Wick farm.

2.3 Description of the Proposed Development Components

Energy Park

2.3.1 The Energy Park, as illustrated in **Figure 3-1: EIA Scoping Site and Proposed Development Components**, is located east of Bradwell-on-Sea, Tillingham, Asheldham, Southminster and Burnham-on-Crouch, within the administrative areas of Essex County Council and Maldon District Council.

2.3.2 The Energy Park includes the land required for the Solar PV Arrays, BESS, On-Site Substations and associated infrastructure. The Energy Park does not include the Connection and Access Corridors, or the Grid Connection Corridors, and is approximately 1,750ha in area.

Connection and Access Corridors

2.3.3 Connection and Access Corridors are included for consideration in this EIA Scoping Report to connect the various elements of infrastructure across the Energy Park via overhead or underground cables, as illustrated **in Figure 3-1: EIA Scoping Site and Proposed Development Components**. These Connection and Access Corridors would facilitate electrical connections between the Energy Park Area, BESS, the Main On-Site Substation and Collector Substation(s) and are located in the administrative areas of Essex County Council and Maldon District Council.

2.3.4 The alignment of the cabling within the Connection and Access Corridors has not yet been finalised and will be informed by ongoing surveys, stakeholder engagement, and design development. As the design progresses, defined cable alignments, or further refined cable route corridors, will be established for the purposes of assessment.

Grid Connection Corridors and Point of Connection

2.3.5 Electricity would be exported from the Main On-Site Substation to the Point of Connection (A or B) via new sections of up to 400kV Grid Connection Cabling (either underground, overhead or a mixture of both) and/or utilisation of sections of the existing Bradwell-Rayleigh Overhead Line, as illustrated in **Figure 3-1: EIA Scoping Site and Proposed Development Components**.

2.3.6 The Grid Connection Corridors are located in the administrative areas of Essex County Council, Basildon Borough Council, Chelmsford City Council, Maldon District Council, and Rochford District Council.

2.3.7 The Point of Connection Substation for the Proposed Development would be located either at Rayleigh GSP Substation or at the Former Bradwell Substation (currently decommissioned), referred to as 'Point of Connection A' and 'Point of Connection B' respectively. It should be noted that, with the exception of the Point of Connection Infrastructure (as detailed in **Chapter 3: Proposed Development**) required to enable connection with a Point of Connection Substation, the construction, operation (and maintenance) and decommissioning of the Point of Connection Substation does not form part of the Proposed Development which is to be the subject of the DCO Application.

2.4 Local Environmental Constraints

2.4.1 Several environmental receptors have been identified within, and in the vicinity of, the EIA Scoping Site, each of which is summarised below and shown on **Figure 2-1: Environmental Constraints**.

2.4.2 There are no internationally, nationally, regionally or locally designated nature conservation sites within the Energy Park, Connection and Access Corridors or Grid Connection Corridors. The existing Marine Transfer Facility (see **Chapter 3: Proposed Development** for further detail) included in the EIA Scoping Site is partly within multiple designated nature conservation sites (where the EIA Scoping Site Boundary extends to include the area of hardstanding and adjoining bank of the River Crouch), including the Essex Estuaries Special Area of Conservation (SAC), Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) Special Protection Area (SPA), and Crouch and Roach Estuaries Site of Special Scientific Interest (SSSI).

2.4.3 There are a number of other designated nature conservation sites within the study area(s) of the EIA Scoping Site. Key designated nature conservation sites within 10km of the EIA Scoping Site are listed below.

a. Internationally designated sites including: Dengie (Mid-Essex Coast Phase 1) SPA and Ramsar site, Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar site, Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar site, Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar site, Foulness (Mid-Essex Coast Phase 5) SPA and Ramsar site, Benfleet and Southend Marshes SPA and Ramsar site, the Abberton Reservoir SPA and Ramsar site, the Outer Thames Estuary SPA, and the Essex Estuaries SAC.
b. Nationally designated sites including: Sandbeach Meadows SSSI, Dengie National Nature Reserve (NNR) and SSSI, Crouch and Roach Estuaries SSSI and Blackwater Estuary NNR and SSSI.

2.4.4 A complete list of the statutory and non-statutory designated nature conservation sites within the relevant study areas is provided in **Section 10.5** of **Chapter 10: Ecology and Biodiversity.**

2.4.5 There are no World Heritage Sites, Registered Parks and Gardens, Conservation Areas, Scheduled Monuments, or Listed Buildings within the EIA Scoping Site.

2.4.6 There are no designated landscapes (National Landscape or National Park) within the EIA Scoping Site. The EIA Scoping Site is within National Character Area (NCA) 81: Greater Thames Estuary and NCA 111: Northern Thames Basin. The EIA Scoping Site includes Landscape Character Area (LCA) D7: Bradwell Drained Estuarine Marshes, LCA D8: Dengie Drained Estuarine Marsh, and LCA E2: Tillingham and Latchingdon Coastal Farmland.

2.4.7 The EIA Scoping Site includes a number of PRoW. The King Charles III England Coast Path is located within the EIA Scoping Site and follows the perimeter of the Dengie Peninsula.

2.4.8 The majority of the EIA Scoping Site is located within fluvial/tidal Flood Zone 3, with the exception of the inland Grid Connection Corridor A and northern parts of the Energy Park. Conversely the majority of the EIA Scoping Site is at a Very Low (<0.1% annual exceedance probability) risk of flooding from surface water.

3. Proposed Development

3.1 Introduction

3.1.1 As detailed in **Chapter 1: Introduction** of this Environmental Impact Assessment (EIA) Scoping Report, the Proposed Development comprises the construction, operation (and maintenance) and decommissioning of solar photovoltaic (PV) panels, interconnecting cables, energy storage, on-site substation(s) and other supporting infrastructure including fencing, access, drainage, and biodiversity and landscape enhancements at a proposed site near the villages of Bradwell-on-Sea and Dengie, and the town of Burnham-on-Crouch in Essex.

3.1.2 This chapter of the EIA Scoping Report provides a description of the Proposed Development infrastructure and equipment, and details the parameters and assumptions which have informed the scope of assessment presented in this EIA Scoping Report, including the:

a. Proposed Development infrastructure and equipment (see **Sections 3.2 – 3.4**); and
b. Anticipated construction, operation (and maintenance), and decommissioning programme and activities (see **Sections 3.55 – 3.7**).

3.1.3 **Table 1-1** in **Chapter 1: Introduction** provides a list of the key terminology regarding the Proposed Development used within this EIA Scoping Report for reference. **Figure 3-1: EIA Scoping Site and Proposed Development Components** illustrates the location of the Proposed Development components discussed in this chapter.

3.1.4 It should be noted that, with the exception of the Point of Connection Infrastructure required to enable connection with a Point of Connection Substation (as set out at paragraph 3.2.14), the construction, operation (and maintenance) and decommissioning of the Point of Connection Substation does not form part of the Proposed Development which is to be the subject of the Development Consent Order (DCO) Application.

3.2 Description of the Proposed Development Infrastructure and Equipment

3.2.1 The Proposed Development is currently anticipated to consist of the below components. Refer to the relevant Table in **Section 3.4** which details each

Proposed Development component's design parameters and has informed the scope of assessment presented in this EIA Scoping Report.

Solar PV Modules

3.2.2 Solar PV Modules convert sunlight into electrical current (as direct current (DC)). Individual panels are typically up to 2.4m in length and up to 1.4m wide and consist of a series of PV cells beneath a layer of toughened glass (see **Plate 3-1**). Solar PV technologies are developing rapidly, and different generation capacity modules may be available at the time of construction.

3.2.3 Each Solar PV Module could have an approximate DC generating capacity of between 400 and 900 watts (W) or more depending on advances in technology at the time of construction. The Solar PV Modules are fixed to a mounting structure in groups known as 'strings'. Various factors inform the number and arrangement of modules in each string, and it is likely some flexibility will be required to accommodate future technology developments (refer to **Section 3.3** of this chapter).

Solar PV Module Arrays and Mounting Structures

3.2.4 There are various types of Solar PV Module mounting structures, which are typically built from anodised aluminium and galvanised steel. While fixed south facing mounts are historically the most common for solar PV facilities in the UK, the ongoing technological advances and economic considerations make other options increasingly more feasible. The type of Solar PV Module mounting structures to be used for the Proposed Development is currently being evaluated, with flexibility retained at this stage for the following options:

a. Single Axis Tracker (SAT) (see **Plate 3-1**) – Solar PV Modules are fixed to a motorised frame that tilts the Solar PV Modules on a horizontal north-south axis, tracking the sun from east to west for optimal power generation during the day.
b. Fixed South Facing (FSF) Arrays (see **Plate 3-1**) – Solar PV Modules are arranged in rows running from east to west facing to the south at a fixed tilt.

3.2.5 Each string of Solar PV Modules would be mounted on a metal rack, known as a frame. The frames are usually supported by galvanised steel poles driven into the ground. The option to install concrete blocks, known as 'shoes' may also be considered where necessary.

3.2.6 The parameters for both SAT and FSF Solar PV Arrays are presented in **Table 3-1** below. These parameters are indicative at this stage as the final elevations of the Solar PV Modules will be influenced by factors including local topography,

environmental constraints (e.g. flood risk), inter-row shading, and maintenance access. Where relevant, the technical chapters (**Chapters 7** to **17**) of this EIA Scoping Report consider which option will present the reasonable worst-case scenario and the potential assessment implications associated with each option.

Plate 3-1: Solar PV Arrays and Mounting Structures



(left: SAT Array; right: FSF Array)

Battery Energy Storage System (BESS)

3.2.7 The Proposed Development will include an associated BESS at one or more locations within the Energy Park. A battery-based electricity storage system is assumed; and will allow the storage of energy generated by the Solar PV Modules at times of low demand and release energy to the National Grid at times when demand is high or when solar irradiance is lower, known as load shifting. The BESS will also have the ability to import power as a balancing mechanism to support the National Grid.

3.2.8 The type of BESS is currently being evaluated, with flexibility retained at this stage for a 'centralised' or 'distributed' BESS. Under a centralised BESS strategy all of the BESS will be sited within a single BESS Compound(s) situated adjacent to (or in close proximity to) the Main On-Site Substation. Under the distributed strategy the BESS may be sited in separate compounds across multiple Energy Park Areas (typically adjacent to or in close proximity to) the Collector Substations.

3.2.9 The BESS will be housed in individual containers, the quantity of which will depend upon the volume of energy storage required. The containers will be located on areas of hardstanding and supported by ancillary infrastructure such as inverters, transformers and switchgear.

Substation(s)

Collector Substation(s)

3.2.10 The Collector Substation(s) would consist of electrical infrastructure such as transformers, switchgear and metering equipment required to facilitate the transmission of electricity from the Energy Park to the Main On-Site Substation. The Collector Substations would operate at voltages up to 400kV.

3.2.11 The Collector Substation compounds would also include parking areas, switch rooms and a control building containing office space and welfare facilities as well as operation monitoring and maintenance equipment.

Main On-Site Substation

3.2.12 The Main On-Site Substation would consist of electrical infrastructure such as transformers, switchgear and metering equipment required to facilitate the export of electricity from the Energy Park to the National Grid. The Main On-Site Substation would operate at up to 400kV and would be located in the Energy Park.

3.2.13 The Main On-Site Substation compounds would also include parking areas, switch rooms and a control building containing office space and welfare facilities as well as operation monitoring and maintenance equipment.

Point of Connection Infrastructure

3.2.14 The following works may be required to connect to the Point of Connection Substation:

a. New or modified incoming bay(s);
b. New or modified termination tower(s);
c. Cable sealing ends (for underground cable entry into National Grid Electricity Transmission (NGET) substation); and / or
d. Overhead cable gantries (overhead cable entry into Rayleigh GSP Substation).

3.2.15 The Proposed Development Point of Connection infrastructure would consist of busbars, overhead conductors, circuit breakers and associated civil infrastructure.

Ancillary Infrastructure

Transformers

3.2.16 Low Voltage / Medium Voltage (LV/MV) transformers are required to control the voltage of the electricity generated by the solar PV modules. Transformers can be positioned outdoors or housed in a PCU.

Switchgear

3.2.17 Switchgear are the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect, and isolate electrical equipment. Switchgear are used both to de-energise equipment to allow work to be done and to clear faults downstream. Switchgear are generally located within or adjacent to the transformer housing.

Plate 3-2: Ancillary Infrastructure



(left: typical transformer cabin (including switchgear); middle: typical transformer (without enclosure); right: typical switchgear in standalone cabin)

Inverters

3.2.18 Inverters are required to convert the DC electricity collected by the solar PV modules into alternating current (AC), which allows the electricity generated to be exported to the National Grid. The type of inverters to be used for the Proposed Development is currently being evaluated, with flexibility retained at this stage for:

a. Centralised Inverters housed within the PCUs (or standalone units); and/or
b. Distributed (also known as 'String') Inverters mounted to (or in close proximity to) the solar PV module mounting structures.

Plate 3-3: Inverters



(*left: typical centralised inverter (without enclosure); right: typical string inverter (image reproduced courtesy of Huawei))*

Power Conversion Units (PCUs)

3.2.19 A PCU consolidates the above ancillary infrastructure (inverters, transformers, and switchgear) either housed within a container or grouped together as isolated pieces of equipment. The PCUs would be distributed throughout the Energy Park.

Cabling

3.2.20 Electrical cabling to connect the electrical infrastructure will be required across the Proposed Development. The electrical design is currently under development and therefore each technical chapter of this EIA Scoping Report considers the relevant worst-case installation scenario of electrical cabling at a range of operating voltages (up to 400kV). At this stage, flexibility has been retained for locating cabling in the Connection and Access Corridor Cabling and Grid Connection Corridor Cabling in either underground trenches or on overhead lines (or a combination of both).

3.2.21 **Figure 3-1: EIA Scoping Site and Proposed Development Components** illustrates the location of the proposed cabling across the EIA Scoping Site, including:

a. Energy Park Cabling would be located in the Energy Park;
b. Connection and Access Corridor Cabling would connect the Energy Park Areas and be located across the Energy Park and Connection and Access Corridors; and
c. Grid Connection Cabling would be located across the Energy Park and in the Grid Connection Corridors.

3.2.22 The construction working widths of the cabling in **Table 3-5** are indicative and would be narrowed at sensitive crossings and widened when adjacent to overhead line tower or trenchless crossing launch/reception pits (underground).

3.2.23 Data / fibre optic cables would also be installed, typically alongside the electrical cables to allow for monitoring during operation, such as the collection of power and irradiance data.

Energy Park Cabling

3.2.24 Energy Park Cabling would connect the Solar PV Modules and BESS to the inverters (either centralised or distributed), to the transformers, to the switchgear, to the Collector Substation(s). Cabling will be either above ground (routed along framework) or undergrounded.

Connection and Access Corridor Cabling

3.2.25 Connection and Access Corridor Cabling, likely 33kV up to 400kV, either in underground trenches or on overhead lines (or a combination of both), would connect the Collector Substation(s) to the Main On-Site Substation via the Connection and Access Corridors.

Grid Connection Cabling

3.2.26 400kV Grid Connection Cabling would connect the Main On-Site Substation to either:

a. Point of Connection A: Grid Connection Cabling would be sited in Grid Connection Corridor(s) A, B and / or C. Grid Connection Corridor A which is located along the existing decommissioned Bradwell-Rayleigh Overhead Line connects the Energy Park to the existing Rayleigh GSP Substation. Works required under this option are to be confirmed in consultation with NGET, but may include a combination of:

   i. Re-stringing existing overhead line tower;
   ii. Refurbishment / modification of existing overhead line tower;
   iii. New overhead line following similar route to existing decommissioned Bradwell-Rayleigh Overhead Line;
   iv. Underground routing along parts of the existing decommissioned Bradwell-Rayleigh Overhead Line alignment; and/or
   v. New sections of 400kV cabling (either OHL or underground) connecting the Main On-Site Substation to the Bradwell-Rayleigh Overhead Line.

b. Point of Connection B: Grid Connection Cabling, either OHL or underground, would be sited in Grid Connection Corridor D to connect the

Main On-Site Substation to a new Point of Connection Substation at the Former Bradwell Substation.

Cable Sealing End Compounds

3.2.27 Cable sealing end compounds would be required where an OHL changes to an underground cable, or back again. It allows a section of a connection to be undergrounded, for example to pass beneath an existing overhead line or another constraint, or to enter a substation. The compound typically contains a terminal OHL tower where the overhead conductors are carried down to the sealing ends by steel gantries and support structures as well as associated equipment. The equipment is mounted on concrete foundations, which are enclosed by palisade security fencing.

Other Infrastructure

Existing Marine Transfer Facility

3.2.28 Flexibility is retained at this stage to utilise an existing Marine Transfer Facility, located at the southern extent of the Energy Park within Energy Park Area E, adjoining the River Crouch, to facilitate the import of construction materials (including abnormal indivisible loads (AILs) such as the 400kV transformer(s)) to the Energy Park.

3.2.29 This facility comprises an area of existing hardstanding (approximately 5,000m^2 in area). Under this option, a large crane would be placed on the hardstanding within the Marine Transfer Facility to lift deliveries from a vessel or barge on the River Crouch, before being transported to its operational location within the Energy Park. No works will be undertaken within the marine realm below Mean High Water Springs (MHWS) should this option be utilised.

3.2.30 This Marine Transfer Facility was originally developed and utilised by Blue Energy, for the delivery of turbine components during construction of Middlewick Wind Farm (see **Plate 3-4**, which illustrates the use of the Marine Transfer Facility during construction). This wind farm was completed in June 2014. This facility was subsequently used for the delivery and construction of Turncole Wind Farm, which was delivered in January 2017, and was proposed for use in the recent Dengie Marshes Wind Farm application.

3.2.31 The relevant management plans submitted with the DCO Application (e.g., the Outline Construction Environmental Management Plan (Outline CEMP)) will secure the required controls, reports and consents via a Requirement of the DCO should the Marine Transfer Facility option be retained at the DCO Application stage.

Plate 3-4: Use of the Marine Transfer Facility during construction of the Middlewick Wind Farm development



Fencing and Security

3.2.32 A security fence would enclose the operational areas of the Energy Park. The various types of fencing (see **Plate 3-5**) would include:

a. Wire stock-proof fencing enclosing fields of Solar PV Array;
b. Metal palisade fencing enclosing the substations and any outdoor transformers or switchgear in line with relevant standards; and
c. Acoustic fencing (if required) enclosing the BESS.

3.2.33 Where Public Rights of Way (PRoW) cross the Energy Park, fencing would be installed on both sides with an appropriate offset to the PRoW and possible screening measures such as vegetation. Clearances above ground, or the inclusion of mammal gates would be included to permit the passage of wildlife.

Plate 3-5: Fencing



(left: wire stock-proof fencing; right: metal palisade fencing)

3.2.34 Pole mounted Closed-Circuit Television (CCTV) systems, infrared cameras, and motion sensors are also likely to be deployed around the perimeter of the operational areas of the Energy Park. It is anticipated that these would be up to 5m in height. The CCTV systems would have fixed views and would be aligned to face along the fence and therefore would not encroach on any private land.

3.2.35 It is likely that lighting sensors for security purposes would be deployed around the electrical infrastructure and potentially at other pieces of critical infrastructure. No areas of the Proposed Development are proposed to be continually lit.

Haul Roads and Access Improvements

3.2.36 It is anticipated that internal haul roads would be required across the EIA Scoping Site to facilitate access to the Proposed Development. Haul roads would be located within the Energy Park, Connection and Access Corridors and Grid Connection Corridors.

3.2.37 Haul roads would follow the alignment of existing agricultural tracks, where possible. New internal haul roads would typically be compacted stone tracks with slopes on either side. Where drainage is required, a ditch or a swale may be located downhill of the internal access track to control any potential for surface water run-off.

3.2.38 Access improvements to the local road network would facilitate construction traffic and/or operational traffic. Examples of access improvements include improved junction geometry and widening, visibility splay clearance, and construction of passing places and laybys.

Drainage and Utilities

3.2.39 The detailed operational drainage design will be carried out pre-construction with the objective of ensuring that drainage of the land to the present level is maintained. It would follow either the design of a new drainage system taking into account the proposed new infrastructure (access tracks, cable trenches, structure foundations) to be constructed, or, if during the construction of any of the infrastructure, there is any interruption to existing schemes of land drainage, then new sections of drainage would be constructed.

3.2.40 The design of new drainage systems will be based on the Flood Risk Assessment (FRA), hydrological assessment and the Outline Drainage Strategy to be undertaken and provided as part of the DCO Application. Infiltration drainage design will be in accordance with relevant design standards.

3.2.41 The construction of the Proposed Development may require the diversion of existing utilities and services.

Biodiversity and Landscaping

3.2.42 The existing hedgerows, woodland, ditches, ponds and field margins would be retained within the layout of the Proposed Development, with the exception of small breaks and/or crossings required for new access tracks, security fencing and cabling. Any breaks or crossings will be designed where possible to use existing agricultural gateways / tracks between the fields and the width of any new breaks will be kept to a minimum.

3.2.43 The Proposed Development would involve field boundary enhancement and planting of seed mixes within the Energy Park. Planting of hedges and small trees would also be used to provide screening where suitable. Minimum offsets from solar infrastructure and ecological features would be incorporated within the design.

3.2.44 The enhancements and planting would increase biodiversity throughout the landscape and contribute to the Proposed Development aiming to achieve a Biodiversity Net Gain (BNG) greater than the minimum 10% required by the Environment Act 2021 (Ref 3-1).

3.2.45 An Outline Landscape and Ecological Management Plan (Outline LEMP) will support the DCO Application and will secure relevant mitigation and enhancement measures via a Requirement of the DCO.

3.3 The Rochdale Envelope

3.3.1 The Environmental Statement (ES) that accompanies the DCO Application will set out the parameters that have been assessed as part of the EIA, including

details on the size (footprint, width, and height in metres to above ground level, technology and locations of the different elements of the Proposed Development described above as relevant. The ES chapter will be supported by drawings and elevations as required.

3.3.2 However, due to the evolving nature of the Proposed Development technology the parameters of the DCO will maintain flexibility to allow the latest technology to be utilised at the time of construction. The amount of flexibility required will depend upon the progress of the design at the stage that the detailed EIA work is undertaken, and the level of flexibility the Applicant wishes to retain within the DCO Application.

3.3.3 The Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (Ref 3-2) provides guidance regarding the degree of flexibility that may be considered appropriate within an application for development consent under the Planning Act 2008 (Ref 3-3) and the application of the 'Rochdale Envelope' to ensure a robust assessment of the likely significant environmental effects of the Proposed Development. As detailed in this chapter of the EIA Scoping Report, several technical parameters have yet to be finalised for the Proposed Development and flexibility has been retained at this stage to allow for optionality in the Proposed Development.

3.3.4 Where certain aspects / parameters of the Proposed Development require design flexibility, the technical assessments will assess an 'envelope' within which the works will take place, and consider reasonable worst-case assessment scenarios. As such, the DCO Application and EIA will be based on maximum and, so far as appropriate, minimum parameters or limits of deviation, and will assess a reasonable worst-case scenario where flexibility is retained in Proposed Development components.

3.3.5 To remain in accordance with the EIA Regulations, it will be essential that the parameters are as 'limited' as possible to ensure that 'likely significant effects' are identified, rather than unrealistically amplified effects, which could be deemed to be unlikely. It is proposed to use the defined parameters below for the Proposed Development in each relevant technical assessment, with each technical assessment defining its reasonable worst-case basis of assessment.

3.3.6 The key elements of the Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment in relation to the Proposed Development are set out below:

a. The application should acknowledge the need for details of a project to evolve, within clearly defined parameters;

b. The EIA should take account of the need for evolution within those parameters, and reflect the likely significance of such a flexible project in the ES;
c. Within those defined parameters, the level of detail of the proposals must be such as to enable a proper assessment of the likely significant environmental effects and the identification of mitigation measures, if necessary considering a range of possibilities: "*the assessment may conclude that a particular effect may fall within a fairly wide range. In assessing the 'likely' effects, it is entirely consistent with the objectives of the Directive to adopt a 'worst case' approach. Such an approach will then feed through into the mitigation measures envisaged. It is important that these should be adequate to deal with the worst case, to optimise the effects of the development on the environment*"; and
d. It is for the decision maker in granting consent, to impose conditions to ensure that the process of evolution keeps within the parameters applied for and assessed.

3.3.7 The advice outlined above has been followed during the preparation of this EIA Scoping Report to identify and refine the scope of environmental topics and will continue to be applied throughout the EIA process.

3.4 Proposed Development Infrastructure Parameters

3.4.1 **Table 3-1** to **Table 3-6** below set out the parameters that have been used by each of the technical topics in this EIA Scoping Report to scope the proposed approach and methodology for further assessment.

3.4.2 As the Proposed Development design evolves in response to the environmental assessment and consultation processes (which run in parallel), the assumed maximum or minimum parameters may be further refined from those set out in this EIA Scoping Report. The relevant maximum and minimum parameters assessed in the ES will be set out in an ES chapter and also within a Proposed Development Parameters Document (or equivalent) submitted with the DCO Application and secured by Requirement in the DCO, thereby ensuring that the development that comes forward is in line with the parameters sought for approval by the DCO Application and assessed in the ES.

Table 3-1: Solar PV Infrastructure Parameters

Component	Parameter Type	Design Parameter
Solar PV Infrastructure	Location	Within the Energy Park

Component	Parameter Type	Design Parameter
Solar PV Arrays	Array Type	Option A: Single Axis Tracker (SAT); Option B: Fixed South Facing (FSF)
	Orientation	Option A (SAT): +/- 60 degrees from horizontal; Option B (FSF): fixed tilt angle at 10-45 degrees from horizontal
	Separation distance (between rows)	Option A (SAT): 2-8m; Option B (FSF): 2-12m
	Minimum Height of the lowest part of the Solar PV Module above ground level (agl)	TBC following flood risk modelling (typically 400mm to 800mm (at maximum tilt for SAT))
	Maximum Height of the Solar PV Modules agl	Option A (SAT): 4.5m at maximum tilt; Option B (FSF): 4m
Solar PV Module and Mounting Structures	Solar PV Module Type	Monofacial or bifacial
	Framework Type/Material	Galvanised steel or anodised aluminium framework supported on mounting posts.
	Foundations	Driven piles *Alternative installation (e.g. helical piles or concrete shoes) may be required if dictated by specific ground conditions or other constraints*

Table 3-2: BESS Parameters

Component	Parameter Type	Design Parameter
BESS	Location	Within the Energy Park, either centralised or distributed
	Total Area	Up to 28ha (280,000m^2)
	Maximum Equipment Height	4.5m
	Control Room / Switchroom / Associated Infrastructure	TBC at detailed design - contained within parameters of overall compound area / height

Table 3-3: Substation(s) Infrastructure Parameters

Component	Parameter Type	Design Parameter
Collector Substation(s) (up to 400kV)	Location(s)	Energy Park Areas A, B-West, B-East, C, D, E, and F
	Compound Area(s)	Up to 4ha (40,000m^2) per Collector Substation

Component	Parameter Type	Design Parameter
	Maximum Equipment Height	Electrical Equipment Height: 15m (400kV), 9m (132kV), or 6m (33kV) Lightning Arresters Height: 20m (400kV), or 12m (132/33kV)
	Control Room / Switchroom / Associated Infrastructure	TBC at detailed design - contained within parameters of overall compound area / height
Main On-Site Substation	Location	Energy Park Areas A, B-West, B-East, C, or D
	Compound Area	Up to 9ha (90,000m²)
	Maximum Equipment Height	Electrical Equipment Height: 15m (400kV) Lightning Arresters Height: 20m (400kV)
	Control Room / Switchroom / Associated Infrastructure	TBC at detailed design - contained within parameters of overall compound area / height
Point of Connection Infrastructure	Location	At either Point of Connection A or B *(note that the Proposed Development does not include Point of Connection Substation itself)*
	Compound Area	Up to 3ha (30,000m²)
	Maximum Equipment Height	Electrical Equipment Height: 20m Lightning Arresters Height: 25m

Table 3-4: Ancillary Infrastructure Parameters

Component	Parameter Type	Design Parameter
Power Conversion Units (PCUs) (including transformers, inverters (if centralised) and switchgear)	Location	Within the Energy Park
	Maximum Footprint	60m² per PCU
	Maximum Equipment Height	3.5m
Inverters	Location	Within the Energy Park
	Inverter Type	Option A: Centralised Inverters housed within the PCUs Option B: Distributed Inverters mounted to the Solar PV Module mounting structures
Other outdoor electrical equipment (e.g. standalone DC combiner boxes, string	Location	Within the Energy Park
	Maximum Footprint	40m² per unit
	Maximum Equipment Height	3.5m

Component	Parameter Type	Design Parameter
inverters, transformers or switchgear stations)		

Table 3-5: Cabling Parameters

Component	Parameter Type	Design Parameter
Underground Cabling	Location	Within the Energy Park, Connection and Access Corridors, and Grid Connection Corridor(s)
	Voltage	Option A: 33kV Option B: 132kV Option C: 400kV *Nb. Energy Park cabling will also include low voltage string cabling*
	Typical Construction Working Width (m)	Option A (33kV): 25-35m Option B (132kV): 30-45m Option C (400kV): 40-50m *(depending on number of circuits and spacing requirements)* Typical working widths will be narrowed at sensitive crossings, with the potential requirement to increase adjacent to construction compounds or Horizontal Directional Drilling (HDD) launch / reception pits, as required.
	Typical Trench Dimensions	Width: 1m to 2.5m Depth: 0.9m to 2.5m *(These are typical dimensions for single cable trench. Overall trench dimensions will vary depending on number of circuits. Multiple trenches may be required depending on the number of circuits)*
	Proposed Crossing Methodologies	Open cut or trenchless techniques (e.g. HDD, Thrust Bore, Auger Boring or similar trenchless techniques)
	Trenchless Crossing Minimum Clearance	Minimum clearance: 2m below feature (e.g. bottom of watercourse) (unless agreed otherwise with relevant asset owners)
	Trenchless Crossing Launch / Reception Pit Compound Dimensions	50m x 50m (minor HDD crossings) 100m x 100m (major crossings)
	Typical Buried Cable Joint Bay Frequency	Every 400m to 1km

Component	Parameter Type	Design Parameter
Overhead Lines	Location	Within the Energy Park, Connection and Access Corridors and Grid Connection Corridor(s)
	Voltage	Option A: 33kV Option B: 132kV Option C: 400kV
	Tower Type	Option A (33kV): Wooden or metal pole (single or twin H-pole) Option B (132kV): Wooden or metal pole (single or twin H-pole) or Steel lattice tower Option C (400kV): Lattice Tower
	Maximum Tower Height	Option A (33kV): 18m Option B (132kV): 25m (wooden or metal pole) or 40m (lattice tower) Option C (400kV): 60m
	Typical Tower Spacing	Option A (33kV): 50-100m Option B (132kV): 50-100m (wooden or metal pole) or 200-300m (lattice tower) Option C (400kV): 300-400m
	Typical Construction Working Width	Option A (33kV): 20-50m Option B (132kV): 30-60m Option C (400kV): 50-60m (up to 100m at tower locations) *(depending on number of circuits)*
Cable Sealing End Compounds	Maximum Compound Area	Option A (33kV): N/A Option B (132kV): 35m x 35m Option C (400kV): 50m x 50m
	Maximum Equipment Height	As per Overhead Line Maximum Tower Height above

Table 3-6: Other Infrastructure Parameters

Component	Parameter Type	Design Parameter
Haul Roads	Location	Within the Energy Park, Connection and Access Corridors and Grid Connection Corridor(s)
	Description	Internal haul roads constructed of compacted stone will follow alignment of existing agricultural tracks where possible
	Maximum Width	8m
Perimeter Fencing	Type and Height	Solar PV Arrays: Stock fencing up to 3m

Component	Parameter Type	Design Parameter
		BESS, On-Site Substations, Ancillary Infrastructure: Metal palisade fencing up to 4m
Security	CCTV Tower Maximum Height	5m
	Lighting Tower Maximum Height	10m

3.5 Construction Programme and Activities

Construction Programme

3.5.1 Subject to being granted consent and following a final investment decision, the anticipated construction start year is 2030, with the full construction period anticipated to be up to 48 months in duration. Operation of the Proposed Development is likely to be phased, based on the phased grid connection agreements held by the Applicant, whereby different approaches to the sequencing of construction are possible. As such, the construction assessments adopted in the ES will consider a reasonable worst-case scenario relevant to the respective technical topic, assuming that the Proposed Development is built out over a period of 48 months (i.e. up to 2034), or a shorter construction period where this scenario is considered more likely to give rise to greater effects. The ES will provide further details of the construction activities, their anticipated duration, and indicative programme of each phase of construction work and will assess a reasonable worst-case construction programme scenario for each technical discipline.

Indicative Construction Activities

3.5.2 The types of construction activities that are likely to be required include (non-exhaustive and not necessarily in order):

a. Proposed Development preparation to include:

i. Import of construction materials, plant, and equipment to site;
ii. The establishment of construction compound(s), fencing and security measures;
iii. Clearance of vegetation where required;
iv. Upgrading of existing access tracks and highways;
v. Construction of new access tracks, including new and existing access points / bell-mouths and highways connections;
vi. The upgrade or construction of crossing points (bridges / culverts) over drainage ditches and other watercourses as required; and

vii. Marking out the location of the infrastructure.

b. Energy Park construction to include:

i. Import of components to site;
ii. Construction of foundations;
iii. Erection of Solar PV Module mounting structures;
iv. Mounting of Solar PV Modules;
v. Installation of ancillary infrastructure (including inverters, transformers and switchgear);
vi. Installation of BESS units;
vii. Construction of On-Site Substations compounds;
viii. Construction of site buildings and other infrastructure.

c. Cable installation (overhead and underground cabling) to include:

i. The establishment of mobilisation areas and running tracks;
ii. Temporary construction compounds (to be located on or near cable route, which are yet to be determined);
iii. Underground cabling installation would require stripping of soil (with top and subsoil stored separately) and trenching in sections; excavation and installation of cable joints; and implementation of trenchless crossing methodologies for watercourses, infrastructure (including roads and rail), and sensitive habitats.
iv. Overhead line cabling installation would require temporary pads for cranes and piling adjacent to new overhead line tower locations; excavation at overhead line tower bases; erection of overhead line tower; and pulling of overhead line cables. The refurbishment of the existing Bradwell-Rayleigh Overhead Line could include the re-stringing, refurbishment and modification of existing towers, which may in turn require foundation modifications / new tower foundations and the decommissioning / dismantling of old towers.

Construction Site Access

3.5.3 The Proposed Development has retained flexibility for AIL access to be via either the existing local road network and/or the Marine Transfer Facility at the southern extent of the Energy Park on the River Crouch, as discussed in **Section 3.2**.

3.5.4 All construction access routes will be confirmed as the Proposed Development design progresses and in consultation with the relevant authorities. Swept path analysis at access/egress points will be undertaken to determine if land acquisition or road widening is required for abnormal loads or to facilitate

visibility splays. It is anticipated that AILs would be required for some of the High Voltage (HV) transformers and other equipment.

3.5.5 Based on the preliminary construction material and equipment requirements, and assuming shorter, worst-case construction programme from a traffic and transport perspective, peak road network construction movements are anticipated to exceed 100 Heavy Goods Vehicles (HGVs) deliveries daily. This number is indicative, excludes construction staff transportation and ancillary construction traffic, and is subject to refinement. A reasonable worst-case scenario will be assessed as relevant in the ES.

3.5.6 An Outline Construction Traffic Management Plan (Outline CTMP) will be developed and submitted with the DCO Application.

Construction Staff

3.5.7 Based on other similar sized solar projects, and assuming a shorter, worst-case construction programme from a peak construction staff perspective, it is estimated that during the peak construction period up to 750 construction staff per day would be required to work on the Proposed Development.

Construction Environmental Management

3.5.8 An Outline CEMP will accompany the DCO Application and describe the mitigation measures and best practice guidance to be employed during the construction phase. The Outline CEMP will form the framework for a detailed CEMP or CEMPs that will be agreed with the Local Planning Authorities prior to construction.

3.5.9 The aim of the CEMP is to reduce impacts and promote best practice such as those listed below:

a. Use of land for temporary laydown areas, accommodation etc;
b. Construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closure (if required);
c. Noise and vibration;
d. Utilities diversion;
e. Dust generation;
f. Ecological mitigation;
g. Water pollution prevention measures; and
h. Waste management.

3.5.10 The Detailed CEMP would be produced by the appointed Principal Contractor following grant of the DCO and prior to the start of construction as part of a Requirement attached to the DCO. The Outline CEMP will identify the

procedures to be adhered to and managed by the Principal Contractor throughout construction.

Site Reinstatement and Habitat Creation

3.5.11 Following construction, a programme of site reinstatement and habitat creation would commence. An Outline LEMP would be submitted alongside the DCO Application. The Outline LEMP would set out the principles for how the land would be managed throughout the operational phase, following completion of construction. The Detailed LEMP would be submitted to the planning authority for approval following the grant of consent and would need to accord with the Outline LEMP. The LEMP would be considered a live document which would be updated/refined (where required). The LEMP would be secured by Requirement of the DCO.

3.6 Operation (and Maintenance) Programme and Activities

3.6.1 The design life of the Proposed Development is expected to be 40 years, with the DCO seeking consent for this duration of operation.

3.6.2 During the operation (and maintenance) phase, activity on the Energy Park would be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, periodic inspections and monitoring to allow for the continued effective operation of the Proposed Development.

3.6.3 The Proposed Development would require a small amount of electricity to serve on-site loads (e.g. lighting and control equipment), which would be met through a combination of on-site generation, BESS discharge and / or import from the National Grid.

3.6.4 Operation (and maintenance) and emergency access will be determined as the Proposed Development design progresses and in consultation with Essex County Council as the local Highways Authority.

3.6.5 It is anticipated that there would be approximately 20 - 25 full-time workers employed onsite carrying out maintenance and upkeep during the operation (and maintenance) phase. This is indicative and, depending on the nature and complexity of any maintenance activity, could require more workers and equipment.

3.6.6 It is expected that throughout this period, faulty or damaged Solar PV Modules and other components may require replacement or refurbishment as part of

regular maintenance activities during the design life of the Proposed Development. Replacement works will be considered where relevant within the ES technical assessments as part of the operational (including maintenance) assessment.

3.6.7 An Outline Operation Environmental Management Plan (Outline OEMP) will accompany the DCO Application, which will describe the framework of operational (and maintenance) mitigation measures as identified in the ES to be followed, and carried forward to a detailed OEMP submitted to the planning authority for approval prior to operation.

3.7 Decommissioning Programme and Activities

3.7.1 Under a Requirement of the DCO, decommissioning works will commence no later than 40 years following the date of final commissioning, therefore securing this duration. The Proposed Development equipment would be reviewed at the end of its design life to determine whether it remains in a viable condition to continue operation after that time. Should the design life of the Proposed Development be proposed to be extended, this would be subject to the necessary process and consent(s).

3.7.2 When the operation (and maintenance) phase ends, the Energy Park would be decommissioned. All solar PV modules, solar PV module mounting structures, inverters, transformers, switchgear, BESS, buildings, and fencing would be removed from the Energy Park and recycled or disposed of in accordance with good practice and market conditions at that time. It is anticipated that foundations / piles would be removed or cut back below ground level as appropriate. The future of the cabling within the Grid Connection Corridor(s) and Connection and Access Corridor(s) would be agreed with the relevant Local Planning Authority and National Grid prior to the commencement of decommissioning. The worst-case scenario for each technical topic has been considered within this EIA Scoping Report.

3.7.3 The effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects and will be considered in the relevant sections of the ES. The specific method of decommissioning the Proposed Development at the end of its operational life is uncertain at present as the engineering approaches to decommissioning would evolve over the 40-year operational life of the Proposed Development. Assumptions will therefore be made where appropriate and the impact assessment would be based on the worst-case parameters for each technical topic as relevant.

3.7.4 Decommissioning is expected to take approximately 24 months and could be undertaken in phases. On completion of decommissioning, the Energy Park would be returned to its original condition and handed back to the landowners (subject to the terms of any legal agreements reached with them). Areas of habitat planting that do not need to be removed may be left in situ.

3.7.5 An Outline Decommissioning Environmental Management Plan (DEMP) will accompany the DCO Application and will set out the general principles to be followed in the decommissioning of the Proposed Development. A Detailed DEMP will be prepared substantially in accordance with the Outline DEMP. This would need to be consulted upon with, and approved by, the relevant authorities at the time of decommissioning, in advance of the commencement of decommissioning works, and would include timescales and transportation methods.

3.7.6 Decommissioning would be undertaken safely and with regard to the environmental legislation at the time of decommissioning, including relevant waste legislation.

3.8 References

Ref 3-1 Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents Accessed: October 2026

Ref 3-2 Planning Inspectorate (2026). Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-pre-application-advice-on-environmental-impact-assessment Accessed: October 2026

Ref 3-3 The Planning Act (2008). Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

4. Alternatives Considered

4.1 Introduction

4.1.1 Regulation 14(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') (Ref 4-1) sets out the minimum information requiring inclusion within an Environmental Statement (ES). Regulation 14 (2)(d), in conjunction with Schedule 4, paragraph 2 of the EIA Regulations requires that the ES includes, at least '*a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects'*. This will be included in the ES.

4.1.2 Additionally, **Chapter 1: Introduction** of this EIA Scoping Report presents the overarching policy relevant to the Proposed Development; this includes the Overarching National Policy Statement for Energy EN-1 (NPS EN-1) paragraph 4.3.15 states that *'Applicants are obliged to include information about the reasonable alternatives they have studied in their ES. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility'* (Ref 4-2). Paragraphs 4.3.16 and 4.3.17 of NPS EN-1 (Ref 4-2) also acknowledge that, in certain circumstances, NPSs for Energy Infrastructure may impose a policy requirement to consider alternatives and that "*Where there is a policy or legal requirement to consider alternatives, the applicant should describe the alternatives considered in compliance with these requirements"*.

4.2 Approach to Consideration of Alternatives in the EIA

4.2.1 The ES will include a description of the alternatives relevant to the Proposed Development that have been considered, including their specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the associated environmental effects as relevant. For the Proposed Development, the description of the alternatives in the ES will focus on different layouts, sizing, technologies, site location and design parameters as relevant.

4.2.2 This will include alternative layouts for the Energy Park which have been considered during the design process, as well as alternative Connection and Access Corridors considered. An appraisal of the options considered will be presented as part of the ES, discussing the rationale for the final Proposed Development layout and design selection, as well as explaining the flexibility sought within the Development Consent Order (DCO).

4.2.3 The 'no development' scenario is not considered a reasonable alternative and will not be discussed within the ES. This is because a 'no development' alternative would not deliver the additional electricity generation capacity and other proposed benefits associated with the Proposed Development. This is in line with NPS EN-1 at paragraph 4.3.27 which states '*alternative proposals which mean the necessary development could not proceed, for example because the alternative proposals are not commercially viable or alternative proposals for sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the Secretary of State's decision*'.

4.2.4 This does not preclude the use of the 'no-development', also referred to as a 'do nothing', scenario in certain technical chapters of the ES (for example, Traffic and Transport) where this is required to present future baseline conditions in the absence of the Proposed Development for the purposes of undertaking the impact assessment.

4.3 Development of the EIA Scoping Site

4.3.1 The EIA Scoping Site presented in this EIA Scoping Report includes flexibility to accommodate a range of potential routeing and design options for both the Grid Connection Corridors and the Connection and Access Corridors, as set out in **Chapter 3: Proposed Development** of this EIA Scoping Report. The precise route alignments and connection design have not yet been determined and remain subject to ongoing feasibility studies, environmental assessment and design development including master-planning. The alternatives considered, together with the reasons for selection of the preferred option(s) or flexibility retained, will be presented in the ES.

4.3.2 The design evolution of the Proposed Development as a result of the iterative environmental appraisal process will be presented within the ES.

4.4 References

Ref 4-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents.

Ref 4-2 Department for Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf.

5. Consultation

5.1 Legislative, Regulation, and Advice Context

5.1.1 The Planning and Infrastructure Act 2025 (Ref 5-1), which received Royal Assent on 18 December 2025, introduced reforms to the Nationally Significant Infrastructure Project (NSIP) consenting regime.

5.1.2 The Planning and Infrastructure Act 2025 (Commencement No. 4 and Transitional Provisions) Regulations 2026 (Ref 5-2), which provides the secondary legislation for some of these reforms, came into force on the 24 July 2026. These regulations removed the statutory pre-application consultation requirements from the Planning Act 2008 (PA 2008) (Ref 5-3). This includes the removal of the need to consult on preliminary environmental information report as part of the former statutory consultation process.

5.1.3 To support this transition, the Ministry of Housing, Communities and Local Government (MHCLG) issued new guidance and updated existing advice for applicants with respect to pre-application steps. Of relevance to the Environmental Impact Assessment (EIA) process are:

a. Planning Act 2008: Guidance on preparing an application: Part 1 – Pre-application steps (Ref 5-4);
b. Planning Act 2008: Guidance on preparing an application: Part 2 – Application contents (Ref 5-5);
c. Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment (Ref 5-6); and
d. Nationally Significant Infrastructure Projects: 2024 Pre-application Prospectus (Ref 5-7).

5.1.4 This guidance and advice sets out good practice associated with the practical adoption of the pre-application changes now brought into force through revisions to the PA 2008.

5.2 Approach to Consultation

5.2.1 The Applicant's approach to consultation will align with the advice set out in paragraph 5.1.3 above. Effective and meaningful stakeholder engagement is fundamental to the development of the Proposed Development and the EIA process. Early, front-loaded, proportionate, open and timely engagement with key stakeholders is underway, helping to identify key issues, inform design

development (including embedded mitigation) and ultimately support the preparation of a robust DCO Application.

5.2.2 Engagement will be ongoing up until (and indeed beyond) submission of the DCO Application, supported by technical meetings and correspondence with statutory bodies and the host Local Planning Authorities (LPAs) to allow the sharing of baseline data, early assessment findings, developed mitigation strategies and design information as relevant. This approach will seek to enable impact avoidance in line with the mitigation hierarchy, where practicable, and identify mitigation measures to be incorporated into the Proposed Development design, thereby reducing and minimising residual adverse environmental effects and maximising environmental benefits where practicable. The Applicant will manage and maintain 'Issues Trackers' with these stakeholders to identify issues and, where possible, their resolution, and derive the Potential Main Issues for Examination (PMIE), to be submitted with the DCO Application. These will be developed into Statements of Common Ground (SoCGs) as relevant and support further consultation post-submission of the DCO Application.

5.3 Stakeholder Engagement to Date

5.3.1 Initial meetings with host LPAs and statutory bodies, including Essex County Council (ECC), Chelmsford City Council, Rochford District Council, Basildon Borough Council, Maldon District Council, the Environment Agency (EA), Natural England and Historic England have already taken place. Consultation with statutory consultees, and others identified during the pre-application process through stakeholder mapping as relevant, will remain ongoing up to submission of the DCO Application, as set out within **Section 5.2** of this chapter. These consultees (in addition to those mentioned above) may include, but will not be restricted to, National Highways, Health and Safety Executive (HSE), Essex Fire and Rescue Service, Network Rail, Essex and Suffolk Water, Anglian Water, Forestry England, Essex Wildlife Trust, National Grid, UK Health Security Agency, the Ministry of Defence and National Air Traffic Services (NATS).

5.3.2 A project website has been set up to provide up-to-date information for stakeholders (https://www.dengiepeninsulaenergypark.co.uk/), along with the provision of a project email (info@dengiepeninsulaenergypark.co.uk), freephone (with answerphone) and freepost contact details providing a wide variety of communication channels for stakeholders to make contact.

5.4 EIA Scoping Consultation

5.4.1 The Planning Inspectorate (on behalf of the Secretary of State (SoS)) will consult on this EIA Scoping Report under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 5-8). Views from consultees will be considered and used to inform the EIA Scoping Opinion to be issued by the Planning Inspectorate (on behalf of the SoS).

5.4.2 Under Regulation 10(6) of the EIA Regulations, the SoS must undertake consultation with consultation bodies, including environmental bodies (such as Natural England, the EA and Historic England) and relevant LPAs (such as Essex County Council, Chelmsford City Council, Rochford District Council, Basildon Borough Council and Maldon District Council), before adopting an EIA Scoping Opinion.

5.5 References

Ref 5-1 Planning and Infrastructure Act 2025. Available at: https://www.legislation.gov.uk/ukpga/2025/34 Accessed: October 2026

Ref 5-2 The Planning and Infrastructure Act 2025 (Commencement No. 4 and Transitional Provisions) Regulations 2026. Available at: https://www.legislation.gov.uk/uksi/2026/641/contents/made Accessed: October 2026

Ref 5-3 The Planning Act (2008). Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

Ref 5-4 Ministry of Housing, Communities and Local Government (2026). Planning Act 2008: Guidance on preparing an application: Part 1 – Pre-application steps. Available at: https://www.gov.uk/guidance/planning-act-2008-guidance-on-preparing-an-application-part-1-pre-application-steps Accessed: October 2026

Ref 5-5 Ministry of Housing, Communities and Local Government (2026). Planning Act 2008: Guidance on preparing an application: Part 2 – Application contents. Available at: https://www.gov.uk/guidance/planning-act-2008-guidance-on-preparing-an-application-part-2-application-contents Accessed: October 2026

Ref 5-6 Planning Inspectorate (2026). Nationally Significant Infrastructure Projects: Pre-Application Advice on Environmental Impact Assessment. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-pre-application-advice-on-environmental-impact-assessment Accessed: October 2026

Ref 5-7 Planning Inspectorate (2024). Nationally Significant Infrastructure Projects: 2024 Pre-application Prospectus. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-2024-pre-application-prospectus Accessed: October 2026

Ref 5-8 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

6. Environmental Impact Assessment Methodology

6.1 Purpose of the EIA Process

6.1.1 Environmental Impact Assessment (EIA) is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any likely significant adverse effects. The EIA should be informed by consultation and engagement with statutory consultees, other interested bodies, and members of the public. The purpose of identifying likely significant effects is to ensure decision makers can make an informed judgement on the proposal, whilst understanding the likely environmental impacts.

6.1.2 The Environmental Statement (ES) must contain the information specified in Regulation 14(2) of the EIA Regulations (Ref 6-1) and must meet the requirements of Regulation 14(3) of the EIA Regulations. It must also include any additional information specified in Schedule 4 to the EIA Regulations which is relevant to the specific characteristics of the particular development, or type of development and the environmental features likely to be significantly affected.

6.2 Overall Approach

6.2.1 The ES will be based on a number of related activities, as follows:

a. Establishing existing baseline conditions;
b. Consultation and engagement with statutory and non-statutory consultees throughout the Development Consent Order (DCO) pre-application process;
c. Consideration of relevant local, regional and national planning policies, guidelines and legislation relevant to EIA;
d. Consideration of technical standards for the development of environmental effect significance criteria;
e. Review of secondary information, previous environmental studies and publicly available information and databases;
f. Desk-top studies;
g. Physical surveys and monitoring;
h. Computer modelling (where required); and
i. Expert opinion.

6.2.2 The EIA process is designed to be capable of, and sensitive to, changes that occur as a result of design development, including any impact avoidance and mitigation measures that are incorporated into, or developed in response to, the Proposed Development design during the EIA. This is particularly important for this EIA as the design and layout of the Proposed Development is still being refined, and the design is likely to evolve further following submission of this EIA Scoping Report – for example, the optionality presented at this EIA Scoping stage may be further refined as the design develops, such as the narrowing of the Grid Connection Corridors, which will be reflected in the description of the Proposed Development within the ES and the associated assessments as relevant. It is not, however, anticipated that the Proposed Development subject to the EIA and the DCO Application will be materially different from the Proposed Development as detailed in this EIA Scoping Report, as its location, scale, design, and use of technology are anticipated to remain within the parameters set out in **Chapter 3: Proposed Development** of this EIA Scoping Report.

6.2.3 Impacts will be considered on the basis of their magnitude, duration and reversibility. Cumulative and combined effects will also be considered where appropriate. Effect significance will be evaluated on the basis of the scale of the impact and the importance or sensitivity of the receptors / resources being affected, in accordance with standard assessment methodologies. More information on the assessment methodology is provided in **Section 6.6**.

6.2.4 Where potentially significant adverse environmental effects are identified in the assessment process, measures to mitigate these effects will be put forward in the form of recommendations to be undertaken as part of the Proposed Development, as far as is practicable.

6.2.5 The ES will set out the process followed during the EIA including the methods used for the collection of data and for the identification and assessment of impacts. Any assumptions will be clearly identified.

6.3 Determining Baseline Conditions

6.3.1 ‘Baseline conditions’ are the environmental conditions that currently exist within the EIA Scoping Site and surrounding area in the absence of the Proposed Development, including existing developments which are already operational. In order to predict the potential environmental impacts of the Proposed Development, it is necessary to determine these baseline conditions.

6.3.2 Detailed environmental baseline information will be collected, with the methodology for the collection process detailed within the ES. The baseline information will be gathered from various sources, including:

a. Online / digital resources;
b. Data searches, for example Historic Environment Record (HER); and
c. Baseline surveys within the EIA Scoping Site Boundary and its surroundings.

6.3.3 Consideration will also be given to how the baseline conditions may evolve in the absence of the Proposed Development, known as the 'future baseline'. As noted in **Chapter 4: Alternatives Considered** of this EIA Scoping Report, the future baseline scenario may also be referred to as a 'do nothing' scenario in certain technical chapters of the ES (for example, Traffic and Transport) for the purposes of undertaking the impact assessment.

6.4 Mitigation

6.4.1 Regulation 14, Part (2c) of the EIA Regulations (Ref 6-1) requires the ES to provide "a description of any features of a proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment". These are commonly referred to as mitigation measures. Where possible, these measures will be incorporated into the form or design of the Proposed Development.

6.4.2 The Proposed Development will adopt a standard hierarchical approach to identifying mitigation requirements as follows:

a. **Avoid or prevent**: In the first instance, mitigation measures should seek to avoid or prevent the adverse effect at source, for example, by appropriate siting and routing of infrastructure within the Energy Park, or by locating Photo Voltaic (PV) panels away from sensitive receptors;
b. **Reduce**: If an effect is unavoidable, mitigation measures should be implemented which seek to reduce the significance of the effect. For example, the use of noise barriers to reduce the level of construction noise experienced by nearby noise sensitive receptors; and
c. **Offset**: If the effect can neither be avoided nor reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation, for example habitat creation to replace any habitat losses.

6.4.3 Mitigation measures fall into two categories: 'embedded mitigation measures' which are built into the design of the Proposed Development, and 'additional mitigation measures' which are additional to the Proposed Development design commitments.

6.4.4 Enhancement measures and their associated benefits, which are those measures that are over and above what is required to mitigate the adverse effects

of the Proposed Development, will also be detailed within the ES, as appropriate. These are generally not factored into the determination of residual effects, unless they have been committed to as part of the DCO Application (for example, secured via outline management plans submitted alongside the DCO Application), in which case they will be included in the assessment as embedded measures.

Embedded Mitigation Measures

6.4.5 The Proposed Development will be developed through an iterative EIA and design process which involves seeking to avoid or reduce and, if possible, offset potential adverse environmental effects. Where possible, these measures will be incorporated into the form or design of the Proposed Development, for example, through the appropriate routing and siting of infrastructure.

6.4.6 Once these measures are incorporated into the Proposed Development design, they are termed 'embedded mitigation' measures. Embedded mitigation measures relevant to the construction, operation (and maintenance) and decommissioning phases will be described within each technical chapter of the ES as relevant, and are listed at this stage within **Appendix 6-A: Environmental Mitigation and Commitments Register** that accompanies this EIA Scoping Report – this Register will be updated as relevant as further embedded mitigation measures are developed (for example, as the result of assessment work identifying the opportunity for further mitigation requirements) and will be submitted with the DCO Application. With regards to the operation (and maintenance) phase, embedded measures are primarily incorporated into the Proposed Development design from the outset and / or identified through the iterative EIA process and subsequently embedded into the design.

6.4.7 The ES will also describe industry control measures which are common practice during the construction and operation of large-scale solar sites as embedded mitigation measures. These will be described in each technical chapter of the ES as relevant and included in the relevant outline management plans, such as the Outline Construction Environmental Management Plan (CEMP), which will be prepared as part of the DCO Application. The outline management plans will provide a structure within which the relevant personnel (such as the Principal Contractor or Operator) would plan, implement and deliver environmental management, mitigation and monitoring requirements during the construction, operation (and maintenance) and decommissioning phases of the Proposed Development as committed to within the ES. The outline management plans would be secured through Requirements in the DCO and developed, in consultation with the relevant Local Planning Authorities (LPAs) and statutory

bodies, into detailed plans, whereby specific responsibilities will be identified and confirmed. The detailed plans will be submitted for approval by the relevant LPAs and statutory bodies. It is intended that the detailed plans would be 'live' documents, maintained and updated as necessary to reflect any non-material changes to the construction team or other relevant project information, in accordance with the requirements of the DCO.

6.4.8 The following outline management plans are proposed to be submitted as part of the DCO Application, although it should be noted that this list is not exhaustive and some management plans may be combined, or integrated within other plans, where appropriate. These documents will set out the framework for implementing embedded mitigation measures and will be secured through Requirements in the DCO:

a. Outline CEMP;
b. Outline Operational Environmental Management Plan (OEMP);
c. Outline Decommissioning Environmental Management Plan (DEMP);
d. Outline Landscape and Ecological Management Plan (LEMP);
e. Outline Battery Storage Safety Management Plan (BSMP);
f. Outline Employment, Skills and Supply Chain Plan (ESSCP);
g. Outline Soil Management Plan (SMP);
h. Outline Construction Traffic Management Plan (CTMP); and
i. Outline Public Rights of Way (PRoW) Management Plan.

Additional Mitigation Measures

6.4.9 The ES will assess the environmental effects of the Proposed Development with embedded mitigation measures in place. Where significant adverse environmental effects remain following consideration of these measures, additional mitigation measures will be identified where practicable and appropriate to further avoid, reduce or offset those effects. These measures will be described within the relevant technical chapters of the ES and may include measures beyond standard industry control measures, such as bespoke site-specific mitigation. Additional mitigation measures will also be incorporated into the relevant management plans as a securing mechanism in the DCO Application where appropriate.

6.5 Timescale and Assessment Years

Construction Phase Effects

6.5.1 For the assessment, construction effects will be taken to be those for which the impact source begins and ends during the Proposed Development construction

phase, and do not endure beyond the completion of construction. This covers sources such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on-site. Some construction-related effects may last longer than others, for example, impacts related to the establishment of construction compounds are likely to be relatively short in duration in respect of the whole construction period, whereas the construction of energy infrastructure and landscaping activities are likely to persist throughout the entire construction period. By their nature, most construction impacts will be temporary and reversible.

6.5.2 The assessment of construction phase effects will assume the implementation of standard good practice measures, for example, the use of temporary noise barriers to reduce noise levels as appropriate and, where practicable, control of dust on haul roads (embedded mitigation measures are detailed in **Section 6.4**). The purpose of this is to focus on the Proposed Development specific effects, rather than generic construction effects that can be easily addressed using generic best practice mitigation measures. Construction assumptions and mitigation, including good practice measures, will be set out within the ES and secured via the Outline CEMP and other relevant management plans (e.g. Outline CTMP, Outline LEMP, Outline SMP, etc). The ES will identify construction effects that are likely to remain after these mitigation measures are in place.

Operation and Maintenance Phase Effects

6.5.3 For the operation and maintenance assessment, these are the effects that, although they may start during construction, are either permanent, endure a substantial period beyond construction or decommissioning, or represent an extended cumulative effect of construction or decommissioning activity. This includes the effects of the physical presence of the energy infrastructure and its operation, use and maintenance. Timescales associated with these enduring effects are as follows:

a. Short term – endures for up to 12 months after construction or decommissioning;
b. Medium term – endures for one to five years after construction or decommissioning; and
c. Long term – endures for more than five years after construction or decommissioning.

6.5.4 Effects may also be classified according to their reversibility:

a. Reversible effects – effects which endure throughout the lifetime of the Proposed Development but which cease once the Proposed Development has been decommissioned (operation and maintenance effects will fall into this category); and
b. Permanent effects – effects which cannot be reversed following decommissioning (e.g. if buried archaeology were to be permanently removed during construction works). It should be noted that with regards to the assessment of agricultural land, as set out in **Chapter 7: Agriculture and Soils**, potential effects associated with 'hard development' (e.g. BESS and Main On-Site Substation) on Grade 1 and 2 Best and Most Versatile (BMV) agricultural land are classed as permanent as a worst-case basis of assessment due to the extended period required to reinstate very high-sensitivity soils.

6.5.5 Environmental management and mitigation measures for the operation (and maintenance) phase of the Proposed Development would be planned, implemented and delivered through the OEMP and other relevant management plans (e.g. SMP, BSMP, etc), secured through a Requirement in the DCO. The outline management plans prepared as part of the DCO Application will set out the general principles to be followed during the operation of the Proposed Development and will be developed into detailed plans following the grant of the DCO.

Decommissioning Phase Effects

6.5.6 The design life of the Proposed Development is expected to be 40 years from the date of final commissioning, noting that the Proposed Development may come online in phases aligning with the 2032 and 2034 grid connection agreements held by the Applicant, with the DCO seeking consent for this duration of operation – under a Requirement of the DCO, decommissioning works will commence no later than 40 years following the date of final commissioning, therefore securing this duration.

6.5.7 For the assessment, decommissioning effects will be taken to be those for which the source of the effect begins and ends during the decommissioning phase and does not extend beyond the completion of the decommissioning phase. This includes, sources of effects arising from decommissioning activities, such as decommissioning traffic, noise and vibration, dust generation, site runoff, mud on roads, risks of fuel/oil spillage and the visual intrusion of plant and machinery. Typically, decommissioning phase effects are similar in nature to those experienced during the construction phase, although they may be of shorter duration and slightly less intensity. As with construction phase activities and

effects, some aspects of decommissioning activities and effects would endure for longer than others.

6.5.8 Environmental management and mitigation measures for the decommissioning phase of the Proposed Development would be planned, implemented and delivered through a DEMP and other relevant management plans (e.g. SMP, LEMP, etc), secured through a Requirement in the DCO. An Outline DEMP will be prepared as part of the DCO Application which will set out the general principles to be followed during the decommissioning of the Proposed Development. The outline management plans would be developed into detailed plans following the grant of the DCO.

Assessment Scenarios

6.5.9 In order to ensure the EIA is robust in considering the likely significant effects of the Proposed Development, appropriate assessment scenarios have been identified, as discussed below.

6.5.10 The assessment scenarios that will be considered for the purposes of the EIA are as follows:

a. **Existing Baseline**: these are the existing conditions.
b. **Future Baseline** (in the absence of the Proposed Development): this is the principal baseline against which each phase is assessed, taking into account any changes between the existing baseline and the years when construction is expected (i.e. 2030 – 2034 – see below 'Construction' section) if the Proposed Development was not developed. It is common for the future baseline to be the same as the existing baseline if there are no planned changes to the land management or surrounding area, in which case the assessment is based on changes relative to the existing conditions. A future baseline scenario at Year 15 (post construction) is also included for landscape, visual and heritage setting only, in accordance with industry good practice to consider impacts once sufficient time has passed for vegetation screening to have matured. The climate change assessment also considers projected future baseline climate conditions (e.g. based upon climate change projections data from the Met Office (Ref 6-2) and UK Climate Impacts Programme UK Climate Projections 2018 (UKCP18) (Ref 6-3)), as discussed in **Chapter 8: Climate Change** of this EIA Scoping Report.
c. **Construction** (anticipated 2030 construction start; up to 48 months construction period): the peak construction year for the purpose of the EIA is anticipated to be during 2031. As noted below within the 'Operation' section, operation of the Proposed Development is likely to be phased

based on the phased grid connection agreements held by the Applicant, whereby different approaches to the sequencing of construction are possible. As such, the construction assessments adopted in the ES will consider a reasonable worst-case scenario relevant to the respective technical topic. The assessments will either assume that the Proposed Development is built out over a period of 48 months (i.e. up to 2034), or a shorter construction period (to be defined and justified in the relevant ES chapters) will be assumed where a shorter duration of construction is considered more likely to give rise to greater effects. For example, a shorter construction duration would be a reasonable worst-case assumption from a traffic generation point of view given the trip numbers would be compressed into a shorter duration, representing the greatest potential impact on the highway network. This would therefore also be the reasonable worst-case in terms of potential effects on drivers, pedestrians, cyclists and traffic-related air quality and noise effects. A longer construction period however may be considered a reasonable worst-case assumption for other technical assessments – for example, from a landscape and visual perspective, given the impacts associated with construction plant would be experienced over a longer temporal duration. The assumed 2030 construction start date for the purposes of assessment within the ES is based upon information currently available – the peak construction assessment year will be reviewed as the anticipated construction programme is considered in more detail during the design development.

d. **Operation**: the expected first year of exporting electricity by the Proposed Development is anticipated to be in 2032, aligning with the first phase grid connection agreement held by the Applicant, with full operation of the Proposed Development anticipated by 2034 (i.e. aligning with the second phase grid connection agreement held by the Applicant). As such, the operational assessments within the ES will adopt a reasonable worst-case scenario relevant to the respective technical topic, considering which operational assessment year is likely to give rise to greater likely significant effects, or if there would be no material difference in the effects established regardless of assessment year and phasing. Any potential impacts associated with the overlap of phases will be assessed accordingly in the ES

e. **Decommissioning** (after 40 years from the date of final commissioning, noting that the Proposed Development may come online in phases aligning with the 2032 and 2034 grid connection agreements held by the Applicant): the decommissioning assessment will be based on the earliest year when

decommissioning would commence (i.e. 2072) based on the expected operational date and 40-year design life of the Proposed Development. It is considered that there would be no new, or materially different, likely significant effects associated with decommissioning whether this phase of the Proposed Development were to commence in 2072 or 2074, although this will be clarified in the ES. The decommissioning assessment will cross refer where relevant to the construction phase assessment given the similarities in activities and potential impacts.

6.5.11 The ES will further set out construction, operation and decommissioning programme assumptions as relevant, with these programmes being considered further by the Applicant. A detailed justification for the reasonable worst-case construction, operation and decommissioning scenarios considered by relevant technical specialists will be set out in each ES chapter as relevant. Each technical specialist will also consider, and assess as relevant, whether concurrent construction activities and partial operation of the scheme could give rise to materially new or materially different environmental effects compared with those reported under the construction and operational scenarios.

Assessment of Construction and Decommissioning Effects

6.5.12 The identification of construction and decommissioning effects will be made on the basis of existing knowledge, techniques and equipment. A 'reasonable worst-case' scenario will be used with respect to the envisaged construction and decommissioning methods, location (proximity to sensitive receptors/ resources), phasing and timing of construction and decommissioning activities. The Outline DEMP will set out the general principles to be followed during the decommissioning of the Proposed Development. Where specific information relating to decommissioning is not known, it is anticipated that, as they are expected to be very similar, construction information will be used. A detailed DEMP will be prepared and agreed with the relevant authorities and statutory bodies at the time of decommissioning, appropriately accounting for relevant changes in practice at this point in the future.

6.5.13 The assessment of construction and decommissioning effects will assume the implementation of standard good practice measures, for example, the use of temporary noise barriers to reduce noise levels as appropriate and where practicable, control of dust on haul roads. The purpose of this is to focus on the Proposed Development specific effects, rather than generic construction effects that can be easily addressed using best practice mitigation measures. Construction and decommissioning assumptions, including good practice

measures, will be set out within the ES, the Environmental Mitigation and Commitments Register, and the relevant outline management plans submitted as part of the DCO Application. The ES will identify and assess construction and decommissioning effects that are likely to remain after these mitigation measures are in place.

6.6 Assessment of Impacts and Significance of Effects

6.6.1 The evaluation of the significance of an effect is important, as it is the effect significance that determines the resources that should be deployed in avoiding or mitigating a significant adverse effect, or conversely the actual value of a beneficial effect. The overall environmental acceptability of the Proposed Development will be a matter for the Secretary of State (SoS) to determine, having taken into account the environmental information that is set out in the ES, including all likely beneficial and adverse environmental effects, amongst other matters. Where it has not been possible to quantify effects, qualitative assessments will be undertaken based on available knowledge and professional judgement. Where uncertainty exists, this will be noted in the relevant technical chapter of the ES and valid assumptions made/a reasonable worst-case approach taken, as appropriate.

6.6.2 The significance of residual effects will be determined by reference to criteria developed for each technical assessment. Specific effect significance criteria for each technical assessment are presented in **Chapters 7 to 17** of this EIA Scoping Report. The assessment of significance will take into account:

a. Magnitude of change:

   i. Scale of the impact (generally described as high, medium, low and very low);
   ii. Spatial extent of the impact, where relevant;
   iii. Effect duration and whether effects are temporary, reversible or permanent;
   iv. Whether the effect occurs in isolation, is cumulative or interacts with other effects;

b. Effect nature (whether beneficial, neutral / negligible or adverse);
c. Sensitivity of the receptor or resource (generally described as high, medium, low and very low); and
d. Other relevant considerations, including:

i. Performance against any relevant environmental quality standards;
ii. Compatibility with environmental policies.

Magnitude of Change

6.6.3 General criteria for defining the magnitude of change (adverse or beneficial) are set out in **Table 14-4**. It should be noted that the technical assessments may deviate slightly from this if they choose to follow industry accepted or professional institute guidance. In this instance, the rationale will be clearly set out in the Impact Assessment Methodology section of the respective technical ES chapter.

6.6.4 Key factors that influence magnitude of change include:

a. Scale of change: The scale of change refers to the degree of change to or from baseline environment conditions caused by the impact being described;
b. Spatial extent: The extent of an impact is the full area over which the impact occurs; and
c. Duration and frequency: The duration is the period within which the impact is expected to last prior to recovery or replacement of the feature. Frequency refers to how often the impact would occur.

Table 6-1: Magnitude of Change Criteria

Magnitude	Change
High	Long term and / or regional level loss; or major alteration to key elements / features of the baseline condition such that post development character / composition of the baseline would be fundamentally changed.
Medium	Medium term loss and / or local level change (greater than the Proposed Development footprint) or alteration to one or more key elements / features of the baseline conditions such that post development character / composition of the baseline condition would be materially changed.
Low	Short term, Proposed Development specific and/or a minor shift away from baseline conditions. Changes arising from the alteration would be detectable but not material; the underlying character / composition of the baseline condition would be similar to the pre-development situation.
Very Low	Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation.

Sensitivity of Receptor/Resource

6.6.5 The sensitivity (or value) of a receptor or resource is characterised by the vulnerability to change, recoverability and importance of the receptor or resource (see **Table 6-2**). It should be noted that the technical assessments may deviate slightly from this if they choose to follow industry accepted or professional institute guidance. In this instance, the rationale will be clearly set out in the Impact Assessment Methodology section of the respective technical ES chapter.

6.6.6 Characterisation of the receptor or resource sensitivity is achieved by balancing out these three considerations to determine the receptor / resource's sensitivity as follows:

a. **Vulnerability**: The vulnerability of the receptor or resource relates to its capacity to accommodate change, i.e. the tolerance / intolerance of the receptor / resource to change;
b. **Recoverability**: The ability of the receptor or resource to return to the baseline state before the Proposed Development impact caused the change; and
c. **Importance**: The importance of the receptor or resource is a measure of the value assigned to that receptor / resource based on biodiversity and ecosystem services, social value and economic value. The importance of the receptor or resource is also defined within a geographical context, whether it is important internationally, nationally or locally.

Table 6-2: Sensitivity Criteria

Sensitivity	Description
High	Receptor / resource has little or no ability to absorb change without fundamentally altering its character. For example: a. Receptor/resource has low / no capacity to return to baseline conditions within the Proposed Development's life, e.g. low tolerance to change and low recoverability such as a physical feature formed over a geological time scale, or loss of access with no alternatives; b. Receptor / resource is a designated feature of a protected site or is rare or unique; and / or c. Receptor / resource is economically valuable.
Medium	Receptor / resource has moderate capacity to absorb change without significantly altering its character, however some damage to the receptor / resource would occur. For example: d. Receptor / resource has intermediate tolerance to change;

Sensitivity	Description
	e. Medium capacity to return to baseline condition; and / or f. The receptor / resource is valued but not protected.
Low	The receptor / resource is tolerant to change without significant detriment to its character. Some minor damage to the receptor / resource may occur. For example: a. Receptor/resource has a high tolerance to change; b. High capacity to return to baseline condition; c. May affect socio-economic behaviour but is not a nuisance to users; and / or d. The receptor / resource is common and / or widespread.
Very Low	The receptor or resource is tolerant to change with no effect on its character. The activity resulting from the Proposed Development does not have a detectable effect on survival or viability.

Evaluating the Significance of Effect

6.6.7 Once the magnitude of change (impact) and the sensitivity of the receptor or resource have been established, the scale and significance of an effect can be assessed. The significance of residual effects (effects that remain after the implementation of defined mitigation measures) will be evaluated with reference to available definitive standards, accepted criteria, and applicable legislation. For issues where definitive quality standards do not exist, significance will be based on the following:

a. Local, district, regional or national scale or value of the receptor or resource affected;
b. Number of receptors/ resources affected;
c. Sensitivity of these receptors/ resources; and
d. Duration of the effect.

6.6.8 In order to provide a consistent approach to expressing the outcomes of the studies undertaken as part of the EIA, and thereby enable comparison between effects upon different technical topics, the following terminology will be used in the ES to define residual effects:

a. **Adverse**: Detrimental or negative effects to an environmental/ socio-economic receptor or resource;
b. **Negligible** (also referred to as 'neutral' for some technical topics): Imperceptible effects to an environmental/ socio-economic receptor or resource; or
c. **Beneficial**: Advantageous or positive effect to an environmental/ socio-economic receptor or resource.

6.6.9 Where adverse or beneficial effects are identified, these will be assessed against the scale of effects (generally on a scale of Negligible, Minor, Moderate and Major, although where this differs within a technical assessment, this will be clearly set out within the relevant ES chapter) in **Table 6-4**. It should be noted that the technical assessments may deviate slightly from this if they choose to follow industry accepted or professional institute guidance. In this instance, the rationale will be clearly set out in the Impact Assessment Methodology section of the respective technical ES chapter.

6.6.10 Each of the technical chapters of the ES will provide the criteria, including sources and justifications, for qualifying the different categories of effect. Where possible, this will be based upon quantitative and accepted criteria (for example, noise assessment guidelines), together with the use of value judgement and expert interpretation, to establish to what extent an effect is significant. **Table 6-3** illustrates an example of the classification of effects matrix (often referred to as an effect significance matrix).

Table 6-3: Example Matrix to Classify Environmental Effects

Sensitivity or value of receptor/ resource	Magnitude of Change			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

6.6.11 Following the classification of an effect, clear statements will be made within the technical chapters of the ES as to whether an effect is significant or not significant. As a general rule, major and moderate effects are considered to be significant (as shown by the shaded cells in **Table 6-3**), whilst minor and negligible effects are generally considered to be not significant. However, professional judgement will be applied where relevant, including taking account of whether the effect is permanent or temporary, its duration/frequency, whether it is reversible, and/or its likelihood of occurrence. A precautionary/reasonable worst-case approach will be adopted to ensure the recorded effects are not understated or overstated and the assessment is robust. Generic definitions for the classification of effects are shown in **Table 6-4**.

Table 6-4: Generic Effect Descriptions

Effect	Description
Major	These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.
Moderate	These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making.
Minor	These effects may be raised as local issues and may be of relevance in the detailed design of the Proposed Development but are unlikely to be critical in the decision-making process.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.

6.6.12 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these will either have been incorporated into the design of the Proposed Development or will be captured within the outline management plans submitted alongside the DCO Application (therefore securing their implementation via Requirement of the DCO). The ES will identify 'residual effects', which remain following the implementation of suitable and secured mitigation measures, and classify these in accordance with the effect classification terminology as given above.

6.6.13 It should be noted that some technical chapters of the ES may use different criteria when undertaking assessments due to differences in industry accepted guidelines and specifications. Where this is the case, the technical chapters (**Chapters 7** to **17**) of this EIA Scoping Report discuss how the assessment methodology or classification of effects differs from the general EIA methodology (as described in this section) and provide justification.

6.7 Cumulative Effects

6.7.1 In accordance with the EIA Regulations (Ref 6-1), 'cumulative effects' will be considered as relevant. These are effects that result from incremental changes caused by other past, present or reasonably foreseeable actions in-combination (i.e. cumulatively) with the Proposed Development.

6.7.2 For the cumulative impact assessment, two types of impact will be considered:

a. The combined effect of individual impacts from the Proposed Development, for example noise or pollutants on a single receptor (these are referred to as 'In-Combination Effects'); and
b. The combined effects of several development schemes which may, on an individual basis, be insignificant but, cumulatively with the Proposed Development, have a new or different likely significant effect (these are referred to as 'Cumulative Effects').

6.7.3 The assessment will be based on the best available data from other proposed and committed developments and associated information which is currently in the public domain or has been provided. The assessment will assume publicly available information is accurate and is also reliant on effective collaboration between, and information sharing with, a range of statutory consultees, neighbouring authorities and other developers to identify changes in information which may be pertinent to the assessment.

6.7.4 Where there are specific limitations associated with data, these will be highlighted in the ES. **Table 6-5** summarises how cumulative and in-combination effects will be reported in the ES.

Table 6-5: Summary of How Cumulative and In-Combination Effects will be Reported in the Environmental Statement

Effect	Description	Approach to Reporting
In-Combination Effects	The interaction and combination of different environmental discipline residual (post-additional mitigation) effects from within the Proposed Development affecting a single receptor. For example, noise and visual effects on a single heritage receptor, or noise and air quality effects on a single residential receptor.	An exercise which tabulates the potential for individual environmental effects (established within the respective technical chapters of the ES) within a cross-discipline effect interaction matrix will be undertaken. This exercise allows consideration as to whether the cross-discipline effects have the potential to combine to create a new environmental effect on a resource, receptor, or receptor group, with an appraisal as to whether a potential in-combination effect is considered significant. The appraisal of the likelihood of any significant In-Combination Effects will be presented within a separate cumulative chapter of the ES.
Cumulative Effects	The combined residual (post-additional mitigation) effects of the Proposed	Will be assessed within the technical chapter with a summary of effects

Effect	Description	Approach to Reporting
	Development and another project or projects on a single receptor.	provided in a separate cumulative chapter of the ES.

In-Combination Effects

6.7.5 There is no established EIA methodology for assessing and quantifying effect interactions that lead to combined effects on sensitive receptors, however, the European Commission (EC) has produced guidelines for assessing effect interactions, which "*are not intended to be formal or prescriptive, but are designed to assist EIA practitioners in developing an approach which is appropriate to a project*..."(Ref 6-4).

6.7.6 AECOM has reviewed these guidelines and has developed an approach which uses the defined residual effects of the Proposed Development to determine the potential for effect interactions that lead to combined effects. This approach is consistent with that followed on previous NSIPs such as Sunnica Energy Farm, Longfield Solar Farm, Gate Burton Energy Park, Fenwick Solar Project, East Yorkshire Solar Farm and Tillbridge Solar Project, all of which are solar NSIPs and have been granted development consent.

6.7.7 The EIA will identify beneficial and adverse effects during construction, operation (and maintenance), and decommissioning of the Proposed Development, which are classified as minor, moderate or major. Several effects on one receptor or receptor group could theoretically interact or combine to produce a combined significant overall effect.

6.7.8 An exercise which tabulates the effects on receptors or receptor groups will be undertaken to determine the potential for effect interactions and therefore any in-combination effects. Only adverse or beneficial residual effects classified as minor, moderate or major will be considered in relation to potential in-combination effects. Residual effects which are classified as negligible will be excluded from the assessment of in-combination effects as, by virtue of their definition (see **Section 6.6** and **Table 6-4**), they are considered to be imperceptible effects to an environmental/socio-economic resource or receptor.

Cumulative Effects with Other Developments

6.7.9 The Planning Inspectorate's advice on the assessment of cumulative effects (Ref 6-5) identifies a four-stage approach as follows:

Stage 1 – Establish the NSIP's Zone of Influence (ZoI) and Identify a Long List of 'Other Development'

6.7.10 A review of other developments will be undertaken, initially encompassing a 'zone of influence' defined by the environmental topic specialists to prepare a long list of 'other developments'. At this stage, it is anticipated that the long list will be based on up to a 10km area of search.

6.7.11 At the time of writing, there are no solar DCO projects within 10km of the EIA Scoping Site.

6.7.12 The long list of 'other development' to be included in the assessment of cumulative effects will be reviewed and developed in consultation with the LPAs, statutory consultees and other relevant organisations.

6.7.13 Development will be included in the initial long-list based on the following criteria:

a. Development currently under construction;
b. Approved applications which have not yet been implemented (covering the past five years and taking account of those that received planning consent over three years ago and are still valid, but have not yet been completed);
c. Submitted applications not yet determined;
d. On the National Infrastructure Planning Programme of Projects;
e. All solar and energy storage developments identified within 10km of the Proposed Development (note, for the assessment of agricultural land, all solar NSIPs within the County will be considered); and
f. Development identified in the relevant Development Plans (adopted and emerging).

6.7.14 Criteria will be developed and applied to filter development which may be excluded from the initial long list, having regard to the size and spatial influence of each development. These criteria will be documented and set out within the ES.

Stage 2 – Identify shortlist of 'Other Development' for Cumulative Effects Assessment

6.7.15 At Stage 2, to ensure a proportionate approach to the assessment, a detailed review of the long list of other developments will be undertaken. This review will consider the spatial scope of the assessment, informed by the likely ZoI for each environmental topic, and the temporal scope, including the extent to which construction, operation and decommissioning activities may overlap with those of other developments. Any developments of a nature or scale without the

potential to result in cumulative impacts will be excluded, following discussion with LPAs, and consideration of the likely ZoI for each environmental topic.

6.7.16 The criteria will address the following:

a. Temporal Scope;
b. Scale and nature of development;
c. Documentation; and
d. Other factors such as nature and capacity of the environment, as well as any need for a pathway receptor approach to inform assessment.

6.7.17 The justification for including or excluding developments from the long list will be provided in a matrix, modelled on the example given within Annex 1 of the Planning Inspectorate's Advice on Cumulative Effects Assessment (Ref 6-5).

Stage 3 – Information Gathering

6.7.18 Information relating to other developments will be collected from the appropriate source (which may include the LPAs, the Planning Inspectorate or directly from the relevant applicant) and will include, but not be limited to:

a. Proposed design and location information;
b. Proposed programme of demolition, construction, operation and/or decommissioning; and
c. Environmental assessments that set out baseline data and effects arising from 'other development'.

Stage 4 – Assessment

6.7.19 The assessment will include a list of those developments considered to have the potential to generate a cumulative effect together with the Proposed Development, and this will be documented in a matrix which includes the following:

a. A brief description of the development;
b. An assessment of the cumulative effect with the Proposed Development;
c. Proposed mitigation applicable to the Proposed Development including any apportionment; and
d. The likely residual cumulative effect.

6.7.20 The criteria for determining the significance of any cumulative effect will be based upon:

a. The duration of effect, i.e. whether it will be temporary or permanent;
b. The extent of the effect, i.e. the geographical area of an effect;
c. The type of effect, e.g. whether additive or synergistic;
d. The frequency of the effect;

e. The 'value' and resilience of the receptor affected; and
f. The likely success of mitigation.

6.7.21 Particular consideration will be given to other solar developments proposed within the 10km area of search and information available at the time of assessment will be used to inform the assessment of cumulative effects.

6.7.22 As noted in **Chapter 3: Proposed Development**, with the exception of the Point of Connection Infrastructure required to enable connection with a Point of Connection Substation, the construction, operation (and maintenance) and decommissioning of the Point of Connection Substation does not form part of the Proposed Development which is to be the subject of the Development Consent Order (DCO) Application. As such, the cumulative assessment will consider, as relevant, the potential Point of Connection Substation at the Former Bradwell Substation as a cumulative scheme in order to robustly consider the potential likely significant effects associated with either grid connection option.

6.7.23 In reporting the overall significance of cumulative effects, it is appropriate to also acknowledge the relative contributions different projects make to a cumulative effect and carefully consider whether the cumulative effect is significant. For example, where a large-scale project is predicted to result in significant effects and a smaller proposed development would not have significant effects, the cumulative assessment should only conclude there is a significant cumulative effect if effects from both projects together are of greater significance than the larger project in isolation. Consequently, care will be taken to not simply define such effects as being cumulative, but rather to focus on the nature and scale to which genuine cumulative effects might result.

6.8 Proposed Topics to be included in the ES

6.8.1 The following chapters of this EIA Scoping Report present a discussion of the potential significant environmental effects associated with the Proposed Development that will be considered as part of the EIA and reported in the ES. The methodology and assessment criteria that will be used to assess the identified effects are also outlined. These topics comprise:

a. Agriculture and Soils (Chapter 7);
b. Climate Change (Chapter 8);
c. Cultural Heritage (Chapter 9);
d. Ecology and Biodiversity (Chapter 10);
e. Landscape and Visual (Chapter 11);
f. Materials and Waste (Chapter 12);
g. Noise and Vibration (Chapter 13);

h. Socio-economics and Land Use (Chapter 14);
i. Traffic and Transport (Chapter 15);
j. Water Environment (Chapter 16); and
k. Other Environmental Topics (Chapter 17).

6.8.2 **Chapter 17: Other Environmental Topics** of this EIA Scoping Report provides a summary of environmental topics which have been considered during the preparation of this EIA Scoping Report, but for which standalone chapters are not anticipated to be required in the ES. For these topics, it is considered that, from previous experience, the demonstration of no likely significant effects being expected can be quickly established without the need for detailed information on legislation, policy and baseline conditions being provided. Therefore, technical appendices will be provided for these topics with a short summary in a single chapter of the ES. In the unlikely event that a likely significant effect is identified for a particular topic, a standalone chapter will be produced in accordance with the chapter structure set out in **Section 6.10**. These topics comprise:

a. Air Quality;
b. Electromagnetic Fields (EMF);
c. Glint and Glare;
d. Ground Conditions;
e. Human Health;
f. Major Accidents and Disasters; and
g. Telecommunications and Utilities.

6.8.3 **Chapters 7** to **17** of this EIA Scoping Report provide an outline of the proposed scope of works for the topics identified above.

6.9 Proposed Elements Scoped Out

6.9.1 Based upon the work presented in this EIA Scoping Report, each of the technical chapters (**Chapters 7** to **17**) set out the technical elements proposed to be scoped out of the EIA for that topic. This information is summarised in **Table 19-1** and **Table 19-2**.

6.9.2 As set out in **Chapter 3: Proposed Development**, flexibility is retained at this stage to utilise an existing Marine Transfer Facility, located at the southern extent of the Energy Park within Energy Park Area E, adjoining the River Crouch, to facilitate the import of abnormal indivisible loads (AILs) (e.g., the 400kV transformer) to the Energy Park. No works (e.g., dredging, piling, etc) will be undertaken within the marine realm below Mean High Water Springs (MHWS) should this option be utilised. As such, there is no potential for likely significant

effects within the marine realm to arise as a result of the potential use of the Marine Transfer Facility. Furthermore, no operations associated with the existing Marine Transfer Facility (such as the transport of equipment to the Energy Park via vessel or barge) have the potential to generate likely significant effects (for example associated with navigation), whereby the relevant management plans submitted with the DCO Application (e.g., the Outline CEMP) will secure the required controls, reports and consents via a Requirement of the DCO should the Marine Transfer Facility option be retained at the DCO Application stage. Marine-based topics, such as marine ecology, marine and coastal physical processes, marine archaeology, and navigation, are therefore scoped out of the EIA. Further information regarding the potential use of the Marine Transfer Facility will be set out within the ES.

6.10 Topic Chapter Structure

6.10.1 Each of the technical chapters (**Chapters 7** to **17**) of this EIA Scoping Report is set out as follows:

a. Introduction to the topic;
b. Description of the study area for the topic;
c. Legislation, planning policy context and guidance to the topic;
d. Consultation;
e. Baseline conditions;
f. Potential effects and mitigation;
g. Assessment methodology;
h. Limitations and assumptions; and
i. Summary of elements scoped in and out.

6.10.2 For **Chapter 17: Other Environmental Topics** of this EIA Scoping Report, a general discussion of each topic is provided, including the elements as listed above where relevant, but the text is not confined to the structure above.

6.11 References

Ref 6-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 6-2 UK Met Office Climate Data Portal; Available at: https://climatedataportal.metoffice.gov.uk/search?q=precipitation&tags=Climate%2CUK%2520observations%2520temperature Accessed: October 2026

Ref 6-3 UK Climate Projections (UKCP18) (2019); Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp Accessed: October 2026

Ref 6-4 European Commission (1999) Commission Report: Environmental Impact Assessment. Available at: https://tethys.pnnl.gov/sites/default/files/publications/European-Commission-1999.pdf Accessed: October 2026

Ref 6-5 Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment Accessed: October 2026

7. Agriculture and Soils

7.1 Introduction

7.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with agriculture and soils during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the agriculture and soils chapter of the Environmental Statement (ES).

7.1.2 This chapter is supported by the following figures:

a. **Figure 7-1: Predictive Agricultural Land Classification**; and
b. **Figure 7-2: Soil Associations**.

7.1.3 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 10: Ecology and Biodiversity** in relation to the assessment of potential impacts to the habitats supported by the land and soils within the EIA Scoping Site;
b. **Chapter 16: Water Environment** in relation to the assessment of potential impacts to the water environment from soil erosion; and
c. **Chapter 14: Socio-economics and Land Use** in relation to the assessment of the socio-economic impacts due to the change in land use.

7.2 Study Area

7.2.1 The study area for Agriculture and Soils is the EIA Scoping Site, including the Energy Park, Connection and Access Corridors and Grid Connection Corridor(s). No buffer is applied when describing the study area, as the impacts to soils and agriculture only occur on the land that is directly impacted by the Proposed Development.

7.2.2 It is noted that to provide additional context to the discussion of agricultural land within the ES, the impacts are based on the scale of loss of Best and Most Versatile (BMV) agricultural land (Grade 1, 2, and 3a), which will also be considered in the wider (Regional) context of the administrative areas of Essex County Council, Maldon District Council, Rochford District Council, Basildon

Borough Council and Chelmsford City Council. Furthermore, the assessment of agricultural land cumulative effects will be made in the context of other solar NSIPs in Essex, as noted in **Chapter 6: Environmental Impact Assessment Methodology** of this EIA Scoping Report.

7.3 Legislation, Planning Policy Context and Guidance

7.3.1 Legislation, planning policy and guidance relating to Agriculture and Soils and pertinent to the Proposed Development are listed in this section.

Legislation

7.3.2 Relevant legislation includes:

a. The Environment Act 2021 (Ref 7-1) establishes a statutory framework for environmental protection and improvement, including soil health, requiring the Secretary of State to set legally binding targets and prepare Environmental Improvement Plans aimed at conserving and enhancing natural resources, including soils;
b. Schedule 4, Part (y) of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (Ref 7-2). Even though it does not relate specifically to NSIPs, it makes Natural England a statutory consultee before granting planning permission for non-agricultural development exceeding 20ha on best and most versatile land (BMV) because of its specialist expertise in land and soils. In a similar way, for NSIPs, that specialist support is frequently sought regarding BMV land; and
c. The Agriculture Act 2020 (Ref 7-3).

National Planning Policy

7.3.3 The following planning policies from relevant National Policy Statements (NPS) have been considered as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (adopted 2025) (Ref 7-4), including paragraphs 4.6.13, 4.7.2, 5.11.12-5.11.15 in the Land Use, including Open Space, Green Infrastructure, and Green Belt section and 5.11.23 under mitigation;
b. NPS for Renewable Energy Infrastructure (EN-3) (adopted 2025) (Ref 7-5) Section 2.10 including paragraphs 2.10.21-2.10.26 and paragraph 2.10.73;

NPS for Electricity Networks Infrastructure (EN-5) (adopted 2025) (Ref 7-6) paragraph 2.9.26; and

c. The National Planning Policy Framework (NPPF) (Ref 7-33). Section 19 on conserving and enhancing the natural environment.

Local Planning Policy

7.3.4 The Proposed Development lies within the administrative area of the Basildon Borough, Chelmsford City, Maldon, and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the Agriculture and Soils assessment:

a. Essex County Council

   i. The local development plans prepared and adopted by Essex County Council do not contain policies that are directly relevant to the agriculture and soils assessment.

b. Basildon District Council

   i. Proposed Submission Draft Basildon Borough Local Plan 2023 – 2043 (Ref 7-8) with reference to Policy AQMP4: Protecting High Quality Agricultural Land.

c. Chelmsford City Council

   i. The Council will seek to minimise the loss of the BMV agricultural land to major new development in the Chelmsford Local Plan 2013-2036 (Ref 7-9), referring to Strategic policy S4–conserving and enhancing the natural environment.

d. Maldon District Council

   i. Approved Local Development Plan 2014 – 2029 (Ref 7-11), referring to Policy D4: Renewable and Low Carbon Energy Generation which seeks to prevent renewable and low carbon energy generation proposals on best and most versatile agricultural land.

e. Rochford District Council

   i. Local Development Framework Core Strategy (Ref 7-12), referring to policy ENV6- Large Scale Renewable Energy Projects: developers should show that the ecological integrity or natural landscape values would not be adversely affected. Paragraph 8.1 states that the Council will endeavour to maintain that the District's landscape, agricultural land and other natural resources are protected and enhanced.

ii. Draft Rochford Local Plan Regulation 18 (Ref 7-13), referring to Policy SC4 - Renewable and Low Carbon Energy Generation states that new development should not lead to the permanent or long-term loss of the BMV agricultural land where opportunities to use less versatile land exist; and Policy SC1 - Addressing the Climate and Ecological Emergency promotes the efficient use of natural resources (e.g., water and soil).

Relevant Industry Guidance

7.3.5 Relevant industry guidance includes:

a. A Green Future: Our 25-Year Plan to Improve the Environment, Chapter 1, Section 3 (Ref 7-14);
b. Clean Power 2030 Action Plan (Ref 7-15);
c. DEFRA Construction Code (2009) (Ref 7-16), which provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources;
d. Environmental Improvement Plan (EIP) 2025 (Ref 7-17);
e. Guidelines for grading the quality of agricultural land JP069 DEFRA (2025) (Ref 7-18);
f. Institute of Quarrying (IoQ) Good Practice Guide for Handling Soils in Mineral Workings (Ref 7-19);
g. ISEP guidance for Solar PV on Agricultural Land (2025) (Ref 7-20);
h. ISEP Institute of Environmental Management and Assessment (old IEMA) guidance document 'A New Perspective on Land and Soil in Environment Impact Assessment' (Ref 7-21);
i. Land Use Framework for England (Ref 7-22);
j. Natural England's Guide to Assessing Development Proposals on Agricultural Land 2021 (Ref 7-23);
k. Planning Practice Guidance for the Natural Environment (Ref 7-24);
l. Solar Energy UK (2024) Solar Farms and Agricultural Land (Ref 7-25);
m. The British Society of Soil Science (BSSS) Guidance Document 3: Working with Soil - Guidance Note on Benefitting from Soil Management in Development and Construction (2022) (Ref 7-26); and
n. Essex Sector Development Strategy. Essex County Council (2022) (Ref 7-28).

7.4 Consultation

7.4.1 No consultation has been undertaken to date specifically to inform the assessment of Agriculture and Soils; however, information gathered during consultation will be used as appropriate to inform the scope of the assessment.

7.4.2 Natural England will be consulted on the soil survey results and Predictive ALC mapping, in accordance with the Town and Country Planning (Development Management Procedure) (England) Order 2015 (Ref 7-2).

7.5 Baseline Conditions

7.5.1 This section describes the baseline environmental characteristics for the Proposed Development area and surrounding areas with specific reference to agricultural land and soils.

Sources of Information

7.5.2 The agricultural land and soil resources baseline conditions have been determined by a desk study of available information.

Desk Study

7.5.3 The following sources of published information were used to establish the baseline environment for soils and agricultural land within the ES:

a. Cranfield University (2015) Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report (Ref 7-10);
b. Cranfield University (2026) LandIS - Soilscapes viewer and NATMAP data (Ref 7-29);
c. Met Office (1989) Climatological Data for Agricultural Land Classification (ALC) (Ref 7-32);
d. Multi-Agency Geographical Information for the Countryside (MAGIC): Layers: Landscape – Predictive ALC 1:250,000 and Pos 1988 ALC surveys 1:10,000. (Ref 7-27); and
e. Predictive ALC Map 1:250,000 for England (2025) that includes the subdivision grade 3 land according to current ALC guidelines (Ref 7-31 and Ref 7-27).

ALC Soil Surveys

Energy Park

7.5.4 The Applicant has commenced an ALC soil survey of the Energy Park to inform the ALC grade baseline for ES assessment, test the predictive mapping and identify broad soil and ALC patterns. The ALC soil survey will follow the standard

methodology for ALC Surveys with soil auger samples taken at an appropriate density to map variations in soil types (as described in Annexe C - Soil Survey Methodology - ISEP (Ref 7-21)).

7.5.5 Where necessary, further surveys may be completed to establish robust ALC grade boundaries and distinguish Subgrades 3a and 3b. Further discussion to agree the ALC soil survey approach has been requested with Natural England.

Connection and Access Corridors and Grid Connection Corridor(s)

7.5.6 Construction within the Connection and Access Corridors and Grid Connection Corridor(s) is not expected to result in a change to the ALC grade.

7.5.7 For underground cabling (UGC) installation, the soil would be reinstated to its current condition, on top of any cabling, allowing the continuation of arable farming after installation of the cables. For overhead lines (OHLs), soil disturbance will be limited to small, discrete locations required for the OHL tower foundations, where the soil profile will be reinstated upon completion of construction and therefore not expected to result in a change to the ALC grade. Land in the Connection and Access Corridors and Grid Connection Corridor(s) will therefore be available for arable farming shortly after its reinstatement, with no effect after construction.

7.5.8 Given the current design optionality associated with both UGC and OHL solutions, full corridor-wide ALC surveys are not currently proposed as part of the EIA. Targeted soil and ALC surveys may be undertaken as the design develops where required to assess areas of potential permanent land take or significant soil effects. Detailed alignment-specific surveys of the Connection and Access Corridors and Grid Connection Corridor(s) would be undertaken post-consent to inform the Soil Management Plan (SMP).

Baseline Information

Agricultural land

7.5.9 The ALC is the standard method for classifying the quality of agricultural land in England and Wales. Land is assessed according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5).

7.5.10 Predictive ALC Map is a strategic scale (1:250,000 user scale) agricultural land classification map for England that includes the subdivision of Grade 3 land according to current ALC guidelines (Ref 7-18) and provides an indication of land

quality, including the extent and distribution of BMV agricultural land (Grade 1, 2, and 3a) within the EIA Scoping Site.

7.5.11 The ALC Grades Post-1988 Survey dataset comprises detailed field-survey mapping undertaken in accordance with the 1988 MAFF ALC guidelines, typically at a user scale of 1:10,000. The dataset distinguishes between Subgrades 3a and 3b and is widely used in planning because it is based on site-specific surveys rather than predictive modelling. However, coverage is limited to areas where detailed surveys have been completed; where available, it provides an authoritative assessment of land quality, including the extent and distribution of BMV agricultural land.

7.5.12 As shown in **Figure 7-1: Predictive Agricultural Land Classification** and within **Table 7-1** predictive ALC data (2025) indicates over 50% of the EIA Scoping Site is BMV land, with 20% Grade 2 and 33% Grade 3a.

Table 7-1: Indicative Area of Agricultural Land by Predictive ALC Grade within the EIA Scoping Site

ALC grade	Area (ha)	Area (%)
Grade 1	0	0
Grade 2	1100	20
Grade 3a	1813	33
Grade 3b	2482	45
Grade 4	0	0
Grade 5	4	<0.1
Non-agricultural	30	<1
Urban	35	<1
Total	**5464**	**100**

7.5.13 The Energy Park is divided into Energy Park Areas A-F, connected via Connection and Access Corridors (see **Figure 3-1: EIA Scoping Site and Proposed Development Components**). Table 7-2 indicates that Energy Park Area D comprises BMV land, with 100% of the area classified as Grade 2 and Grade 3a land. Energy Park Areas: B-East, E and F are also predominantly BMV land.

Table 7-2: Indicative Area of Agricultural Land by Predictive ALC Grade within Energy Park Areas A-F

Energy Park Area	ALC Grade	Area (ha)	Area (%)
Energy Park Area A	3a	30	18
	3b	136	82
	5	<0.1	<0.1
	NA	<0.1	<0.1
	Total	*165*	*100*

Energy Park Area	ALC Grade	Area (ha)	Area (%)
Energy Park Area B-East	2	55	38
	3a	88	62
	5	<0.1	<0.1
	Total	*143*	*100*
Energy Park Area B-West	3a	47	29
	3b	116	71
	NA	<1	<1
	Total	*163*	*100*
Energy Park Area C	2	4	3
	3a	51	43
	3b	65	54
	Total	*120*	*100*
Energy Park Area D	2	36	14
	3a	216	86
	Total	*252*	*100*
Energy Park Area E	2	594	72
	3a	230	28
	5	<1	<0.1
	Total	*824*	*100*
Energy Park Area F	2	39	58
	3a	25	36
	3b	4	6
	Total	*68*	*100*
	Total	**1735**	**100**

Soils

7.5.14 The published soils data for the study area are taken from the Soil Survey of England and Wales (Ref 7-29) 1:250,000 mapping NATMAP. The soils data, represented by soil associations, are presented in **Figure 7-2: Soil Associations** within the EIA Scoping Site.

7.5.15 The EIA Scoping Site comprises nine different soil associations (see **Table 7-3**) which share the characteristic of being naturally wet or having slightly impaired drainage. Most of the area is covered by Wallasea 2, Ratsborough and Windsor soil types. The soils can be further characterised using the Soilscapes classification system. Within the EIA Scoping Site, Soilscape 21 predominates and comprises loamy and clayey soils of coastal flats with naturally high groundwater levels. These soils are typically calcareous and of moderate fertility, making them well suited to arable agriculture and generally highly productive. Localised areas of heavier-textured soils are also present, where conditions are often more favourable for grassland use.

7.5.16 Wallasea 2 soils comprise deep clayey alluvial soils on low-lying coastal land, where groundwater levels are typically controlled by ditches and pumps and drainage conditions strongly influence soil behaviour. In contrast, Ratsborough soils are generally fine silty and fine loamy over clayey subsoils, with slowly permeable layers that cause slight seasonal waterlogging. Windsor soils are typically deep, loamy soils, often associated with moderately impeded drainage and productive agricultural land. Although these soil associations differ in texture and origin, they share several characteristics, including the presence of slowly permeable subsoils, a tendency towards wetness or restricted drainage, and a reliance on artificial drainage in places to support agricultural use. As a result, these soils are commonly associated with seasonal groundwater influence and can be sensitive to compaction and the movement of pollutants where drainage networks connect fields to surrounding watercourses.

Table 7-3: Soil Associations within the EIA Scoping Site

Soil Association	Description	Area (ha)	Area (%)
Wallasea 2	Loamy and clayey soils of coastal flats with naturally high groundwater	1430	26
Ratsborough	Slightly acid, loamy and clayey soils with impeded drainage	1183	22
Windsor	Slowly permeable, seasonally wet, slightly acid, but base-rich loamy and clayey soils	1090	20
Agney	Loamy and clayey soils of coastal flats with naturally high groundwater	653	12
Wallasea 1	Loamy and clayey soils of coastal flats with naturally high groundwater	638	12
Hurst	Loamy soils with naturally high groundwater	452	8
Hamble 2	Freely draining, slightly acid loamy soils	10	<1
Lake	Water	8	<1
Saline 1	Saltmarsh soils	<1	<1
Total		**5464**	**100**

7.6 Potential Effects and Mitigation

7.6.1 This section sets out the potential effects of the Proposed Development on Agriculture and Soils. The Agriculture and Soils assessment will consider the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. Details of each of these phases are set out in **Chapter 3: Proposed Development** of this EIA Scoping Report. The Proposed

Development may generate a range of effects, some of which may be temporary, whilst others would be permanent.

7.6.2 The assessment will consider the following receptors within the study area:

a. Agricultural land and land use, including the loss of BMV land; and
b. Quality of soil resources in terms of potential for disturbance/damage or improvement through changes in land management.

7.6.3 Land take for the Main On-Site Substation, Collector Substations, BESS Compound(s), Control Building, and Power Conversion Units will consider ALC survey results to avoid Very High sensitivity land (Grade 1 and 2) if possible and practicable. This land will be assessed as if these represent a permanent downgrading of agricultural land quality because reinstatement to the same ALC grade is not guaranteed following the decommissioning phase.

7.6.4 Permanent loss of agricultural land due to the Proposed Development will likely be limited to the areas of ecological enhancement and/or habitat creation within the EIA Scoping Site. Planting areas of trees and hedgerows are expected to remain after the Proposed Development has been decommissioned. The loss of this land from agriculture cannot be mitigated, but there are other environmental benefits from the change of land use. Where practicable and depending upon the habitats to be created, these will be located on non-BMV land.

Construction

7.6.5 During construction of the Proposed Development, the following adverse agricultural land and soil impacts have the potential to occur if not mitigated.

a. *Disturbance of Soil Resources* - the disturbance of soil resources may occur from the trafficking by vehicles or through soil removal, handling, storage, and subsequent reinstatement, which may reduce soil quality if good practice measures are not followed. Good practice soil resource management will be delivered through a SMP, which will be a key document for maintaining soil resource quantity and quality. An Outline SMP (OSMP) will be submitted with the DCO Application and secured by a Requirement of the DCO.
b. *Loss of BMV Agricultural Land* - potential for BMV land to be present within the EIA Scoping Site (Predictive ALC Grade 2, and 3a) and, therefore, potential for short and long-term temporary and permanent loss of BMV agricultural land.

Disturbance of Soil Resources

7.6.6 During the construction phase activities that will cause soil disturbance to and potentially impact upon soil resources include the following:

a. Stripping and stockpiling of topsoil and subsoil, storage and reinstatement;
b. Ground excavation;
c. Trenchless crossing techniques such as Horizontal Direction Drilling (HDD);
d. Stockpiling materials;
e. Levelling ground;
f. Cable trenching;
g. Haul road construction; and
h. Vehicle movements onsite.

7.6.7 This disturbance may result in the impairment of soil function, quality and resilience. This effect comprises such changes as:

a. Compaction and smearing (damage to soil structure);
b. Mixing of distinct soil horizons (e.g. topsoil with subsoil) reducing their potential reuse;
c. Mixing of distinctive soil types;
d. Damage or removal of the vegetation layer and loss of ecosystem services; and
e. Changes in the soil fertility.

7.6.8 It is anticipated that all soil resources will be retained onsite and not exported for reuse elsewhere. Poor practice in handling and storage of soil resources during construction may also render them unsuitable for reuse in site restoration and represents a diminution of soil quality. Examples include mixing topsoil and subsoil or mixing soils of different types.

Loss of BMV Agricultural Land

7.6.9 The Proposed Development comprises various infrastructure the construction of which has the potential to cause short and long-term, temporary and permanent loss of BMV agricultural land.

a. *Construction compound and laydown areas* – topsoils and subsoil would be stripped but the soil profile would be reinstated upon completion (with all soil management and handling in line with Defra's Construction Code of Practice (Ref 7-16)) allowing the original agricultural land use to resume and land quality (ALC grade) to be maintained.
b. *Underground cabling* – topsoil and subsoils excavated in the Connection and Access Corridors and Grid Connection Corridor(s) would be stored

temporarily adjacent to the cable trench and the soil profile would be reinstated upon completion (with all soil management and handling in line with Defra's Construction Code of Practice (Ref 7-16)) allowing the original agricultural land use to resume and land quality (ALC grade) to be maintained.

c. *Solar PV Module mounting structures* - considered temporary given that the soil is still present beneath the solar PVs (it is not displaced) and following implementation of good soil handling and construction methods (secured through the Outline SMP and Outline CEMP), the soil should maintain the same ALC or recover to this status.

d. *Hardstanding-situated infrastructure* – including, but not limited to, the Main On-Site Substation, Collector Substation(s), BESS Compound(s), Power Conversion Units (PCU), and potential OHL towers (in the Connection and Access Corridors and Grid Connection Corridor(s)) will require soil excavation. Topsoils and subsoils would be stripped and stored separately, with potential storage locations to be identified in the Detailed SMP. A permanent change in land quality could occur in the areas occupied by hardstanding.

e. *Ecological enhancement* - permanent land-use change will occur in areas of ecological enhancement, where trees and hedgerows are planted to create habitat. These are expected to remain after the Proposed Development has been decommissioned.

Operation (and Maintenance)

7.6.10 Agricultural and soil impacts during the operation (and maintenance) phases will be less than those of the construction phase of the Proposed Development:

a. Occasional movements of maintenance vehicles may lead to localised compaction, especially during wet conditions, resulting in temporary loss of soil structure and reduced drainage capacity; and,

b. Periodic maintenance such as panel repair, inverter replacement, vegetation control or cable inspections may cause small-scale disturbance of soils, localised trafficking and temporary removal of vegetation.

7.6.11 The removal of areas of the Energy Park from arable rotation for at least 40 years has the potential to deliver environmental benefits, the most important being an improvement in soil structure and carbon sequestration. This would occur through an increase in soil organic matter (SOM) content due to the lack of regular disturbance by cultivation and potential inputs from the presence of livestock (manure). An increase in SOM content equals carbon sequestration

(SOM contains 58% carbon), which would contribute to removing carbon dioxide from the atmosphere and the mitigation of climate change. An increase in SOM content would also have positive effects on other soil properties, such as water infiltration rates and water-holding capacity (which contribute to flood alleviation), nutrient content, and microbial diversity and activity. Increased SOM would also increase the soil buffering capacity, reducing the frequency of liming. It is also likely that the subsoil structure would be improved owing to the deep root systems of the permanent grassland vegetation and increased earthworm activity (promoted by a lack of disturbance and an ample plant food source), thereby stimulating the aggregation of soil particles.

7.6.12 The land underneath and around the Solar PV Module mounting structures would be sown to establish permanent vegetation cover with the planting mixture established within a Landscape and Ecological Management Plan (LEMP), with an Outline LEMP submitted alongside the DCO Application. The Applicant is considering how this vegetation will be managed during the operation (and maintenance) phase of the Proposed Development.

Decommissioning

7.6.13 Decommissioning agriculture and soils impacts are expected to be similar to (but lesser) than those during construction.

7.6.14 It is expected that the above-ground Energy Park infrastructure will all be removed during decommissioning in accordance with a Decommissioning Environmental Management Plan (DEMP). Piles removed and concrete pads cut to a practical level below the ground level to allow for arable farming following reinstatement. Buried cables may be left in situ, depending on the good industry practice at the time, but are sufficiently deep not to interfere with arable farming and would therefore not have a permanent effect on agricultural land.

Mitigation

7.6.15 Mitigation measures relevant to agriculture and soils are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

7.6.16 The short-term temporary loss of agricultural land during construction of the Proposed Development and any maintenance works during operation (and maintenance) cannot be avoided, however through ongoing consultation with landowners, measures will be taken to minimise impacts to the surrounding land and farming operations.

7.6.17 Where possible, mitigation measures to avoid or reduce soil damage and loss will be incorporated into the design of the Proposed Development (embedded mitigation) such that they inform the layout of the Energy Park and/or how it shall be constructed. Through iterative assessment, potential impacts will be identified alongside opportunities to mitigate them with the aim of preventing or reducing impacts as much as possible. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset.

7.6.18 Industry standard guidance/current best working practice set out in Construction Code (Ref 7-16) and the Good Practice Guide for Handling Soils (Ref 7-19) will be followed in relation to soil workings throughout the construction, operation (and maintenance) and decommissioning phases of the Proposed Development.

7.6.19 Any potential impacts would be mitigated through industry standard measures which will be outlined in the ES and included in the Outline SMP and Outline Construction Environmental Management Plan (CEMP), to be submitted with the DCO Application.

Operation (and maintenance)

7.6.20 To minimise risk of soil erosion within the EIA Scoping Site, existing grass cover would be maintained, and new permanent grassland mix cover created (grassland mix dependent upon any habitat creation requirements). This cover would be maintained for the lifetime of the Proposed Development and would protect the soil surface from the effects of surface run-off. Any areas where vegetation cover was damaged and/or bare soil is exposed will be re-seeded. Additionally, the detailed drainage and panel design will incorporate measures, where necessary, to prevent excessive surface water runoff and minimise the risk of soil erosion.

7.6.21 Any potential impacts would be mitigated through industry standard measures which will be outlined in the ES and included in the Outline SMP and Outline Operation Environmental Management Plan (OEMP), to be submitted with the DCO Application.

Decommissioning

7.6.22 The decommissioning phase would apply similar design and mitigation measures as the construction phase.

7.6.23 Any potential impacts would be mitigated through industry standard measures which will be outlined in the ES and included in the Outline SMP and Outline Decommissioning Environmental Management Plan (DEMP), to be submitted with the DCO Application.

7.7 Assessment Methodology

7.7.1 This section describes the methodology proposed for the assessment of effects on Agriculture and Soils in the ES, including the criteria for the determination of the importance of the receptor and the magnitude of change from baseline conditions.

7.7.2 Potential impacts of the Proposed Development on Agriculture and Soil will be assessed in the ES by:

a. Considering the existing (baseline) status of the agriculture and soils within the EIA Scoping Site. No buffer is applied, as impacts on soils and agriculture occur only on land directly affected by the Proposed Development.
b. Identifying potential impacts of the Proposed Development on the agricultural land and soil resources during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation (and maintenance), and decommissioning (e.g. via the appropriate outline management plans submitted with the DCO Application and secured via Requirements of the DCO) to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures (via the appropriate outline management plans submitted with the DCO Application and secured via Requirements of the DCO) to limit impacts.

7.7.3 Cumulative effects of other developments on Soils and Agriculture will be addressed within the ES. The cumulative effects assessment will consider the effects of the Proposed Development and other solar NSIPs in Essex on agricultural land.

7.7.4 The ISEP guidelines provide threshold areas for the permanent sealing of land or land quality downgrading. Long-term temporary development, such as that of the Proposed Development, is expected to present a low impact magnitude, following the ISEP guidance (Ref 7-21). The sensitivity of areas of the EIA Scoping Site will be determined by the ALC grade:

a. ALC Grades 1 and 2 will be recognised as very high sensitivity and long-term temporary land-use changes affecting ALC Grade 1 and 2 land will be assessed with regard to the potential effects on agricultural land quality

and the feasibility of reinstatement, recognising the high sensitivity of these land grades. Permanent effects will be limited to areas of permanent land take or where agricultural land quality cannot reasonably be restored.

b. ALC Grades 3a to 5, reinstatement is anticipated, and effects will not be considered permanent.

7.7.5 For temporary soil disturbances, including areas where restoration is proposed, the assessment will consider the likely recovery period and effectiveness of reinstatement measures.

7.7.6 The assessment will be undertaken in line with ISEP's guidance document 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Ref 7-21), with particular reference to Section 9: Assessing Impacts on Land and Soil.

ALC Soil Survey

7.7.7 An ALC soil survey will be undertaken for the land within the Energy Park to determine the ALC quality of the land (see paragraph 7.5.4). The ALC soil survey will be designed using a sampling density that reflects site-specific conditions, variability, and the scale of assessment, using auger sampling and soil pit inspection.

7.7.8 An ALC soil survey will not be undertaken within the Connection and Access Corridors and the Grid Connection Corridor(s); assessment will be based on predictive ALC desk data. The Outline SMP will commit to post-consent ALC soil surveys to determine the ALC grade for reinstatement in these areas and to inform soil handling in the detailed SMP.

Sensitivity

7.7.9 Under the IEMA/ISEP guidelines, the permanent loss of BMV agricultural land, including areas of less than 5ha of Grade 3a land, may result in a 'slight' or 'moderate' effect. For consistency with standard EIA terminology, this methodology uses the term 'minor' rather than 'slight'.

Agricultural Land Classification

7.7.10 ISEP guidance provides guidance on receptor sensitivity for both soil resource and soil functions, with agricultural land quality referred to as the soil function of 'biomass production' (the growing of food, fibre and fuel).

7.7.11 Table **Table 7-4** below summarises the ISEP suggested sensitivity of receptor for agricultural land.

Table 7-4: Sensitivity Criteria for Agricultural Land

Sensitivity / Value	Value Criteria
Very high	ALC Grade 1 & 2
High	ALC Subgrade 3a
Medium	ALC Subgrade 3b
Low	ALC Grade 4 & 5
Negligible	As for low sensitivity, but with only indirect, tenuous and unproven links between sources of impact and soil functions.

Soil Resources

7.7.12 The ISEP guidance provides suggested sensitivity and magnitude criteria for a range of other soil functions such as ecological habitat and archaeology, which are covered within **Chapter 10: Ecology and Biodiversity** and **Chapter 9: Cultural Heritage** respectively. The development of agricultural land can impact the soil resource beyond the loss of agricultural resources.

7.7.13 Assessing the sensitivity of soil resources to damage (i.e. resistance and resilience of the soil environment, not the importance of the land for agricultural use) is recognised as being complex as soil resources provide a range of functions (ecosystem services), such as supporting plant growth (including food and other crops), water filtration and regulation (role in flood control), nutrient transformation (e.g. role in the nitrogen cycle), carbon storage and sequestration, and supporting biodiversity. The sensitivity criteria for soil resources are therefore based on the susceptibility to damage, both temporarily and permanently, when handled.

7.7.14 It is recognised within the ISEP guidance that some soils are more sensitive to damage when handled than others. For example, soils with a high sand fraction are considered low in sensitivity, as the permeable nature of the lighter soils makes natural structural recovery and drainage potential easier to maintain. The field capacity days (FCDs) are also considered. Field capacity (FC) is the amount of water a soil holds after gravity has drained the excess water from large pores and represents the upper limit of plant-available water. FCD is the number of days the soils are at FC.

7.7.15 The soil resources sensitivity given in **Table 7-5** relates to soil disturbance from development activities, including soil stripping, storage, and respreading, and to structural degradation of soil caused by the passage of plant. These are the

activities that present the greatest risk of soil degradation in the construction, operation (and maintenance), and decommissioning of a solar farm.

Table 7-5: Sensitivity of Soils Resources

Sensitivity / Value	Example Criteria
Very High	Disturbing heavy textured soil in plastic condition Disturbing deep peat (>1m), carbon-rich or priority peatland
High	Disturbing medium-textured soil in plastic condition Disturbing shallow peat/organo-mineral peat soils.
Medium	Disturbing heavy to medium textured soil in friable condition Disturbing heavily degraded peat or peat-derived soils
Low	Disturbing light-textured soil in friable condition Disturbing residual or remnant peat soils are extensively oxidised and mineralised and no longer functioning as a carbon store or hydrological unit.

Magnitude

Agricultural Land Classification

7.7.16 The ISEP guidance on assessing land and soil in EIA clarifies that the guidance on assessing magnitude (**Table 7-6**) of impact applies to 'hard development' which includes permanent sealing or sterilisation of agricultural land. For instance, the change of agricultural land to trees or woodland does not fall under these definitions and is therefore not subject to this assessment criteria. This aligns with current Government initiatives to encourage farmers to convert arable land to woodland in England and Wales.

Table 7-6: Magnitude of Change: Agricultural Land Resource

Magnitude of Change	ISEP Criteria
Major	Permanent Loss of over 20ha
Moderate	Permanent Loss of 5 to 20ha
Minor	Permanent Loss of less than 5ha
No Change/Negligible	No Discernible Loss of Agricultural Land

Soil Resources

7.7.17 Magnitude of change criteria used to inform the assessment of effects to Soil resources adopt the same criteria and are presented in **Table 7-7**. These are

taken from Table 3 of the ISEP guidance. These consider the magnitude (or scale) of change from current baseline conditions.

Table 7-7: Magnitude of Change Criteria: Soil Resources

Magnitude of Change	Example Criteria
Major	Disposal of topsoil or loss of productive functional capacity, e.g. land contamination (Adverse), or Permanent improvement in productive functional capacity > 20ha (Beneficial)
Moderate	Loss of topsoil for agricultural production but retained for beneficial reuse, or degradation of productive capacity, e.g. puddled topsoil (Adverse) or Permanent improvement in productive functional capacity 5 to 20ha (Beneficial)
Minor	Loss of subsoil for agricultural production, but retained for beneficial reuse (Adverse) or Permanent improvement in productive functional capacity < 5ha (Beneficial)
No Change/Negligible	Marginal loss of soil material, e.g. light erosion from construction easement (Adverse).

Crop selection and agricultural production systems

7.7.18 Crop selection and food production are not included in the scope of this assessment. The DEFRA UK Food Security Report 2024 (Ref 7-30) notes that, with continued growth in output and conducive market conditions, food production levels could be maintained or moderately increased alongside the land use change required to meet Net Zero and Environment Act targets and commitments.

7.7.19 Research from Lancaster University, published in Progress in Energy in 2025, digitised over 1,000 solar farms across the UK from satellite imagery. Solar farms currently occupy roughly 0.07% of total UK land area. Meeting the previous government's 70GW target by 2035 would require solar farms to cover no more than 0.31% to 0.56% of UK land, with the upper figure assuming every single new panel is ground-mounted, with zero rooftop deployment (Ref 7-34).

7.7.20 Farming output varies annually due to weather conditions and productivity gains from improved crop varieties. These fluctuations typically exceed 1%. Consequently, food production levels can be maintained or increased alongside

land-use change; therefore, there are no likely significant effects on food production requiring further consideration in the ES.

Determining the Significance of Effects

7.7.21 **Table 7-8** provides the significance of effects matrix, taking account of the magnitude of impact and the sensitivity of the receptors detailed above and is applicable for both the Agricultural Land Resource and Soil Resource assessments. Only effects classified as Moderate or Major are considered significant.

Table 7-8: Significance of Effects Matrix

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

7.8 Limitations and Assumptions

7.8.1 It is not currently confirmed how the land will be managed under and around the Solar PV Modules. This is currently being explored by the Applicant through discussions with landowners.

7.8.2 The predictive mapping of ALC grades indicates that most land is BMV with the presence of Grade 2 and Grade 3a land, but this requires survey confirmation. **Section 7.7**: ALC Soil Survey details the approach to be adopted to derive field survey data.

7.8.3 It is assumed that all soil resources will be retained and reused on site, as far as reasonably practicable, and will not be exported for reuse elsewhere, in accordance with the Soil Management Plan. The construction and operation (and maintenance) of the Solar PV Module mounting structures will not lead to the long-term degradation or loss of soils. Improvement to soil structure and carbon sequestration in soils over the operational life of the Proposed Development is anticipated.

7.9 Summary of Elements Scoped In and Out

7.9.1 Due to the potential for effects on agricultural land receptors and resources from the Proposed Development, the potential impacts upon agricultural land and soil resources are scoped into the ES. The ES chapter will be supported by the ALC soils assessment methodology, described in **Section 7.7**. A summary of the elements scoped in and out of the ES chapter is presented in **Table 7-9** below.

Table 7-9: Elements scoped in and out of the BMV agricultural land and soil resources assessment

Element	Scoped In/Scoped Out
BMV agricultural land within the EIA Scoping Site (construction and decommissioning)	**Scoped in** – there is potential for land take from agricultural land, which may comprise BMV, within the EIA Scoping Site.
BMV agricultural land within the EIA Scoping Site (operation and maintenance)	**Scoped out** – there is no further development of the land during operation, and maintenance activities do not have the potential to result in likely significant effects.
Soil resources within the EIA Scoping Site (construction and decommissioning)	**Scoped in** – there is potential to impact soil resources in terms of disturbance and damage.
Soil resources within the EIA Scoping Site (operation and maintenance)	**Scoped out** – resting the soil from cultivation and agricultural production will result in benefits to the soil resources, which do not have the potential to result in likely significant effects.
Crop selection and agricultural production	**Scoped out** – the topic is considered by UK Government at the national scale and land use change is not considered a likely significant effect. DEFRA maintains that food production levels can be maintained or moderately increased alongside the land use change required to meet our Net Zero and Environment Act targets and commitments

7.10 References

Ref 7-1 DEFRA (2021). Environment Act 2021. Accessed in September 2026. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents Accessed: October 2026

Ref 7-2 His Majesty's Government (2015). Statutory Instrument 2015 No. 595, The Town and Country Planning (Development Management Procedure) (England) Order 2015. Accessed in September 2026. Available at: https://www.legislation.gov.uk/uksi/2015/595/contents/made Accessed: October 2026

Ref 7-3 HM Government (2020). The Agriculture Act 2020. Accessed in September 2026. Available at: https://www.legislation.gov.uk/ukpga/2020/21/contents/enacted Accessed: October 2026

Ref 7-4 DESNZ (2025). (EN-1) Overarching National Policy Statement for Energy. Accessed in September 2026. Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage Accessed: October 2026

Ref 7-5 DESNZ (2025). (EN-3) National Policy Statement for Renewable Energy Infrastructure. Accessed in September 2026. Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025 Accessed: October 2026

Ref 7-6 DESNZ (2025). (EN-5) National Policy Statement for Electricity Networks Infrastructure Accessed in September 2026. Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 7-7 National Planning Policy Framework NPPF (2025). Accessed in September 2026. Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf Accessed: October 2026

Ref 7-8 Basildon Borough Council (2024). Basildon Borough Draft Local Plan 2023 – 2043. Accessed: September 2026. Available at: https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca3/media-upload/Basildon%20Borough%20Draft%20Local%20Plan%202023%20-%202043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026

Ref 7-9 Chelmsford City Council (2020). Chelmsford Local Plan 2013-2036 Adopted Plan. Accessed in September 2026. Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 7-10 Cranfield University (2015). Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report. pp147. Accessed in September 2026. Available at: https://www.theccc.org.uk/wp-content/uploads/2015/06/Cranfield-University-for-the-ASC.pdf. Accessed: October 2026

Ref 7-11 Maldon District Council (2017). Approved Local Development Plan 2014 – 2029. Accessed in September 2026. Available at: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf Accessed: October 2026

Ref 7-12 Rochford District Council. (2011). Local Development Framework, Core Strategy Adopted. Accessed in September 2026. Available at: https://www.rochford.gov.uk/core-strategy Accessed: October 2026

Ref 7-13 Rochford District Council (2026). Draft Rochford Local Plan Regulation 18. Accessed in September 2026. Available at: https://www.rochford.gov.uk/the-rochford-district-local-plan Accessed: October 2026

Ref 7-14 HM Government (2018). A Green Future: Our 25 Year Plan to Improve the Environment. Accessed in September 2026. Available at: https://assets.publishing.service.gov.uk/media/65fd713d65ca2f00117da89e/CD1.H_HM_Government_A_Green_Future_Our_25_Year_Plan_to_Improve_the_Environment.pdf Accessed: October 2026

Ref 7-15 DESNZ (2024). Clean Power 2030 Action Plan: A new era of clean electricity. Accessed in September 2026. Available at: https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf Accessed: October 2026

Ref 7-16 DEFRA (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Accessed in September 2026. Available at: https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites Accessed: October 2026

Ref 7-17 DEFRA (2025). Environmental Improvement Plan (EIP) 2025. Accessed in September 2026. Available at: https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025 Accessed: October 2026

Ref 7-18 DEFRA (1988 updated in 2025). JP069 Agricultural land classification of England and Wales: Guidelines for grading the quality of agricultural land. Accessed in September 2026. Available at: https://publications.naturalengland.org.uk/publication/6257050620264448 Accessed: October 2026

Ref 7-19 Institute of Quarrying (2021). Good Practice Guide for Handling Soils in Mineral Workings. Accessed in September 2026. Available at: https://www.quarrying.org/soils-guidance Accessed: October 2026

Ref 7-20 ISEP (2025). Solar PV on Agricultural Land: Essential Components of Environmental Assessments and Reports. Accessed in September 2026. Available at: https://www.isepglobal.org/media/onndjxns/isep-solar-pv-on-agricultural-land-2025.pdf Accessed: October 2026

Ref 7-21 ISEP - IEMA (2022). A New Perspective on Land and Soil in Environmental Impact Assessment. Accessed in September 2026. Available at: https://www.shropshire.gov.uk/media/27336/cd-910-iema-land-and-soils-guidance.pdf Accessed: October 2026

Ref 7-22 DEFRA (2026) The Land Use Framework for England. Accessed in September 2026. Available at: https://assets.publishing.service.gov.uk/media/69c69033471d520038d0f7a6/Land_Use_Framework_Accessible.pdf Accessed: October 2026

Ref 7-23 Natural England (2021). Guide to assessing development proposals on agricultural land. Accessed in September 2026. Available at: https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land Accessed: October 2026

Ref 7-24 HM Government (2025). Planning Practice Guidance for the Natural Environment. Accessed in September 2026. Available at: https://www.gov.uk/guidance/natural-environment Accessed: October 2026

Ref 7-25 Solar Energy UK (2024) Solar Farms and Agricultural Land. Available at: https://solarenergyuk.org/wp-content/uploads/2024/06/FactSheet-Solar-Farms-and-Agricultural-Land-2024.pdf Accessed: October 2026

Ref 7-26 The British Society of Soil Science (2022). Guidance Document 3: Working with Soil - Guidance Note on Benefitting from Soil Management in Development and Construction. Accessed in September 2026. Available at: https://soils.org.uk/wp-content/uploads/2022/02/WWS3-Benefitting-from-Soil-Management-in-Development-and-Construction-Jan-2022.pdf Accessed: October 2026

Ref 7-27 DEFRA (2002). Multi Agency Geographic Information for Countryside (MAGIC). Accessed in September 2026. Available at: https://magic.defra.gov.uk/ Accessed: October 2026

Ref 7-28 Essex County Council (2022). Essex Sector Development Strategy, Accessed in September 2026. Available at: https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/3NhjkWUBS0sq8Qs4JtEs0I/a181eb994e3a1df50ab58254be509ed5/ECC-Essex-Sector-Development-Strategy-medium-form.pdf Accessed: October 2026

Ref 7-29 Cranfield University (2026). LandIS - Soilscapes viewer of Soil Survey of England and Wales (1984). Soils and their Use in England and accompanying 1:250,000 map. Accessed in September 2026. Available at: https://portal.landis.org.uk/ Accessed: October 2026

Ref 7-30 DEFRA (2024). United Kingdom Food Security Report 2024. Accessed in September 2026. Available at: https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2024 Accessed: October 2026

Ref 7-31 DEFRA (2026). Predictive Agricultural Land Classification Map for England 1:250, 000 user scale. Accessed in September 2026. Available at: https://environment.data.gov.uk/dataset/a817d96f-271d-487b-89ad-48d271f931aa Accessed: October 2026

Ref 7-32 Meteorological Office and Natural England (1989). Climatological Data for Agricultural Land Classification. (ALC010) Accessed in September 2026. Available at: http://publications.naturalengland.org.uk/publication/6493605842649088 Accessed: October 2026

Ref 7-33 National Planning Policy Framework NPPF (2026). Accessed in September 2026. Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026

Ref 7-34 Blaydes et al, (2025) Shedding light on land use change for solar farms. Progress in Energy. Accessed in October 2026. Available at: https://iopscience.iop.org/article/10.1088/2516-1083/adc9f5/pdf Accessed: October 2026

8. Climate Change

8.1 Introduction

8.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with climate change during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the climate change chapter of the Environmental Statement (ES).

8.1.2 To align with the requirements of the EIA Regulations (Ref 8-1) and Institute of Sustainability and Environmental Professionals (ISEP) guidance for assessing climate mitigation and adaptation in EIAs (Ref 8-2 and Ref 8-3), consideration has been given within this chapter to the following aspects of the climate change assessment:

a. **Lifecycle greenhouse gas (GHG) impact assessment:** the impact of GHG emissions arising from the Proposed Development on the climate over its lifetime;
b. **In-combination climate change impact (ICCI) assessment:** the combined impact of the Proposed Development and future climate change on the receiving environment; and
c. **Climate change risk assessment (CCRA):** the resilience of the Proposed Development to future climate change impacts.

8.2 Study Area

8.2.1 The study area for the climate change assessments is illustrated in **Figure 1-1: Proposed Development Location Plan** and **Figure 3-1: EIA Scoping Site and Proposed Development Components**, which includes the Energy Park (including Energy Park Area A-F), Grid Connection Corridor(s), and Connection and Access Corridors, referred to collectively as the 'EIA Scoping Site'.

8.2.2 The study area and scope of the GHG assessment considers all direct GHG emissions arising from activities undertaken within the EIA Scoping Site Boundary during the construction, operation (and maintenance), and decommissioning of the Proposed Development. It also includes indirect emissions usually arising outside the EIA Scoping Site Boundary, such as emissions embedded within the construction materials arising as a result of the

energy used for their production, as well as emissions arising from the transportation of materials, waste and construction workers. The study area and scope also considers activities that may be avoided or displaced because of the Proposed Development, for example, other grid electricity production activities, e.g. fossil-fuelled energy generation displaced by the renewable energy generated from the Proposed Development.

8.2.3 The study area for the CCRA assessment considers the impact of climate change on the Proposed Development during construction, operation (and maintenance) and decommissioning of the Proposed Development.

8.2.4 The study area for the ICCI assessment will be defined taking into account the relevant environmental assessments reported within the ES. This will include all relevant environmental receptors identified within the assessments undertaken and reported within the ES and will therefore be defined in the ES.

8.2.5 The relevant time periods will be assessed for the construction, operation (and maintenance) and decommissioning phases of the Proposed Development.

8.3 Legislation, Planning Policy Context and Guidance

8.3.1 Legislation, planning policy and guidance relating to climate change and pertinent to the Proposed Development is listed in this section below.

Legislation

8.3.2 Relevant legislation includes:

a. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017: Section 5(2) and Schedule 4, paragraphs 4 and 5 (Ref 8-1).
b. The Climate Change Act 2008 (as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019) (Ref 8-4). The Climate Change Act 2008 set a legally binding target for the UK to reduce its GHG emissions from 1990 levels by at least 80% by 2050. This target is supported by a system of legally binding five-year 'carbon budgets' and an independent body to monitor progress, the Climate Change Committee (CCC). The UK carbon budgets restrict the amount of GHG emissions the UK can legally emit in a defined five-year period. The Act was amended in 2019 to revise the existing 80% reduction target and legislate for Net Zero emissions by 2050.
c. UK's 2030 Nationally Determined Contribution (2020) (Ref 8-5).

d. UK's 2035 Nationally Determined Contribution (NDC) emissions reduction target under the Paris Agreement (2025) (Ref 8-6).
e. The Carbon Budget Order 2011 (sets the carbon budget for the 2023–2027 budgetary period) (Ref 8-7).
f. The Carbon Budget Order 2016 (sets the carbon budget for the 2028–2032 budgetary period) (Ref 8-8).
g. The Carbon Budget Order 2021 (sets the carbon budget for the 2033-2037 budgetary period) (Ref 8-9).
h. The Carbon Budget Order 2026 (Ref 8-10) sets out the UK's 7th carbon budget for the period of 2038 to 2042 at 535 million tonnes of carbon dioxide equivalent ($MtCO_2e$). This carbon budget has been approved by the UK government and ratified by parliament, making it legally binding.
i. The Paris Agreement (2015) (Ref 8-11) is a legally binding agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with GHG emissions mitigation, adaptation and finance starting in the year 2020. It requires all signatories to set a target, known as an NDC and to strengthen their climate change mitigation efforts to keep global warming to well below 2°C this century and to pursue efforts to limit global warming to 1.5°C. The agreement contains a 'ratchet' mechanism by which NDCs must be strengthened every five years.
j. The Energy Act (2023) (Ref 8-12) includes a number of changes aimed at creating a more energy efficient energy system and lays the groundwork for achieving the UK's climate targets through promoting low-carbon technologies.

National Planning Policy

8.3.3 The following national planning policy, climate change and energy policy and strategy documents have been considered in developing the assessment methodology, including the identification of receptors and their sensitivity, potential significant environmental effects, and mitigation measures:

a. Overarching National Policy Statement for Energy (NPS EN-1) (2025) (Ref 8-19) with particular reference to paragraphs 4.10.1 to 4.10.4 in relation to climate change adaptation and resilience; paragraphs 4.10.13 to 4.10.19 in relation to adaptation measures in response to climate projections; and paragraphs 5.8.5 to 5.8.12 in relation to climate projections, flood risk and the importance of relevant mitigation;
b. NPS for Renewable Energy Infrastructure (NPS EN-3) (2025) (Ref 8-20), specifically paragraph 1.1.2, which underlines the importance of the generation of electricity from renewable sources, and paragraph 2.10.9,

which refers to the government's commitment to sustained growth in solar capacity;

c. NPS for Electricity Networks Infrastructure (NPS EN-5) (2025) (Ref 8-21) – paragraph 2.3.1 regarding NPS EN-1 and the importance of climate change resilience, and paragraph 2.3.3 in relation to ES requirements regarding climate change resilience;
d. UK Climate Change Risk Assessment (2022) (Ref 8-13), as required by the Climate Change Act 2008, the UK government completed the third five-year assessment of the risks of climate change on the UK. This is based on the Independent Assessment of the UK Climate Risk, the statutory advice provided by the CCC, commissioned by the UK Government and devolved administrations.
e. Net Zero Strategy: Build Back Greener (2021) (Ref 8-14), which sets out policies and proposals for meeting the carbon budget targets and its vision for a decarbonised economy by 2050. The document states that low carbon power is expected to become the predominant form of energy in 2050.
f. Carbon Budget and Growth Delivery Plan (2025) (Ref 8-15) sets out the Government's proposals and policies for meeting statutory UK Carbon Budgets under the Climate Change Act 2008 and achieving net zero emissions by 2050. The Plan identifies accelerated deployment of low-carbon electricity generation and associated infrastructure as key components of the UK's decarbonisation pathway.
g. Clean Power 2030 Action Plan (2024) (Ref 8-16) sets out the Government's pathway to achieving a clean power system by 2030 through accelerated deployment of renewable generation, electricity network upgrades and market reforms. The Action Plan provides strong policy support for renewable energy projects, including solar PV developments.
h. Energy White Paper: Powering our Net Zero future (2020) (Ref 8-17), details the Government's revised ambitions, setting 2035 as the date by which all the UK's electricity will need to come from low carbon sources, subject to security of supply, whilst meeting a 40-60% increase in demand.
i. UK Infrastructure: A 10 Year Strategy (2025) (Ref 8-18) provides solutions to improving the efficiency of infrastructure delivery in the UK with the aim of improving quality of life throughout the UK by connecting people and places, providing dependable public services, and creating a resilient system.
j. National Planning Policy Framework (December 2024) (Ref 8-22) – specifically chapter 14 which sets out the need to support renewable and low carbon energy infrastructure to meet the challenge of climate change; and

k. Powering Up Britain: Net Zero Growth Plan (2023) (Ref 8-23) states that the energy transition and reaching net zero are among the greatest opportunities facing the UK. To reach net zero by 2050 and continue the decarbonisation of the grid, the plan indicates that transitioning to cleaner forms of energy is required.

Local Planning Policy

8.3.4 The Proposed Development lies within the jurisdiction of Maldon District Council, Chelmsford City Council, Rochford District Council, Basildon Borough Council, as well as Essex County Council. The following local planning documents are therefore of relevance to the climate assessment:

a. Essex County Council:

i. Essex County Council (ECC) (2025) Environmental Policy (Ref 8-24) includes commitments which will contribute to a significant reduction in the carbon footprint of the council, whilst supporting an acceleration towards sustainable energy;
ii. ECC (2026) Climate Action Plan (2021-2028) (Ref 8-25) sets out ECC's stance on renewable energy. ECC is committed to supporting acceleration of sustainable energy, with increasing investment in renewable energy across the county, also ensuring that Essex benefits directly with increased jobs and economic growth from the transition to clean energy;
iii. ECC Sector Development Strategy (2022) (Ref 8-26) sets out the key growth sectors for Essex, of which clean energy is one. The document centres green growth as intrinsic to ensure the Council meets its target for a net zero county by 2035. This includes progress towards a decentralised and decarbonised energy system. The Sector Development Strategy stated that as Essex receives over 2,200 hours of sunlight across the year, there is significant opportunity in the county to capitalise on solar PV with solar farms and battery storage.

b. Basildon Borough Council

i. Basildon Sustainable Community Strategy 2008-2033 (2008) (Ref 8-27) sets out the local community's strategy for the improvement of economic, social and environmental aspects. The strategy sets out the goals for sustainable development and states that resources will be managed in a way that does not compromise quality of life for its future generations.

ii. Basildon Climate Strategy & Action Plan (Ref 8-28) sets out the strategy for achieving net zero emissions, and for climate change mitigation and adaptation measures associated with transportation, buildings and energy, green spaces, and through supporting a green economy. Net zero targets have been established, with Basildon Council aiming to reach net zero by 2030 for their own operations, and a net zero target across all of Basildon Borough by 2050.

c. Chelmsford City Council

i. The 'Our Chelmsford, Our Plan' (2019) (Ref 8-29) strategy sets out Chelmsford's plan for sustainable development and community-focused improvements to provide greener and safer public spaces. The plan sets out goals to reduce energy use and waste production, protect and grow green spaces, and reduce habitat loss. In July 2019, Chelmsford City Council declared a Climate and Ecological Emergency.

d. Maldon District Council

i. Maldon District Council (2017) Approved Local Development Plan 2014-2029 (Ref 8-30) sets out the planning strategy for future growth and is how Maldon District Council will deliver sustainable development. An objective of the plan includes addressing the threat of climate change and promoting the use of renewable energy. The council will seek to encourage the use of renewable and low carbon sources, including solar energy.

ii. Maldon District Council (2021) Climate Action Strategy 2021-2030 (Ref 8-31) identifies ways to reduce carbon emissions and increase climate resilience across Maldon District. In February 2021, Maldon District Council declared a Climate Emergency (Ref 8-32). An aspiration of the Council is to support the energy sector generating green energy to secure low cost, and a low carbon energy supply.

e. Rochford District Council

i. The Rochford District Council (2022) Sustainability Strategy 2022-2030 (Ref 8-33) sets out the plan for Rochford District to become carbon neutral, with the goal of reaching net zero by 2030. The strategy acknowledges the climate change and nature crisis and identifies it as a threat to both the current population and future generations. Following the publication of this strategy, Rochford Council declared a Climate Emergency in 2023 (Ref 8-34).

Relevant Industry Guidance

8.3.5 Relevant industry guidance includes:

a. Planning Practice Guidance – Climate Change (Ref 8-35), which advises how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change.

8.4 Consultation

8.4.1 Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with Essex County Council, Basildon Borough Council, Chelmsford City Council, Maldon District Council and Rochford District Council if particular interest is raised on climate change targets, aims, commitments, other projects, plans and policy that affect climate and baseline data, as well as any known future developments in close proximity to the Proposed Development.

8.5 Baseline Conditions

8.5.1 This section describes the baseline environmental characteristics for the EIA Scoping Site and surrounding areas with specific reference to the climate and GHGs.

Lifecycle GHG Impact Assessment

8.5.2 The baseline condition for the lifecycle GHG assessment is a 'business as usual' (or 'do nothing') scenario where the Proposed Development does not go ahead. The current land use within the EIA Scoping Site and the local area consists of predominantly agricultural fields, mainly under arable production. Further information on the baseline agricultural land use is presented within **Chapter 7: Agriculture and Soils** of this EIA Scoping Report. The predominantly arable land use within the EIA Scoping Site is associated with relatively low levels of GHG emissions compared with overall emissions across the wider area.

8.5.3 Baseline agricultural GHG emissions are dependent on types of soil and vegetation present, fuel use for the operation of vehicles and machinery, and other inputs, such as fertiliser and pesticide use. Agricultural emissions displaced from the Proposed Development are not considered, as it is assumed that these agricultural activities would continue in a new location hence no changes in emissions are expected. (Ref 8-36).

8.5.4 The displacement of any fuel crops that are currently cultivated would not materially affect the overall GHG assessment, partly because their continued

cultivation is assumed to continue elsewhere, and also because the useful energy yield per unit area of such energy crops is vastly lower than that of the Proposed Development (Ref 8-36).

8.5.5 The future baseline comprises existing carbon stock and sources of GHG emissions resulting from the existing activities within the study area, as well as the existing emissions from the generation of grid electricity if the Proposed Development does not go ahead.

8.5.6 The overall carbon intensity of the Proposed Development will be contextualised by assessing it against the average carbon intensity of the existing (i.e. 2026) power grid. This is in line with recent UK Government guidance (Ref 8-37) on the identification of a suitable counterfactual scenario for renewable energy projects.

Climate Change Risk Assessment (CCRA)

8.5.7 The existing baseline condition is the historical and current climate as defined in terms of temperature, rainfall and other climatic factors. Existing baseline data will be gathered for the historic climatic factors from a 12 x 12km grid within which the Proposed Development is proposed. Current baseline data from the best available 30-year period for historic climate data is displayed in **Table 8-1**.

Table 8-1: Historic climate data (1981 – 2010) from the UK Met Office Climate Data Portal (Ref 8-38) for a 12 x 12km grid

Climate Variable	Baseline (1981 – 2010)
Temperature	
Mean Annual air temperature (°C)	10.6
Mean Summer air temperature (°C)	16.9
Mean Winter air temperature (°C)	4.7
Number of days of air frost per annum	46.4
Maximum summer temperature for baseline period (°C)	34.6 (August 2003)
Minimum winter temperature for baseline period (°C)	-11.7 (January 1987)
Rainfall	
Mean annual rainfall (mm)	534
Mean summer rainfall (mm)	128
Mean winter rainfall (mm)	128
Wettest month on average (mm)	October (60.4)
Driest month on average (mm)	February (34.7)

8.5.8 The future climatic baseline for the EIA Scoping Site will be determined through the UK Climate Impacts Programme UK Climate Projections 2018 (UKCP18) (Ref 8-40). To provide context, projections highlight the following examples of

changes to the climate relative to the 1981 – 2010 baseline, under the Representative Concentration Pathway (RCP) 8.5 scenario:

a. Mean temperatures are expected to increase in both summer and winter;
b. Mean daily maximum and minimum temperatures to increase across the UK in both summer and winter;
c. Winter precipitation is expected to increase, and summer precipitation will decrease; and
d. Increased frequency of extreme weather events.

8.5.9 This is based on the 50th percentile of the RCP 8.5 scenario, a trajectory adopted by the Intergovernmental Panel on Climate Change (IPCC) (Ref 8-40) that is considered to be the high-emissions global scenario with the greatest concentration of GHGs in the atmosphere. RCP8.5 has been used for the purposes of this assessment as a worst-case scenario as this predicts a high emission or 'business-as-usual' scenario.

8.5.10 Examples of extreme weather events near the EIA Scoping Site that will inform the baseline include:

a. During the summer of 2026, drought conditions were experienced throughout Essex, with river flows and groundwater levels declined throughout England. July 2026 was recorded as the driest July on record for England (Ref 8-39).
b. Flooding in Bicknacre, within the Maldon District, leading to evacuations from flooded roads in February 2024 (Ref 8-41).
c. Extreme wind across Essex as a result of Storm Eunice in February 2022 (Ref 8-42). The Met Office issued a red warning raising serious concerns of potential danger to life due to the extremely strong gusts.

In-combination Climate Change Impacts (ICCI)

8.5.11 The receptors for ICCI are receptors within the surrounding environment that will be impacted by the Proposed Development in combination with future climatic conditions. Baseline conditions for the ICCI assessment are determined using the climate change projections data.

8.5.12 The historic baseline and future climate baseline data will be the same as the CCRA.

Sources of Information

8.5.13 The sources of information used to inform the baseline and assessment methodology for climate change include:

a. UK Met Office Climate Data Portal for baseline observations (Ref 8-38);
b. Climate Projections (UKCP18) (2018) (Ref 8-40), in accordance with NPS-EN1 (2025) (Ref 8-19);
c. NASA Sea Level Projection Tool – IPCC 6th Assessment Report Sea Level Projections (Ref 8-44);
d. World Business Council for Sustainable Development and World Resources Institute (2001) and the GHG Protocol (Ref 8-45);
e. Department for Energy Security and Net Zero (DESNZ) (2026) Conversion Factors Database (Ref 8-46);
f. Inventory of Carbon and Energy (ICE) Database v.4.1 (2025) (Ref 8-49); and
g. The British Standards Institution (BSI) (2023) Publicly Available Specification (PAS) 2080:2023, Carbon Management in Buildings and Infrastructure (Ref 8-50).

8.6 Potential Effects and Mitigation

8.6.1 This section sets out the potential effects of the Proposed Development on the climate, and potential effects of climate change on the Proposed Development.

8.6.2 Mitigation measures relevant to climate change embedded within the Proposed Development are set out below and are included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Lifecycle GHG Impact Assessment

8.6.3 **Table 8-2** provides the lifecycle stages, related activities and primary emission sources from the Proposed Development that will be considered in the GHG assessment, in line with PAS 2080:2023 (Ref 8-50).

Table 8-2: Potential Sources of GHG emissions

Lifecycle Stage	Activity	Primary emission sources
Product stage	Raw material extraction and manufacturing of products required to build the equipment for the Proposed Development. Due to the complexity of the equipment, this stage is expected to contribute to a large proportion of the overall GHG emissions.	Embodied GHG emissions from energy use in the extraction of materials and the manufacture of components and equipment.

Lifecycle Stage	Activity	Primary emission sources
	Transportation of materials for manufacturing.	Emissions of GHG from transportation of products and materials.
Construction process stage	On-site construction activity including emissions from construction compounds.	Consumption of energy (electricity; other fuels) from plant, vehicles, and generators on site.
	Transportation of construction materials (where these are not included in product-stage).	Fuel consumption from transportation of materials to the Proposed Development, where these are not included in product-stage embodied emissions. Due to the nature of the equipment, this could require shipment of certain components over significant distances.
	Travel of construction workers.	GHG emissions from transportation of workers.
	Disposal of waste materials generated by the construction process.	GHG emissions from transportation and disposal of waste.
	Land use change.	GHG emissions from net loss of carbon sink.
	Water use.	Provision of clean water, and treatment of wastewater.
Operation and maintenance stage	Operation, energy generation from the solar farm, and maintenance and replacement of the Proposed Development.	GHG emissions from energy consumption. These operational emissions are expected to be negligible in the context of the overall Proposed Development GHG impact. Generated renewable energy is exported to the grid. Leakage of potent GHGs, such as SF_6, during operation.*

Lifecycle Stage	Activity	Primary emission sources
		GHG emissions from material use and waste generation resulting from ongoing site maintenance. Emissions from routine maintenance (including emissions from the transportation of workers) are expected to be negligible, but the periodic replacement of components has the potential to have large associated emissions given the complexity of the equipment involved, and the embodied carbon of the components to be considered.
Decommissioning stage	On-site decommissioning activity.	Consumption of energy (electricity and other fuels) from plant, vehicles, and generators on the Proposed Development.
	Transportation and disposal of waste materials.	Emissions from the disposal and transportation of waste.
	Worker travel.	GHG emissions from transportation of workers to the Proposed Development.

**** It is assumed that emissions of SF6 from the Proposed Development will be minimal and not material to the GHG assessment, however these emissions will be considered in the assessment for completeness.***

8.6.4 Module D in the PAS2080 methodology includes *'impacts beyond the project boundary'* (Ref 8-50). For the Proposed Development, this includes the emission reductions resulting from the displacement of fossil fuel combustion in comparison to the average carbon intensity of the existing (i.e. 2026) power grid. This will be calculated as the difference between the tCO_2e/kWh emission factor

for the electricity in the existing power grid and the tCO_2e/kWh emission factor for the solar energy generated by the Proposed Development.

Climate Change Risk Assessment (CCRA)

8.6.5 Climate parameters relevant to the CCRA are detailed in **Table 8-3** below.

Table 8-3: Climate parameters for the CCRA of the Proposed Development

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
Extreme weather events	In	The Proposed Development may be vulnerable to extreme weather events, such as storm damage to structures and assets.
Temperature change	In	The various receptors in the surrounding environment may be vulnerable to changes in temperature with potential effects of the Proposed Development identified by technical specialists. Extremes in temperatures may also result in heat stress of materials and structures. It is not expected that projected temperature increases would have impacts on the panels themselves, as solar PV installations operate all over the world in climates which are already much warmer than the predicted future climate of the UK. A detailed assessment will be conducted as part of the ES.
Precipitation change (frequency and magnitude of precipitation events and droughts)	In	The Proposed Development may be vulnerable to changes in precipitation, for example, land subsidence and damage to structures and drainage systems during periods of heavy rainfall. A detailed assessment will be conducted as part of the ES.
Wind	In	The Proposed Development may be vulnerable to changing wind patterns, for example, high winds and falling trees could damage structures and assets. A detailed assessment will be conducted as part of the ES.
Sea Level Rise	In	The Proposed Development is located in an area susceptible to sea level rise, based on data in the NASA Sea Level

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
		Projection Tool (Ref 8-44). A detailed assessment will be conducted as part of the ES.
Flooding	In	Large areas of the EIA Scoping Site are located within areas identified by Flood Map for Planning as Flood Zone 3 (Ref 8-51). A detailed climate change risk assessment will be conducted in collaboration with the Flood Risk Assessment to be undertaken as part of the ES.

8.6.6 The climate change risk assessment will qualitatively assess the Proposed Development's resilience to climate change. This will be completed in liaison with the design team and the other EIA technical disciplines by considering the climate projections for the geographical location and timeframe of the Proposed Development.

In-combination Climate Change Impacts (ICCI)

8.6.7 ICCI identifies how the resilience of various receptors in the surrounding environment is affected by a combination of future climate conditions and the Proposed Development. The climate parameters relevant to the Proposed Development are detailed in **Table 8-4** together with the rationale for scoping parameters in or out of the assessment. Based on the information presented in **Table 8-4**, an ICCI assessment is proposed to be scoped into the ES.

8.6.8 The Essex Estuary Special Area of Conservation (SAC), Dengie (Mid-Essex Coast Phase 1) Special Protection Area (SPA) and Dengie National Nature Reserve (NNR) are adjacent to the EIA Scoping Site at its closest point (Ref 8-52, Ref 8-53). Sandbeach Meadows Site of Special Scientific Interest (SSSI), Blackwater Estuary (Mid-Essex Coast Phase 4) SPA, Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and The Cliff, Burnham-on-Crouch SSSI are all located within 5km east of the EIA Scoping Site (Ref 8-53). These areas are recognised for their high biodiversity value and ecological importance and will be considered in the ES by the Ecology and Biodiversity Chapter. Given their proximity, the Proposed Development may impact sensitive habitats and species, particularly in combination with climate change stressors.

Table 8-4: Climate parameters for the in-combination climate change impact

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
Extreme weather events	In	The Proposed Development may be vulnerable to extreme weather events, such as storm damage to structures and assets. These changes have the potential to impact receptors identified by other environmental disciplines. A detailed assessment will be conducted as part of the ES.
Temperature change	In	Projected temperature increases in combination with the Proposed Development may lead to heat stress on habitats and species and soil moisture changes. These changes have the potential to impact receptors identified by other environmental disciplines. A detailed assessment will be conducted as part of the ES.
Precipitation change (frequency and magnitude of precipitation events and droughts)	In	Anticipated increases in heavy rainfall events may lead to flash flooding or changes to groundwater levels, while droughts may stress vegetation and water resources. The Proposed Development, in combination with projected changes in precipitation, has the potential to have an impact upon receptors identified by other environmental disciplines. A detailed assessment will be conducted as part of the ES.
Wind	In	Projected changes in wind patterns, combined with the Proposed Development, may influence receptors identified by other environmental disciplines. A detailed assessment will be conducted as part of the ES.
Sea Level Rise	In	The Proposed Development is located in an area susceptible to sea level rise, based on data in the NASA Sea Level Projection Tool (Ref 8-44), which may increase coastal flood risk and affect drainage and habitat resilience.
Flooding	In	The Proposed Development is also largely located within Flood Zone 3 based on data provided in the flood map for planning (Ref 8-51). Combined with climate change, this increases the likelihood of fluvial, pluvial and coastal flooding, which may damage

Parameter	Scoped In/Out	Rationale for Scoping Conclusion
		infrastructure and increase pollutant runoff into sensitive habitats.

Mitigation

8.6.9 Where practicable, mitigation measures will be incorporated into the design of the Proposed Development and/or its construction methodology. An Outline Construction Environmental Management Plan (CEMP), Outline Operational Environmental Management Plan (OEMP) and Outline Decommissioning Environmental Management Plan (DEMP) will be prepared and submitted with the DCO Application. These outline management plans will include measures to reduce carbon emissions across the Proposed Development lifecycle as relevant and will be secured through Requirements in the DCO and developed, in consultation with the relevant Local Planning Authorities (LPAs) and statutory bodies, into the detailed CEMP, OEMP and DEMP by the relevant personnel.

8.6.10 Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation / mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

Lifecycle GHG Mitigation

Construction

8.6.11 A CEMP will be prepared and implemented by the selected Principal Contractor to include a range of good practice construction measures including measures to reduce carbon emissions. An Outline CEMP will be prepared and submitted with the DCO Application.

Operation

8.6.12 Further measures to mitigate GHG emissions during the operation of the Proposed Development will be presented in the ES. An Outline OEMP will be prepared and submitted with the DCO Application.

Decommissioning

8.6.13 The decommissioning phase would apply similar design and mitigation measures as the construction phase. An Outline DEMP will be prepared and submitted with the DCO Application.

Climate Change Risk Mitigation

8.6.14 A statement will be provided within the ES to describe how the Proposed Development will be adapted to improve its resilience to future climate conditions. Relevant mitigation measures to improve resilience will be included within the outline management plans, which will be secured through Requirements in the DCO.

8.7 Assessment Methodology

Lifecycle GHG Impact Assessment

8.7.1 The receptor for the GHG impact assessment is the global climate. The GHG assessment will follow a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation and decommissioning of the Proposed Development and to identify GHG 'hot spots' (i.e., emissions sources likely to generate the largest amount of GHG emissions). This will enable the identification of priority areas for mitigation in line with the principles set out in ISEP guidance.

8.7.2 In line with the World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines, the GHG assessment will be reported as tonnes of carbon dioxide equivalent (tCO_2e) and will consider the seven Kyoto Protocol gases:

a. Carbon dioxide (CO_2);
b. Methane (CH_4);
c. Nitrous oxide (N_2O);
d. Sulphur hexafluoride (SF_6);
e. Hydrofluorocarbons (HFCs);
f. Perfluorocarbons (PFCs); and
g. Nitrogen trifluoride (NF_3).

8.7.3 Expected GHG emissions arising from the construction activities, embodied carbon in materials and operational and decommissioning emissions of the Proposed Development, as well as baseline emissions, will be quantified using a calculation-based methodology as per the following equation, and aligned with the GHG Protocol:

Activity data x GHG emissions factor = GHG emissions

8.7.4 DESNZ 2026 emissions factors (Ref 8-46) and embodied carbon data from the University of Bath Inventory of Carbon and Energy (ICE) (Ref 8-45) are among

those that will be used as the primary data sources for calculating GHG emissions.

8.7.5 Sulphur hexafluoride (SF_6) is an extremely powerful GHG with a global warming potential (GWP) of 23,900. Fugitive emissions of SF_6 from certain electrical items, such as gas insulated switchgear, have historically been a significant source of emissions. Manufacturers of such equipment are now increasingly able to offer SF_6-free components, and those that do continue to use SF_6 are sealed-for-life with extremely low leakage rates (Ref 8-47). For these reasons, it is assumed that emissions of SF_6 from the Proposed Development will be minimal and not material to the GHG assessment, however these emissions will be considered in the assessment for completeness.

Sensitivity

8.7.6 The sensitivity of the receptor (global climate) to increases in GHG emissions is always defined as high, as any additional GHG impacts could compromise the UK's ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets. Also, the extreme importance of limiting global warming to below 2°C this century is widely accepted by the International Paris Agreement (Ref 8-11) and the climate science community.

Magnitude

8.7.7 For the lifecycle GHG impact assessment, the magnitude of impact considers the output of the GHG quantification process, i.e. the Proposed Development's GHG lifecycle footprint, in the context of its contribution to the UK carbon budgets and the possible impact of the Proposed Development on meeting the net zero targets. GHG emissions will also be contextualised against sectoral budgets as defined by Power Sector Budget based upon the CCC Electricity Supply Balanced Pathway (Ref 8-48).

8.7.8 The ISEP guidance (Ref 8-3) on assessing GHG emissions in EIA states:

"GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a Project might be considered to be significant."

8.7.9 The UK carbon budgets are in place to restrict the amount of GHG emissions the UK can legally emit in a five-year period. The UK is currently in the 4th Carbon Budget period, which runs from 2023 to 2027, as detailed in **Table 8-5**. The 3rd, 4th, and 5th Carbon Budgets reflect the previous 80% reduction target by 2050. The 6th Carbon Budget is the first to align with the legislated 2050 net zero commitment.

8.7.10 In order to illustrate the Proposed Development's trajectory towards net zero by 2050, it is recommended that the CCC's Balanced Net Zero Pathway is used post-2043 in the absence of any nationally legally binding carbon budgets after using the 7th Carbon Budget. The 7th Carbon Budget, Carbon Budget Order 2026 (Ref 8-10), was published in June 2026 following approval by the UK government and ratification by parliament, making it legally binding. The Order sets the carbon budget for the period of 2038 to 2042 at 535 $MtCO_2e$.

8.7.11 The CCC Balanced Net Zero Pathway is recommended to be divided into five-year periods post-2037 to match the previous six legally binding UK national carbon budgets. The proposed carbon budget periods derived from the net zero pathway encompass the 7th, 8th, and 9th indicative budget periods up to 2050 in line with the UK's 1.5°C trajectory as detailed in **Table 8-5**.

Table 8-5: UK National and Sectoral Carbon Budgets and Indicative Carbon Budgets

Carbon budget	Power Sector Budget based upon the CCC Electricity Supply Balanced Pathway ($MtCO_2e$)	UK Carbon Budget ($MtCO_2e$)	Indicative Carbon Budgets based upon the CCC's Balanced Net Zero Pathway ($MtCO_2e$)
3rd (2018-2022)	-	2,544	-
4th (2023-2027)	162	1,950	-
5th (2028-2032)	68	1,725	-
6th (2033-2037)	29	965	-
7th (2038-2042)	22	535	
8th (2043-2047)	10	-	220
9th (2048-2050)	3	-	23

8.7.12 It is noted that the supplementary carbon budgets beyond 2043 have not been formally adopted by the UK Government or ratified by Parliament and can only be used as an indicative measure to contextualise the Proposed Development's progress toward the national net zero trajectory.

Determining the Significance of Effects

8.7.13 When evaluating significance of the GHG emissions of the Proposed Development, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG impact. The significance of a Proposed Development's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible. The crux of significance is therefore not whether a project emits GHG emissions. Nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions

relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

8.7.14 For further context, the net GHG emissions from the Proposed Development will be assessed through comparison against the average carbon intensity of the existing (i.e. 2026) power grid. The assessment will seek to quantify any emissions reduction resulting from the Proposed Development, as the grid would not decarbonise if developments such as this do not go ahead.

8.7.15 Essentially, the lifetime generation in MWh from the Proposed Development can be assumed to displace the carbon intensity resulting from electricity generation of the existing (i.e. 2026) power grid, and the associated reduction in emissions can be quantified by multiplying the lifetime generation in MWh by a representative carbon intensity for the existing electricity mix generated in the power grid.

8.7.16 **Table 8-6** presents the different significance levels as per the latest version of the ISEP guidance (Ref 8-3) for assessing GHG emissions. This guidance emphasises that:

"a project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK's net zero trajectory, or accepted aligned practice or area-based transition targets, results in a significant adverse effect. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. 'moderate' or 'major' adverse effects".

Table 8-6: Significance Criteria

Level of effect	Significance Criteria	Significance
Major Adverse	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.	Significant
Moderate Adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate	Significant

Level of effect	Significance Criteria	Significance
	adverse effects falls short of fully contributing to the UK's trajectory towards net zero.	
Minor Adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.	Not Significant
Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.	Not Significant
Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric concentration, whether directly or indirectly compared to the without project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.	Significant

Climate Change Risk Assessment (CCRA)

8.7.17 The receptor for the CCRA is the Proposed Development itself, including its construction, operation (and maintenance) and decommissioning phases. The CCRA will provide a description of how the Proposed Development will be designed to be more resilient to the climate change effects identified during the review of the UKCP 2018 data.

8.7.18 A detailed assessment of climate change projections will be conducted for the EIA Scoping Site Boundary as part of the ES. The CCRA will qualitatively assess the Proposed Development's resilience to climate change, considering climate parameters using UKCP18 projections for the 25km grid cell where the Proposed Development would be located to examine future climate change parameters.

Magnitude of Impact

8.7.19 The approach outlined below is aligned with existing guidance, including ISEP guidance (Ref 8-2). Climate parameters to be considered in the CCRA across all lifecycle stages include the following:

a. Extreme weather events;
b. Precipitation changes;
c. Temperature change;
d. Sea level rise;
e. Wind; and
f. Flooding.

8.7.20 The following key terms and definitions relating to the CCRA will be used:

a. Climate hazard – a weather or climate related event, which has the potential to do harm to environmental or community receptors or assets, for example, increased winter precipitation;
b. Climate change impact – an impact from a climate hazard which affects the ability of the receptor or asset to maintain its function or purpose; and
c. Consequence – any effect on the receptor or asset resulting from the climate hazard having an impact.

8.7.21 The likelihood of a climate impact occurring is based on the likelihood of the hazard occurring combined with the vulnerability of the Proposed Development, using professional judgement and in discussion with the design team. Embedded mitigation measures will also be considered, and a likelihood rating will be assigned as described in **Table 8-7**.

8.7.22 Following the identification of climate hazards, the likelihood and consequences will be assessed according to **Table 8-7** and **Table 8-8** respectively. The categories and descriptions are based on the ISEP climate change resilience and adaptation guidance (Ref 8-2).

Table 8-7: Likelihood of an impact occurring criteria for risk assessment

Likelihood term	Qualitative	Quantitative
Rare	Highly unlikely to occur	5%
Unlikely	Unlikely to occur	20%
Moderate	As likely to occur as not	50%
Likely	Likely to occur	80%
Almost certain	Very likely to occur	95%

Table 8-8: Level of Consequence of a climate change impact occurring

Risk Areas	Magnitude of Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Asset damage, engineering, operational	Impact can be absorbed through normal activity.	Adverse event that can be absorbed by taking business continuity actions.	A serious event that requires additional emergency business continuity actions.	A critical event that requires extraordinary/ emergency business continuity action.	Disaster with the potential to lead to shut down or collapse or loss of the asset/ network.
Health and safety	First aid case.	Minor injury, medical treatment.	Serious injury or lost work.	Major or multiple injuries, permanent injury or disability.	Single or multiple fatalities.
Environment	No impact on baseline environment. Localised in the source area. No recovery required.	Localised within site boundaries. Recovery measurable within one month of impact.	Moderate harm with possible wider effect Recovery in one year.	Significant harm with local effect Recovery longer than one year. Failure to comply with environmental regulations/ consent.	Significant harm with widespread effect. Recovery longer than one year. Limited prospect of full recovery.
Social	No negative social impact.	Localised, temporary social impacts.	Localised, long term social impacts.	Failure to protect poor or vulnerable groups. National, long term social impacts.	Loss of social licence to operate. Community protests.
Financial (*)	x% IRR*** < 2% of turnover.	x% IRR 2-10% of turnover.	x% IRR 10-25% of turnover.	x% IRR 25-50% of turnover.	x% IRR > 50% of turnover.
Reputational	Localised, temporary impact on public opinion.	Localised, short-term impact on public opinion.	Local, long-term impact on public opinion with adverse	National, short-term impact on public opinion. Negative national	National, long-term impact with potential to affect the stability of

Risk Areas	Magnitude of Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
			local media coverage.	media coverage.	the government.
Cultural heritage and cultural premises (1)	Insignificant.	Short term impact. Possible recovery or repair.	Serious damage with wider impact to tourism industry.	Significant damage with national and international impact.	Permanent loss with resulting impact on society.

(1) Including groups that depend on natural resources for their income/livelihoods and cultural heritage (even if not considered poor) and groups considered poor and vulnerable (and often that have less capacity to adapt) as well as persons with disabilities and older persons.

(*) Example indicators – other indicators that may be used including costs of immediate / long-term emergency measures; restoration of assets; environmental restoration; indirect costs on the economy, indirect social costs.

(***) Internal Rate of Return (IRR)

8.7.23 Engagement will be undertaken with relevant environmental disciplines and the engineering design team to discuss the CCRA and identify mitigation measures for incorporation into the design of the Proposed Development.

8.7.24 The significance of the CCRA will be determined as a function of the likelihood of a climate change impact occurring and the consequence to the receptor if the impact occurs. Effect significance criteria will be assigned in accordance with the matrix as detailed in **Table 8-9**. The assessment will take into account confirmed design and mitigation measures (referred to as embedded mitigation).

Table 8-9: Significance Matrix for CCRA

		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	**Rare**	Low (NS)*	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Unlikely	Low (NS)	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Moderate	Low (NS)	Medium (NS)	High (S)	Extreme (S)	Extreme (S)
	Likely	Medium (NS)	High (S)	High (S)	Extreme (S)	Extreme (S)
	Almost certain	High (S)	High (S)	Extreme (S)	Extreme (S)	Extreme (S)

(*) ("S" Significant "NS" Not Significant)

ICCI

8.7.25 The purpose of the ICCI assessment is to identify any impacts on receptors in the surrounding environment and communities that occurs because of the combined impacts of climate change and the construction, operation (and maintenance), and decommissioning of the Proposed Development.

8.7.26 The assessment considers the existing and projected future climate conditions for the geographical location and assessment timeframe. It also identifies the extent to which identified receptors in the surrounding environment are potentially vulnerable to and affected by these factors.

8.7.27 The methodology for the ICCI assessment follows the methodology of the CCRA but focuses on different receptors as identified by other environmental discipline chapters.

8.7.28 The receptors for ICCI are receptors within the surrounding environment that will be impacted by the Proposed Development in combination with future climatic conditions. Baseline conditions for the ICCI assessment are determined using the climate change projections data from Met Office.

8.7.29 Once potential ICCIs have been identified in relation to the Proposed Development, the likelihood of climate impacts occurring during construction, operation (and maintenance) and decommissioning phases is categorised using the likelihood analysis outlined in **Table 8-10**. This includes consideration of any embedded mitigation measures and good practice. Following this, the ICCI consequence level is assessed based on the consequence analysis outlined in **Table 8-11**.

Table 8-10: Level of Likelihood of an ICCI occurring

Likelihood Category	Description
Occasional	>50% probability that the impact will occur during the life of the Proposed Development.
Remote	25-50% probability that the impact will occur during the life of the Proposed Development.
Improbable	<25% probability that the impact will occur during the life of the Proposed Development.

Table 8-11: Level of Consequence for ICCI Assessment

Consequence of Impact	Description
High	The climate change parameter in-combination with the effect of the Proposed Development causes the significance of the impact of the Proposed Development on the resource / receptor, as defined by the topic, to increase from moderate to major.
Medium	The climate change parameter in-combination with the effect of the Proposed Development causes the significance of the impact of the Proposed Development on the resource / receptor, as defined by the topic, to increase from low to moderate.
Low	The climate change parameter in-combination with the effect of the Proposed Development causes the significance of the impact of the Proposed Development on the resource / receptor, as defined by the topic, to increase from negligible to low.
Very Low	The climate change parameter in-combination with the effect of the Proposed Development does not impact the significance of the impact of the Proposed Development on the resource / receptor, as defined by the topic.

8.7.30 The significance of potential effects is determined using the matrix in **Table 8-12**. The significance of the ICCI will be determined as a function of the likelihood of a climate-related impact occurring and the consequence to the receptor if the impact occurs. If likely significant ICCI effects are evaluated, then appropriate additional mitigation measures (secondary mitigation) will be identified and embedded within the Proposed Development design or outline management plans as relevant.

Table 8-12: Significance Matrix for ICCI Assessment

		Likelihood of Climate-Related Impact Occurring		
		Improbable	**Remote**	**Occasional**
Measure of Consequence	**Very Low**	Negligible (NS)	Negligible (NS)	Minor (NS)
	Low	Negligible (NS)	Minor (NS)	Moderate (NS)
	Medium	Minor (NS)	Moderate (NS)	Major (S)
	High	Moderate (NS)	Major (S)	Major (S)

8.8 Limitations and Assumptions

8.8.1 Where detailed information is not available regarding energy use, types and quantities of materials used, or the embodied carbon of key features of the

assets, precautionary assumptions will be made based on industry approximations and professional best practice.

8.8.2 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and output data, will be documented as part of the assessment reported in the ES.

8.9 Summary of Elements Scoped In and Out

8.9.1 Due to the potential for effects on the climate from the Proposed Development, and the potential effects on the Proposed Development due to climate change, climate change is scoped into the ES. The ES chapter will be supported by a lifecycle GHG assessment, a CCRA, and an ICCI. The scope and methodology of these assessments is described in **Section 8.7**. A summary of the elements scoped in and out of the Climate Change ES chapter is presented in **Table 14-4** below.

Table 8-13: Elements scoped in and out of the Climate Change assessment

Element	Scoped In / Scoped Out
GHG impact assessment	**Scoped In:** Product stage – Raw material extraction, manufacturing and transport of products required to build the equipment for the Proposed Development. **Scoped In:** Construction process stage – On-site construction activity, including emissions from construction compounds. **Scoped In:** Operation and maintenance stage – Operation and maintenance of the Proposed Development. **Scoped In:** Decommissioning stage – On-site decommissioning activity.
Climate change risk assessment	**Scoped In:** Extreme weather events **Scoped In:** Temperature change **Scoped In:** Sea level rise **Scoped In:** Precipitation change **Scoped In:** Wind **Scoped In:** Flooding
In-combination climate impact assessment	**Scoped In:** Extreme weather events **Scoped In:** Temperature change **Scoped In:** Sea level rise **Scoped In:** Precipitation change **Scoped In:** Wind **Scoped In:** Flooding

8.10 References

Ref 8-1 His Majesty's Stationery Office (HMSO) (2017); The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026.

Ref 8-2 Institute of Sustainability and Environmental Professionals (ISEP); Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation, Available at: https://www.iema.net/media/mabhqino/iema-eia-climate-change-resilience-june-2020.pdf Accessed: October 2026.

Ref 8-3 Institute of Sustainability and Environmental Professionals (ISEP); Institute of Environmental Management & Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance, Available at: https://www.isepglobal.org/resources/blogs/2022/02/28/iema-launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions-february-2022/ Accessed: October 2026.

Ref 8-4 His Majesty's (HM) Government (2008); The Climate Change Act 2008 (2050 Target Amendment) Order 2019, Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654 Accessed: October 2026.

Ref 8-5 Department for Business, Energy and Industrial Strategy (2020); UK's 2030 Nationally Determined Contribution, Available at: https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc Accessed: October 2026

Ref 8-6 UK's 2035 Nationally Determined Contribution (NDC) emissions reduction target under the Paris Agreement, Available at: https://www.gov.uk/government/publications/uks-2035-nationally-determined-contribution-ndc-emissions-reduction-target-under-the-paris-agreement Accessed: October 2026

Ref 8-7 HMSO (2011); Carbon Budget Order 2011, Available at: https://www.legislation.gov.uk/uksi/2011/1603/made Accessed: October 2026

Ref 8-8 HMSO (2016); Carbon Budget Order 2016, Available at: https://www.legislation.gov.uk/uksi/2016/785/contents/made Accessed: October 2026

Ref 8-9 HMSO (2021); The Carbon Budget Order 2021, Available at: https://www.legislation.gov.uk/ukdsi/2021/9780348222616 Accessed: October 2026

Ref 8-10 HMSO (2026); The Carbon Budget Order 2026, Available at: https://www.legislation.gov.uk/uksi/2026/695/contents/made Accessed: October 2026

Ref 8-11 United Nations (2015); The Paris Agreement, Available at https://unfccc.int/process-and-meetings/the-paris-agreement Accessed: October 2026

Ref 8-12 HM Government (2023); The Energy Act, Available at: https://www.legislation.gov.uk/ukpga/2023/52/contents Accessed: October 2026

Ref 8-13 HM Government (2022); UK Climate Change Risk Assessment 2022, Available at: https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022 Accessed: October 2026

Ref 8-14 Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2021); Net Zero Strategy: Build Back Greener, Available at: https://www.gov.uk/government/publications/net-zero-strategy Accessed: October 2026

Ref 8-15 Department for Energy Security and Net Zero (2025); Carbon budget and growth delivery plan, Available at: https://www.gov.uk/government/publications/carbon-budget-and-growth-delivery-plan Accessed: October 2026

Ref 8-16 Department for Energy Security and Net Zero (2024); Clean Power 2030 Action Plan, Available at: https://www.gov.uk/government/publications/clean-power-2030-action-plan Accessed: October 2026

Ref 8-17 Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy (2020); Energy white paper: Powering our net zero future, Available at: https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future Accessed: October 2026

Ref 8-18 HM Treasury (2025); UK Infrastructure: A 10 Year Strategy, Available at: https://www.gov.uk/government/publications/uk-infrastructure-a-10-year-strategy Accessed: October 2026

Ref 8-19 Department for Energy Security and Net Zero (DESNZ) (2025); Overarching National Policy Statement for energy (EN-1), 2025, Available at:

https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 8-20 DESNZ (2025); National Policy Statement for renewable energy infrastructure (EN-3), 2025, Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025 Accessed: October 2026

Ref 8-21 DESNZ (2025); National Policy Statement for electricity networks infrastructure (EN-5), 2025, Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 8-22 Ministry of Housing, Communities and Local Government (December 2024); National Planning Policy Framework, Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026

Ref 8-23 DESNZ (2023); Powering Up Britain: Net Zero Growth Plan, Available at: https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-net-zero-growth-plan#endnotes Accessed: October 2026

Ref 8-24 Essex County Council (2025); Environmental Policy, Available at: https://www.essex.gov.uk/sites/default/files/2025-12/Environmental%20Policy.pdf Accessed: October 2026

Ref 8-25 Essex County Council (2026); Essex Climate Action Plan (2021-2028), Available at: https://www.essex.gov.uk/sites/default/files/2026-01/Climate%20Action%20Plan%20-%202021%20to%202028.pdf Accessed: October 2026

Ref 8-26 Essex County Council (2022); Essex Sector Development Strategy, Available at: https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/3NhjkWUBS0sq8Qs4JtEs0I/a181eb994e3a1df50ab58254be509ed5/ECC-Essex-Sector-Development-Strategy-medium-form.pdf Accessed: October 2026

Ref 8-27 Basildon Borough Council (2008); Basildon Sustainable Community Strategy 2008-2033, Available at: https://www.basildonmeetings.info/documents/s9355/Enclosure%201%20-%20SCS%20Framework%20Strategy%20combined.pdf Accessed: October 2026

Ref 8-28 Basildon Borough Council (2022); Basildon Climate Strategy & Action Plan, Available at: https://www.basildonmeetings.info/documents/s136520/Enc.%202%20for%20ADOPTION%20OF%20REFRESHED%20CLIMATE%20STRATEGY%20AND%20ACTION%20PLAN.pdf Accessed: October 2026

Ref 8-29 Chelmsford City Council (2019); Our Chelmsford, Our Plan, Available at: https://www.chelmsford.gov.uk/your-council/corporate-plan-and-peer-review/our-chelmsford-our-plan/ Accessed: October 2026

Ref 8-30 Maldon District Council (2017); Local Development Plan 2014-2029, Available at: https://www.maldon.gov.uk/downloads/file/14807/approved_maldon_district_local_development_plan_2014-2029 Accessed: October 2026

Ref 8-31 Maldon District Council (2021); Climate Action Strategy 2021-2030, Available at: https://www.maldon.gov.uk/download/downloads/id/18809/climate_action_strategy.pdf Accessed: October 2026

Ref 8-32 Maldon District Council (2021); Climate Action Strategy - "Our Home, Our Future", Available at: https://www.maldon.gov.uk/info/206002/news/9996/climate_action_strategy_-_our_home_our_future Accessed: October 2026

Ref 8-33 Rochford District Council (2022); Sustainability Strategy 2022-2030, Available at: https://www.rochford.gov.uk/sustainability-strategy Accessed: October 2026

Ref 8-34 Rochford Council (2024); Climate Emergency. Available at: https://www.rochford.gov.uk/climate-emergency Accessed: October 2026

Ref 8-35 Ministry of Housing, Communities and Local Government (2024); Planning Practice Guidance - Climate Change, Available at: https://www.gov.uk/guidance/climate-change Accessed: October 2026

Ref 8-36 Cornell Chronicle (2025); Trading some corn-ethanol land for solar offers 'tremendous opportunity', Available at: https://news.cornell.edu/stories/2025/04/trading-some-corn-ethanol-land-solar-offers-tremendous-opportunity Accessed: October 2026

Ref 8-37 Department of Energy Security and Net Zero (2026); Application for Development Consent for the Peartree Hill Solar Farm, Available at: EN010157-001191-Peartree Hill Solar Farm Decision Letter - signed.pdf Accessed: October 2026

Ref 8-38 UK Met Office Climate Data Portal; Available at: https://climatedataportal.metoffice.gov.uk/search?q=precipitation&tags=Climate%2CUK%2520observations%2520temperature Accessed: October 2026

Ref 8-39 Environment Agency (2026); Dry weather and drought in England 2026: summary reports, Available at: https://www.gov.uk/government/publications/dry-weather-and-drought-in-england-2026-summary-reports Accessed: October 2026

Ref 8-40 UK Climate Projections (UKCP18) (2019); Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp Accessed: October 2026

Ref 8-41 BBC (2024); Heavy rain brings flooding across the East of England, Available at: https://www.bbc.co.uk/news/uk-england-68333363 Accessed: October 2026

Ref 8-42 BBC (2022); Storm Eunice as it happened in the East of England, Available at: https://www.bbc.co.uk/news/live/uk-england-norfolk-60417246?page=4 Accessed: October 2026

Ref 8-43 Met Office (2019); UK Climate Projections User Interface, Available at: https://ukclimateprojections-ui.metoffice.gov.uk/products Accessed: October 2026

Ref 8-44 NASA (2024); Sea Level Projection Tool - IPCC (n.d.), IPCC 6th Assessment Report Sea Level Projections, Available at: https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool Accessed: October 2026

Ref 8-45 World Business Council for Sustainable Development and World Resources Institute (2001); The GHG Protocol: A Corporate Accounting and Reporting Standard, Available at: https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf Accessed: October 2026

Ref 8-46 UK Government (2026); Greenhouse gas reporting: conversion factors 2026, Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2026 Accessed: October 2026

Ref 8-47 Widger, Phillip and Haddad, Abderrahmane (2018). Evaluation of SF_6 leakage from gas insulated equipment on electricity networks in Great Britain. Energies 11 (8), 2037, 10.3390/en11082037.

Ref 8-48 Climate Change Committee (2025); The Seventh Carbon Budget, Available at: https://www.theccc.org.uk/publication/the-seventh-carbon-budget/ Accessed: October 2026

Ref 8-49 Circular Ecology, Embodied Carbon – The ICE Database (2025); Available at: https://circularecology.com/embodied-carbon-footprint-database.html Accessed: October 2026

Ref 8-50 The British Standards Institution (BSI) (2023); PAS 2080:2023, Carbon management in buildings and infrastructure, Available at: https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/carbon-management-in-buildings-and-infrastructure/ Accessed: October 2026

Ref 8-51 UK Government; Flood map for planning, Available at: https://flood-map-for-planning.service.gov.uk/map?lyr=&seg=fz,fzpd&cz=603055.1,125242.8,13.611111 Accessed: October 2026

Ref 8-52 RAMSAR; Dengie (Mid-Essex Coast Phase 1) RAMSAR Site, Available at: https://rsis.ramsar.org/ris/651 Accessed: October 2026

Ref 8-53 Joint Nature Conservation Committee; Essex Estuaries, Available at: https://sac.jncc.gov.uk/site/UK0013690 Accessed: October 2026

9. Cultural Heritage

9.1 Introduction

9.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects on cultural heritage, comprising archaeology, built heritage and historic landscape character, during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the cultural heritage chapter of the Environmental Statement (ES).

9.1.2 This chapter is supported by the following figures:

a. **Figure 9-1: Designated Heritage Assets**; and
b. **Figure 9-2: Non-Designated Heritage Assets**.

9.2 Study Areas

9.2.1 The study areas for cultural heritage are illustrated on Figure 9-1: Designated Heritage Assets, and Figure 9-2: Non-designated Heritage Assets.

9.2.2 For designated heritage assets, a 3km study area from the EIA Scoping Site has been defined. This study area allows for designated heritage assets to be considered in their wider context and for heritage setting to be assessed.

9.2.3 Beyond the 3km study area for designated heritage assets, an extended 5km study area has been defined to identify further high value heritage assets, i.e., World Heritage Sites, Grade I and II* listed buildings, Registered Battlefields, Grade I and II* Registered Parks and Gardens (RPG), Scheduled Monuments, and Conservation Areas containing a notable concentration of highly designated assets. This extended study area reflects the value of these assets and the potential for their settings to extend over a larger area. The selection of high value designated heritage assets for inclusion within the assessment presented in the ES will be informed by the Proposed Development's Zone of Theoretical Visibility (ZTV), prepared as part of **Chapter 11: Landscape and Visual**. The assessment will also take account of physical and historical associations between heritage assets, as well as their relationships with the wider historic landscape.

9.2.4 A 1km study area from the EIA Scoping Site has been used to collect data on non-designated heritage assets, comprising buried archaeological remains and

above-ground features and structures, previous cultural heritage assessments and fieldwork surveys. This contextual data contributes to the understanding of the cultural heritage baseline conditions within the EIA Scoping Site and 1km study area. It is sufficient to identify known heritage assets within, or in proximity to, the EIA Scoping Site, as this will inform the likelihood of encountering previously unknown archaeological remains.

9.3 Legislation, Planning Policy Context and Guidance

9.3.1 Legislation, planning policy and guidance relating to cultural heritage and pertinent to the Proposed Development is listed in this section.

Legislation

9.3.2 Relevant legislation includes:

a. Ancient Monuments and Archaeological Areas Act 1979 (Ref 9-1);
b. Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref 9-2);
c. Infrastructure Planning (Decisions) Regulations 2010 Ref 9-3);
d. Infrastructure Planning (Environmental Impact Assessment) Regulations, 2017 (Ref 9-20); and
e. The Hedgerows Regulations 1997 (Ref 9-4).

National Planning Policy

9.3.3 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (2025) Ref 9-5) Section 5.9: Historic Environment which relates to the significance, impact and recording of the historic environment;
b. NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 9-6) Section 2.10: Solar Photovoltaic Generation which provides specific guidance relating to solar photovoltaic sites; and
c. NPS for Electricity Networks Infrastructure (EN-5) (2025) Ref 9-7) Section 2.2: Factors Influencing Site Selection and Design which provides specific guidance relating to electricity networks infrastructure, specifically with reference to paragraph 2.2.10 and the desirability of preserving sites, buildings and objects of architectural, historic or archaeological interest.

9.3.4 Other relevant national policy and guidance includes:

a. National Planning Policy Framework (NPPF) (Ref 9-8), with particular reference to Section 20: Conserving and enhancing the historic environment; and
b. Planning Practice Guidance (PPG, as amended 2024) (Ref 9-9) which is an interactive on-line document that provides further advice and guidance to accompany policies in the NPPF.

Local Planning Policy

9.3.5 The Proposed Development lies within the administrative area of the Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the cultural heritage assessment:

a. Basildon Borough Council:

i. Basildon Borough Draft Local Plan 2023-2043 (Regulation 19) (Ref 9-13), specifically Policy HE1: Conserving and Enhancing the Historic Environment ;

b. Chelmsford City Council:

i. Chelmsford Local Plan (adopted May 2020) (Ref 9-14), specifically Strategic Policy S3: Conserving and Enhancing the Historic Environment and Policy DM13: Designated Heritage Assets;

c. Maldon District Council:

i. Maldon District Council Approved Local Development Plan 2014-2029 (Ref 9-15), specifically Policy D3: Conservation and Heritage Assets;

d. Rochford District Council:

i. Local Development Framework-Core Strategy Adopted Version (adopted December 2011) (Ref 9-16);
ii. Local Development Framework – Development Management Plan (adopted December 2014); and
iii. Draft Rochford Local Plan Regulation 18 (Feb 2026) (Ref 9-17), specifically Policy HE1: Conservation and Enhancement of Historic Environment.

Relevant Industry Guidance

9.3.6 Relevant industry guidance includes:

a. Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England (2015) (Ref 9-18);
b. Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017) (Ref 9-19);
c. Historic England Advice Note 12 (2019) Statements of Heritage Significance: Analysing Significance in Heritage Assets (Ref 9-20);
d. Delivering Clean Power: Commercial Renewable Energy and the Historic Environment (2nd edition) (Historic England, 2026) (Ref 9-22);
e. Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment (DBA) (2020) (Ref 9-23);
f. CIfA Code of Conduct: professional ethics in archaeology (2025) (Ref 9-24);
g. Institute of Environmental Management and Assessment (IEMA) (now Institute of Sustainability and Environmental Professionals (ISEP)), Institute of Historic Building Conservation (IHBC) and CIfA Principles of Cultural Heritage Impact Assessment in the UK (2021) (Ref 9-25); and
h. Association of Local Government Archaeological Officers (ALGAO), Archaeology and Solar Farms Good Practice Guide. Advice for Developers, Archaeological Advisors, Consultants and Contractors (Ref 9-26).

Other Local Guidance

9.3.7 Other local guidance includes:

a. Essex Neighbourhood Planning Guide (July 2025) (Ref 9-10);
b. Essex Planning Protocol (May 2018) (Ref 9-11); and
c. The Essex County Council Developers' Guide to Infrastructure Contributions (June 2026) (Ref 9-12).

9.4 Consultation

9.4.1 Consultation has been carried out with the Historic Environment Advisor to the local planning authority and comprised agreeing the scope of work for archaeological geophysical survey. The results of the geophysical survey will enhance the understanding of the cultural heritage baseline conditions and will inform the assessment of likely significant effects to cultural heritage assets.

9.4.2 Consultation with the Historic Environment Advisor to the local planning authority and Historic England will continue throughout the EIA process. Initial

meetings with the Historic Environment Advisor and Historic England will be conducted alongside the submission of this EIA Scoping Report.

9.5 Baseline Conditions

9.5.1 This section sets out a high-level description of the Cultural Heritage baseline conditions for the EIA Scoping Site and study areas.

9.5.2 Data from the National Heritage List for England (NHLE) (Ref 9-27) and the Historic Environment Record (HER) maintained by Essex County Council has informed this high-level baseline information. The locations of cultural heritage assets are presented in **Figure 9-1: Designated Heritage Assets** and **Figure 9-2: Non-Designated Heritage Assets**. Heritage assets are referenced on the drawings and in the text below by a unique identity number assigned by the NHLE or HER.

Designated Heritage Assets

9.5.3 There are no World Heritage Sites, Registered Battlefields or Registered Parks and Gardens within the EIA Scoping Site or the 5km study area. There are 26 Scheduled Monuments, 12 Conservation Areas, seven Grade I and 30 Grade II* listed buildings located within the 5km study area and 581 Grade II listed buildings within the 3km study area. Of these, World War II minefield control tower 940m and pillbox 980m south east of Holliwell Farm Scheduled Monument and Bradwell On Sea Conservation Area (covers the southern end of Grid Connection Corridor A) are located within the EIA Scoping Site, the details of which are noted below.

9.5.4 The Scheduled Monuments located within the 5km study area are:

a. Romano-British site N of Pound Wood, Thundersley (NHLE 1002147);
b. Square decoy pond 260m south of Pennyhole Fleet, Old Hall Marshes (NHLE 1016863);
c. Atomic Weapons Research Establishment Foulness Island, 1947 Explosives Storage Area (NHLE 1411759);
d. Bicknacre Priory (NHLE 1002176);
e. Heavy Anti-aircraft gunsite on Sandpit Hill (NHLE 1019663);
f. Mud Berth for CGWV No 7 (formerly HMS Beagle) (NHLE 1467785);
g. Roman Fort at Hadleigh (NHLE 1002171);
h. Decoy pond immediately north of Pennyhole Fleet, Old Hall Marshes (NHLE 1021086);
i. Decoy pond 500m south of Waldegraves Farm (NHLE 1019036);
j. Plumberow Mount (NHLE 1017451);
k. Roman round building (NHLE 1002195);

l. Romano-British burial site on Foulness Island (NHLE 1002149);
m. Mersea Mount: A Roman barrow at Barrow Hill Farm (NHLE 1019019);
n. Saxon coastal fish weir at Sales Point (NHLE 1019103);
o. Coastal fish weirs at West Mersea, 570m south east of St Peter's Well (NHLE 1019104);
p. Crop mark site SW of Oldmoor (NHLE 1002145);
q. Purleigh moated mound (NHLE 1002197);
r. Earthworks in and E of Pandole Wood (NHLE 1002123);
s. Coastal fish weir at the northern end of The Nass (NHLE 1019581);
t. Rayleigh Castle (NHLE 1002198);
u. Slight univallate hillfort south of End Way Farm (NHLE 1014142);
v. Saxon Shore fort and Anglo-Saxon monastery at Bradwell-on-Sea (NHLE 1013834);
w. Medieval saltern adjacent to Hawbush Creek (NHLE 1020491);
x. Coastal fish weir 440m north west of Pewet Island (NHLE 1019105);
y. Decoy pond 700m north east of Marsh House Farm (NHLE 1013835); and
z. World War II minefield control tower 940m and pillbox 980m south east of Holliwell Farm (NHLE 1020997).

9.5.5 There are 12 Conservation Areas within the 5km study area. 10 Conservation Areas are located within the historic cores of settlements and are of early medieval and medieval origins. These are:

a. West Mersea;
b. East Hanningfield the Tye;
c. South Benfleet;
d. Tollesbury;
e. Battlesbridge;
f. Burnham-on-Crouch;
g. Tillingham;
h. Purleigh;
i. Southminster; and
j. Bradwell on Sea.

9.5.6 The other two Conservation Areas comprise a formal garden, Florence Gardens, and the Stow Maries World War One Aerodrome. The Bradwell on Sea Conservation Area is located within the EIA Scoping Site at the southern end of the Grid Connection Corridor A.

9.5.7 The listed buildings are predominantly concentrated within the settlements, with a large number within the conservation areas. The Grade I listed buildings within the 5km study area are all medieval churches and comprise:

a. Church Of St Peter and St Paul (NHLE 1225167), 11th century Church with additions in the 16th, 17th and 19th centuries;
b. Parish Church Of All Saints (NHLE 1110882), 14th century Church restored in 19th century;
c. Church Of St Mary (NHLE 1235843), 14th century Church with 15th and 20th century additions;
d. Redundant Church of St Mary (NHLE 1306956), 14th century Church;
e. Church Of All Saints (NHLE 1235573), 13th-15th century Church;
f. Church Of St Mary (NHLE 1236909) 13th and 14th century Church restored in the 19th century; and
g. Chapel Of St Peter on the Wall (1110942) 7th century chapel.

9.5.8 The Grade II* listed buildings within the 5km study area are:

a. Church Of St Thomas (NHLE 1308856);
b. Church Of St Leonard (NHLE 1264082);
c. Parish Church Of St Mary (NHLE 1337436);
d. Tollesbury Hall (NHLE 1141670);
e. Stow Maries WWI Airfield (NHLE 1406155);
f. Church Of St Margaret (NHLE 1338379);
g. Church Of St Mary the Virgin (NHLE 1123763);
h. Church Of St Peter (NHLE 1170125);
i. Edwins Hall (NHLE 1236906);
j. Royal Corinthian Yacht Club (NHLE 1123772);
k. Stows Farmhouse (NHLE 1247749);
l. Church Of All Saints (NHLE 1170845);
m. Church Of St Nicholas (NHLE 1247743);
n. Parish Church Of St Andrew (NHLE 1110862);
o. Church Of St Peter (NHLE 1122250);
p. Church Of St Nicholas (NHLE 1147539);
q. Church Of St Peter (NHLE 1112610);
r. Church Of St Peter (NHLE 1236422);
s. Church Of St Peter and St Paul (NHLE 1112667);
t. Willis Farmhouse (NHLE 1122177);
u. Shipwrights (NHLE 1337691);
v. Church Of St Mary (NHLE 1122254);
w. Church Of Holy Trinity (NHLE 1112676);
x. Yew Tree House, Gate and Gatepiers (NHLE 1266512);
y. Creeksea Place (NHLE 1123776);
z. Slough House (NHLE 1122172);
aa. Bradwell Lodge (NHLE 1337401);

bb. Church Of St Mary the Virgin (NHLE 1328624);
cc. Bradwell Hall (NHLE 1147175); and
dd. White House Farmhouse (NHLE 1168535).

Non-designated Heritage Assets

9.5.9 The following narrative sets out an overview of the archaeological and historical baseline conditions for the EIA Scoping Site and 1km study area. The narrative is based primarily on HER records of non-designated heritage assets located within the 1km study area, which comprise monuments, buildings and findspots from the prehistoric to the modern period. Designated heritage assets are referenced in the baseline summary where they are relevant to the chronological period.

9.5.10 Throughout much of the early prehistoric period, the study area was affected by many glacial advances and retreats (Ref 9-30). Therefore, the EIA Scoping Site has potential for palaeolithic finds. This can be seen from the river terrace deposits found within the study area which contain palaeolithic artefacts (MEX1039757). Other finds from the period include worked flint (MEX37377), flint knives and flint arrowheads (MEX35196) and a handaxe (MEX24294).

9.5.11 By the Mesolithic period much of Essex was covered by woodland, with important archaeological remains surviving such as at Langford, Essex, where a cremation deposit found within a small pit has been securely dated to the sixth millennium BC (Ref 9-32). Within the study area, various findspots from the period include worked flint (MEX1050541, MEX1051959, MEX1051960) and burnt stone (MEX1051974, MEX1051975, MEX1051976). By the Neolithic period sea levels stabilised and the Essex coastline reached something like its present appearance (Ref 9-32). Settlement evidence recorded on the HER includes a buried land surface (MEX37814) and a ring ditch identified through aerial photography (MEX41771).

9.5.12 Throughout the Bronze Age, settlement activity increased and the landscape became increasingly organised for agricultural purposes. In Essex, Late Bronze Age field systems, trackways and enclosures have been identified at sites including Clements Park, Southend-on-Sea and Mill House Farm, Chadwell St Mary (Ref 9-34). Within the 1km study area there are several ditches (MEX1050283, MEX1051954) and a rectangular enclosure (MEX35304) recorded on the HER, as well as a Bronze Age cremation (MEX28805) and various findspots, including pottery (MEX34970), an arrowhead (MEX37335) and a socketed gouge (MEX7109) - a type of chisel.

9.5.13 The Iron Age saw continued woodland clearance and agricultural expansion, producing a landscape characterised by dispersed farms, forts and small settlements (Ref 9-30). Evidence for settlement includes a rectilinear enclosure (MEX41821), rectilinear earthwork (MEX33143) and burial (MEX32722), and findspots including pottery sherds (MEX32642, MEX32713, MEX394), vessels (MEX35250) and jugs (MEX32722). The Scheduled Monument of a univallate hillfort (NHLE 1014142) is located at Asheldham, and scheduled cropmark sites at Oldmoor (NHLE 1002145) and east of Pandole Wood (NHLE 1002132) are indicative of long-term occupation of the marsh. There are a number of 'Red Hill' or salt making sites in the study area, which were industrial sites where salt was produced by boiling seawater. Examples in the study area include Turncole Farm (MEX32976), North Fambridge Marsh (MEX37106) and Blackwater (MEX37860).

9.5.14 During the Roman period (AD 43 to 410), the East of England was characterised by areas of dense settlement, expanding agricultural production, thriving trade networks and increasing integration into the wider Roman Empire (Ref 9-31). Large numbers of farmsteads (MEX28810, MEX40810), villages and settlements (MEX1050650) emerged, and the landscape was increasingly utilised. Settlements were connected by a network of roads such as between Chelmsford, Wickford and Canvey Island (MEX1033135), from Billericay to the River Roach (MEX1051387), from Woodham Ferrers to Althorne (MEX1051390) and from Mayland to Tillingham (MEX1051434).

9.5.15 Approximately 60 m east of the EIA Scoping Site is the Scheduled Monument of the Saxon Shore fort and Anglo-Saxon monastery at Bradwell-on-Sea (NHLE 1013834). Built on the peninsula to defend Roman Colchester to the north, the fort would have been a focal point of Roman activity in the area, and the embodiment of the Roman Empire's military might and organisation.

9.5.16 Roman settlement and funerary activity are also recorded in the study area, comprising burial remains (MEX24187), cremations (MEX24522) and a cemetery (MEX34975), as well as findspots including coins (MEX32931, MEX392, MEX1052023, MEX24319), pottery (MEX7214, MEX24490, MEX24548) and tile (MEX7217, MEX35232, MEX24330). Within the study area there is also some evidence for the continued use of industrial sites from the Late Iron Age into the Roman period, such as red hills or salterns (MEX1032094, MEX32765, MEX32893).

9.5.17 There is limited evidence of early medieval activity (AD 410 to 1066) within the study area, with two records suggesting early settlement (MEX35252, MEX35072). Evidence of further activity during this period is provided by the Scheduled Monument Saxon Shore fort and Anglo-Saxon monastery at Bradwell-

on-Sea (NHLE 1013834). The change from a military fort to a religious site is indicative of the withdrawal of Roman administration and the changing political and cultural landscape. Associated with the Scheduled Monument is a Grade I listed building, the Chapel of St Peter on the Wall (NHLE 1110942), which is considered one of the earliest surviving churches in England, dating to circa 654 AD.

9.5.18 Non-designated heritage assets recorded in the HER include a fish weir and trap (MEX31364), as well as various findspots of pottery (MEX395, MEX1052029, MEX1052017), a loom weight (MEX32717), a knife (MEX34997) and a coin (MEX7101).

9.5.19 The study area evidences a rich medieval history (1066 to 1540) highlighted by an increase in settlement activity across the EIA Scoping Site and study area. This includes a number of timber framed houses, such as (MEX1014042, MEX1014044, MEX1014063, MEX1014066, MEX1014136, MEX1014170), medieval farms, such as (MEX1036775, MEX1036776, MEX1036778) and manor houses, such as (MEX1037846, MEX1037848, MEX1037849). The non designated heritage assets also include various religious buildings with medieval origins, including a vicarage (MEX1036771), the Church of St James (MEX1014093) and the Church of St Leonard (MEX1014118). The majority of the study area remained rural in character as evidenced by records of ridge and furrow (MEX1039396, MEX39787, MEX1052005).

9.5.20 The majority of the HER records date to the post-medieval period. These are characterised by features associated with the area's agricultural and coastal heritage, such as former field boundaries and enclosures (MEX1040488), as well as former sea defences (MEX1031759). While much of the landscape remained agricultural and relatively rural, the period also witnessed the emergence of new industries that made extensive use of the transport benefits afforded by the Great Eastern Railway (MEX1051274). Aside from the large number of farmhouses and related agricultural buildings, both demolished and surviving, the EIA Scoping Site encompasses a number of industrial buildings that include brick works (MEX35274, MEX35040), windmills (MEX35273, MEX35272, MEX35265), a granary (MEX1014175) and a brew house (MEX1014096).

9.5.21 Evidence from within the 1km study area from the modern period (1900 to the present) is dominated by military remains. These include Second World War Light Anti-Aircraft Diver Battery Sites (MEX1051868, MEX1051887, MEX1051893, MEX1051889, MEX1052064), Blister hangars (MEX1052187, MEX1052188, MEX1052190, MEX1052195), fog dispersal plants (MEX1052197) and pillboxes (MEX38096, MEX31457, MEX31449, MEX1039578). A Scheduled Monument

comprising a World War II minefield control tower (NHLE 1020997) is located on the southern edge of the EIA Scoping Site. The tower was built to help guard the Crouch estuary to the south, but its design also allowed a 360-degree view and field of fire across the open marsh.

9.5.22 Other heritage assets from this period within the study area include a non-designated village hall (MEX1038438) and gas works (MEX1035243).

9.6 Potential Effects and Mitigation

9.6.1 This section identifies the sources and impacts that would occur as a result of the construction, operation (and maintenance) and decommissioning of the Proposed Development.

Construction

9.6.2 During construction of the Proposed Development, the following impacts to cultural heritage assets have the potential to occur:

a. Permanent, physical impacts on the fabric of known and/ or previously unrecorded archaeological remains within the EIA Scoping Site from groundworks including the creation of construction compounds; new access tracks; underground cabling installation, and relatively low-intensity ground disturbance from the erection of Solar PV Module mounting structures;
b. Permanent, physical impacts to components of the historical landscape, including hedgerows and ditches, through the construction of new access tracks and underground cabling installation; and
c. Temporary changes to the setting of heritage assets from the presence of construction compounds, construction traffic and machinery, as well as noise, dust, and light intrusion.

Operation

9.6.3 Long-term changes to the setting of designated and non-designated heritage assets may arise due to the introduction of new infrastructure in the landscape during its operation.

9.6.4 The operation of the Proposed Development also has the potential to alter the character of the historic landscape through the long-term introduction of renewable energy infrastructure within predominantly rural areas.

Decommissioning

9.6.5 During decommissioning, potential impacts would be similar to the construction phase. Permanent physical impacts to the fabric of heritage assets would have occurred at construction and have been mitigated at that time. Additional permanent impacts are therefore not anticipated for the decommissioning phase.

9.6.6 There is potential for impacts to heritage assets from temporary changes to their setting from the presence of traffic and machinery associated with decommissioning activities. However, these impacts would be no greater than those experienced during the construction of the Proposed Development.

9.6.7 No significant long-term effects on the settings of heritage assets are anticipated following decommissioning, as solar PV modules and associated infrastructure would be removed from the Energy Park and the land restored in accordance with the agreed decommissioning strategy. However, the future possibility of overhead line and/or underground cables remaining in situ post decommissioning of the Proposed Development within the Grid Connection Corridor(s) and Connection and Access Corridors would be agreed with the relevant Local Planning Authorities and National Grid prior to the commencement of decommissioning. The assessment will therefore consider the reasonable worst-case scenario. Similarly, no additional long-term effects on the historic landscape are anticipated. Following the removal of infrastructure, the landscape would largely revert to its previous land use and character.

Mitigation

9.6.8 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified, with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

9.6.9 Where impacts cannot be avoided, additional mitigation measures may be proposed, including provision for a programme of archaeological investigation, detailed in a Written Scheme of Investigation. These measures will also be set out in the Outline CEMP and Outline DEMP.

9.6.10 Mitigation measures relevant to cultural heritage are set out in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

9.6.11 It is anticipated that mitigation measures comprising archaeological investigation will be completed in advance of construction activities, where feasible. The scope and methodology for archaeological investigation will be detailed in an Outline Written Scheme of Investigation.

9.6.12 Additional mitigation measures during construction may comprise the need to protect important archaeological remains from accidental damage and a procedure for managing unexpected archaeological discoveries. Necessary mitigation measures for the construction phase will be informed by the results of archaeological surveys carried out for the Proposed Development and will be detailed in the Outline Construction Environmental Management Plan.

Operation

9.6.13 Potential operational effects on heritage asset settings will be reduced through careful design, including consideration of infrastructure location, setbacks from heritage assets, retention of existing landscape features and, where appropriate, the use of screening vegetation.

9.6.14 Further design development and heritage assessment will seek to minimise effects on both heritage significance and historic landscape character.

Decommissioning

9.6.15 A flexible design approach adopted during construction will also ensure that archaeological constraints are considered throughout the lifetime of the Proposed Development, including decommissioning. Where archaeological mitigation is required in advance of construction, consideration will also be given to future decommissioning activities.

9.6.16 Temporary effects arising during decommissioning would be managed through the implementation of appropriate environmental management measures secured through the relevant management plans and method statements.

9.7 Assessment Methodology

9.7.1 The following section sets out the approach for establishing the cultural heritage baseline conditions for the EIA Scoping Site and study areas, and the methodology for identifying likely significant effects from the Proposed Development.

Assigning Value

9.7.2 The value of a heritage asset (its heritage significance) is guided by its designated status but derived also from its heritage interest which may be archaeological, architectural, artistic or historic (NPPF Annex B, Glossary, (Ref 9-8). Each identified heritage asset will be assigned a value in accordance with the criteria set out in **Table 9-1**. Using professional judgement and the results of consultation carried out as part of the assessment, heritage assets will be assessed on an individual basis, with regional variations and individual qualities taken into account, where applicable, to assign the value.

Table 9-1: Criteria for assessing the value of heritage assets

Asset Value	Description
High	World Heritage Sites; Scheduled Monuments; Grade I and II* listed buildings; Registered battlefields; Grade I and II* Registered Parks and Gardens; Conservation Areas of demonstrable high value; Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance; and Well-preserved historic landscape character areas (HLCAs), exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II listed buildings; Conservation Areas; Grade II Registered Parks and Gardens; Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance; Averagely preserved historic LCAs, exhibiting reasonable coherence, time depth or other critical factor(s); and Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.
Low	Locally listed buildings; Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance; Assets whose heritage interests are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade; and

Asset Value	Description
	Historic LCAs whose value is limited by poor preservation and/or poor survival of contextual associations.
Very Low	Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic interest; and historic landscapes with no or little significant historical merit.

Determining the Magnitude of Impact

9.7.3 Having identified the value of the heritage asset, the next stage in the assessment will be to identify the level and degree of impact on an asset arising from the Proposed Development. Impacts may arise during construction, operation (and maintenance) and/or decommissioning and can be temporary, reversible, or permanent. Such impacts may be beneficial or adverse. Impacts can occur to the physical fabric of the asset or affect its setting. The contribution of setting to the value of any affected assets will be subject to assessment.

9.7.4 The level and degree of impact (impact rating) will be assigned with reference to a four-point scale as set out in **Table 9-2**. The assessment of the level and degree of impact will be made in consideration of any embedded mitigation measures for the Proposed Development. If no impact is identified, no rating will be given, and no resulting effect reported.

Table 9-2: Factors influencing the assessment of magnitude of impact

Magnitude	Description of Impact
High	Changes to most or all key components of the asset, such that it is totally altered or destroyed, resulting in a comprehensive impact upon its overall value; Change that would seriously affect a key element of an asset's value; and/or comprehensive alteration, including the total loss or complete restoration, of elements of an asset's setting that cause a fundamental change in our ability to understand and appreciate its heritage interests; thereby resulting in a comprehensive impact upon its overall value.
Medium	Changes to many key components of the asset, such that it is significantly altered or modified, resulting in a noticeable impact upon its overall value; and/or Changes to the setting of an asset which noticeably affect our ability to understand and appreciate its heritage interests, resulting in a noticeable impact upon its overall value.

Magnitude	Description of Impact
Low	Changes to some key components of the asset, such that it is slightly altered, resulting in a slight impact on its overall value; and/or Changes to the setting of an asset that slightly alter our ability to understand and appreciate its heritage interests, resulting in a slight impact upon its overall value.
Very Low	Very minor changes to key components of an asset, resulting in no real change upon its overall value; and/or Changes to the setting of an asset that have little effect on our ability to understand and appreciate its heritage interests, resulting in no real change upon its overall value.

Determining the Significance of Effects

9.7.5 The significance of cultural heritage effects will be determined by considering the relationship between the value of the receptor and the magnitude of impact. **Table 9-3** sets out how the significance of effect will be determined. In line with guidance set out in Principles of Cultural Heritage Impact Assessment in the UK (Ref 9-25) and **Chapter 6: Environmental Impact Assessment Methodology**, **Table 9-3** uses a graded scale to articulate the significance of effect.

9.7.6 Major and moderate effects will be considered significant. Within NPS EN-1 (Ref 9-5) Section 5.9 paragraphs 5.9.27 to 5.9.32 and NPPF (Ref 9-8) HE5 paragraph 2, HE6 and HE7 paragraph 3, there is a requirement to determine the effect that development proposals may have on the significance of heritage assets and to identify the degree of harm that may occur. There is no direct correlation between the classification of effect as reported in the ES and the level of harm caused to heritage significance in accordance with the NPS and NPPF.

9.7.7 Pursuant to NPS EN-1 (Ref 9-5) paragraph 5.9.31, any harmful impact to the value (heritage significance) of a designated heritage asset should be weighed against the public benefit of the Proposed Development, whilst Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2017 (Ref 9-20) requires the Secretary of State (SoS) to have regard to the desirability of preserving a listed building, conservation area, or scheduled monument, or its setting. In all cases, the determination of the level of harm to the value (heritage significance) of the asset arising from development impact is one of professional judgement and will be undertaken adopting a precautionary approach.

Table 9-3: Assessment of significance of effects

Impact Magnitude	Heritage Value			
	High	Medium	Low	Very Low
Large	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Small	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Establishing Baseline Conditions

Desk-based Assessment

9.7.8 To inform the assessment of likely significant effects, a cultural heritage Desk-Based Assessment (DBA) will be prepared in accordance with industry standards, and with reference to any statutory consultation responses received as part of the Scoping Opinion. The DBA will inform the cultural heritage chapter of the ES and, alongside the results of the agreed geophysical survey, will confirm whether additional surveys are required to better determine the nature, extent and origin of potential archaeological remains within the EIA Scoping Site.

9.7.9 Sources of information that will be consulted in the production of the DBA include:

a. National Heritage List for England database (Ref 9-27);
b. Essex HER for information on non-designated heritage assets, previous archaeological investigations and the Historic Landscape Characterisation data;
c. Portable Antiquities Scheme online database for data relating to archaeological finds (Ref 9-28);
d. The British Geological Survey (BGS) Onshore GeoIndex (Ref 9-29), for information on geology and topography, including historic borehole data;
e. Published and unpublished literature (including a detailed review of reports for previous fieldwork carried out within close proximity to the EIA Scoping Site);
f. Available geotechnical data;
g. Available LiDAR and aerial photography;
h. Documentary, cartographic and other resources as deposited within the Local Archives and Local Studies Library; and

i. Local Planning Authority plans, conservation area appraisals, guidance and lists.

9.7.10 The baseline assessment will be undertaken in accordance with guidance set out by the CIfA and Historic England, in particular the Standard and Guidance for Historic Environment Desk-Based Assessment (Ref 9-23) and the Code of Conduct (Ref 9-24).

Site Walkover and Setting Assessment

9.7.11 A walkover survey of the EIA Scoping Site will be undertaken, including a survey of known archaeological and built heritage assets identified within the EIA Scoping Site to record their extent, condition, setting and value.

9.7.12 The site visit will also include the study areas to assess the setting of designated and non-designated heritage assets which could potentially be affected by the Proposed Development, following initial desk-based review and consideration of the Zone of Theoretical Visibility. The setting assessment will establish the key features of an asset's setting and describe to what extent the setting contributes to the asset's heritage value (significance).

Additional Surveys

9.7.13 The desk-based research will also be supported by a programme of archaeological investigation. A geophysical survey of the EIA Scoping Site has been undertaken to establish the potential for the presence of below-ground archaeological remains. The scope of the geophysical survey was agreed with the Historic Environment Advisor to the local planning authority.

9.7.14 Further archaeological evaluation may be undertaken as part of the assessment process, the scope of which will be informed by the DBA, the outcomes of the geophysical survey and through consultation with the Historic Environment Advisor to the local planning authority. These additional surveys (if required) may include, but are not limited to:

a. Potential geoarchaeological monitoring of geotechnical ground investigations to establish the geoarchaeological baseline conditions and to assess the potential for deposits containing palaeoenvironmental data to be present; and
b. Archaeological trial trench evaluation to confirm the results of the geophysical survey, characterise the nature, extent and preservation level of archaeological remains in order to understand their heritage value, and to inform a suitable mitigation response.

Impact Assessment

9.7.15 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on cultural heritage assets will be undertaken using the principles of the guidance and criteria set out in **Section 9.3**.

9.7.16 Potential impacts of the Proposed Development on cultural heritage will be assessed by:

a. Considering the existing (baseline) status of the cultural heritage within the EIA Scoping Site and relevant study areas;
b. Identifying potential impacts of the Proposed Development on cultural heritage during the construction, operation (and maintenance) and decommissioning phases, as well as an assessment of the potential for cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design (i.e. embedded mitigation), construction, operation (and maintenance) and decommissioning phases, to avoid, reduce or offset any adverse effects; and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit adverse effects.

9.7.17 In line with the requirements of national planning policy, a Heritage Statement, weighing public decarbonisation/renewable energy benefits against identified heritage harm (whether substantial or less than substantial) will be appended to the Planning Statement as part of the DCO Application.

9.8 Limitations and Assumptions

9.8.1 The location and layout of certain elements of infrastructure (including the point of connection, construction methodologies and mitigation), have not yet been determined.

9.8.2 It is assumed there will be access to all required land to undertake the walkover survey and any additional surveys that may be required to support the cultural heritage assessment. If access is not available, professional judgement will be used, based on available research and data, and reasonable, realistic, worst-case assumptions, to assess the archaeological potential of the area and the setting of any heritage assets within this area.

9.8.3 It is assumed that the data provided by third party external sources is accurate.

9.9 Summary of Elements Scoped In and Out

9.9.1 Due to the potential for effects on cultural heritage receptors and resources from the Proposed Development, cultural heritage is scoped into the ES. The ES chapter will be supported by a cultural heritage DBA. The scope and methodology of these assessments is described in **Section 9.7**. A summary of the elements scoped in and out of the Cultural Heritage ES chapter is presented in **Table 9-4** below.

Table 9-4: Elements scoped in and out of the cultural heritage assessment

Phase	Element	Scoped In / Out
Construction	Designated heritage assets, non-designated heritage assets, previously unrecorded archaeological remains, Historic Landscape Character	**Scoped in:** An assessment of impacts on designated and non-designated heritage assets, potential buried archaeological remains, including physical impacts, and changes to their setting or their character.
Operation	Designated heritage assets, non-designated built heritage assets and Historic Landscape Character	**Scoped in:** An assessment of impacts on designated and non-designated built heritage assets, where changes to their setting or character may occur due to the presence of the Proposed Development.
Operation	Non-designated buried heritage assets, including previously unrecorded archaeological remains	**Scoped out:** No impacts on buried archaeological remains are anticipated during the operational phase of the Proposed Development, as any such impacts would have occurred and been appropriately mitigated during the construction phase. No new ground disturbance is proposed during operation, including for the maintenance or replacement of cabling which would be confined to areas previously disturbed during the original construction works.
Decommissioning	Designated and non-designated heritage assets, previously unrecorded archaeological remains	**Scoped in:** Potential impacts during decommissioning are not anticipated to be any greater than those assessed at construction and operation, with no new ground disturbance anticipated and therefore no additional effects on

Phase	Element	Scoped In / Out
	and Historic Landscape Character	buried archaeological remains. Established perimeter planting would provide screening of decommissioning activities, meaning effects on the settings of heritage assets are likely to be less than those experienced during construction and the land returned to its former use. However, because the specific method for decommissioning is uncertain at present, potential impacts from decommissioning are scoped in.

9.10 References

Ref 9-1 Legislation.gov (1979); Ancient Monuments and Archaeological Areas Act 1979, available online: https://www.legislation.gov.uk/ukpga/1979/46/part/I Accessed: October 2026.

Ref 9-2 Legislation.gov (1990) Planning (Listed Buildings and Conservation Areas) Act, available online: https://www.legislation.gov.uk/ukpga/1990/9/section/1 Accessed: October 2026.

Ref 9-3 Legislation.gov (2010) Infrastructure Planning (Decisions) Regulations, available online: https://www.legislation.gov.uk/uksi/2010/305/ Accessed: October 2026.

Ref 9-4 Legislation.gov (1997) The Hedgerows Regulations, available online: https://www.legislation.gov.uk/uksi/1997/1160/introduction Accessed: October 2026.

Ref 9-5 (adopted 2025) Overarching NPS for Energy (EN-1), available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage Accessed: October 2026.

Ref 9-6 Department of Energy Security and Net Zero (DESNZ) (adopted 2025) NPS for Renewable Energy Infrastructure (EN-3), available online: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026.

Ref 9-7 Department of Energy Security and Net Zero (DESNZ) (adopted 2025) NPS for Electricity Networks Infrastructure (EN-5), available online: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf Accessed: October 2026.

Ref 9-8 NPPF (2026), national planning policy framework, available online: https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National_Planning_Policy_Framework.pdf Accessed: October 2026.

Ref 9-9 MHCLG Planning Practice Guidance, available online: https://www.gov.uk/government/collections/planning-practice-guidance Accessed: October 2026.

Ref 9-10 Essex County Council (July 2025) Neighbourhood Planning Guide, available online: https://www.essex.gov.uk/sites/default/files/2025-

08/Essex%20County%20Council%27s%20Neighbourhood%20Planning%20Guide%20-%202025.pdf Accessed: October 2026.

Ref 9-11 Essex County Council, Essex Planning Protocol (May 2018) available online: https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/4mMWpWyhSqMWZg5T3pDX8u/317081e6e881bec0d98def2a10a52470/essex-planning-protocol.pdf Accessed: October 2026.

Ref 9-12 Essex County Council (June 2026) The Essex County Council Developers' Guide to Infrastructure Contributions, available online: https://www.essex.gov.uk/sites/default/files/2026-07/Developers%20Guide%20to%20infrastructure%20contributions%20-%20June%202026.pdf Accessed: October 2026.

Ref 9-13 Basildon Borough Council, Basildon Borough Draft Local Plan (2023-2043), available online: https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca3/media-upload/Basildon%20Borough%20Draft%20Local%20Plan%202023%20-%202043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026.

Ref 9-14 Chelmsford City Council, Chelmsford Local Plan our planning strategy 2013 to 2036, available online: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026.

Ref 9-15 Maldon District Council, Maldon District approved local development plan 2014-2029, available online: https://www.maldon.gov.uk/homepage/7031/emerging_local_plan Accessed: October 2026.

Ref 9-16 Rochford District Council (2011) Local Development Framework, Core Strategy Adopted Version, available online: https://www.rochford.gov.uk/sites/default/files/2022-11/planningpolicy_cs_adoptedstrategy.pdf Accessed: October 2026.

Ref 9-17 Rochford District Council (2026) Draft Rochford Local Plan Regulation 18, available online: https://www.rochford.gov.uk/media/3800 Accessed: October 2026.

Ref 9-18 Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England (2015), available online: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/ Accessed: October 2026.

Ref 9-19 Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017) available online: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/ Accessed: October 2026.

Ref 9-20 The Infrastructure Planning (Environmental Impact Assessment) Regulations, 2017 available online: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026.

Ref 9-21 Historic England Advice Note 12 (2019) available online: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/ Accessed: October 2026.

Ref 9-22 Delivering Clean Power: Commercial Renewable Energy and the Historic Environment (2nd edition) (Historic England, 2026) available online: https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/heag302-commercial-renewable-energy-development-historic-environment-2ed/ Accessed: October 2026.

Ref 9-23 Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment (DBA) (2020) available online: https://www.archaeologists.net/sites/default/files/2023-11/CIfA-SandG-DBA-2020.pdf Accessed: October 2026.

Ref 9-24 CIfA Code of Conduct: professional ethics in archaeology (2025) available online: https://www.archaeologists.net/sites/default/files/2025-10/Code-of-conduct_revOct-2025.pdf Accessed: October 2026.

Ref 9-25 Institute of Environmental Management and Assessment (IEMA) (now Institute of Sustainability and Environmental Professionals (ISEP)), Institute of Historic Building Conservation (IHBC) and CIfA 'Principles of Cultural Heritage Impact Assessment in the UK (2021) available online: https://www.archaeologists.net/sites/default/files/2024-11/CIfA-IEMA-Principles-Cultural-Heritage-Impact-UK_2021.pdf Accessed: October 2026.

Ref 9-26 Association of Local Government Archaeological Officers (ALGAO), Archaeology and Solar Farms Good Practice Guide. Advice for Developers, Archaeological Advisors, Consultants and Contractors, available online: https://www.archaeologists.net/sites/default/files/2026-04/Archaeology-and-Solar-Farms-GPG---FINAL-2026-04-14.pdf Accessed: October 2026.

Ref 9-27 Historic England (n.d.). National Heritage List for England database, available online: https://historicengland.org.uk/listing/the-list/ Accessed: October 2026.

Ref 9-28 Portable Antiquities (n.d.). Portable Antiquities Scheme Online Database. Available online: https://finds.org.uk/ Accessed: October 2026.

Ref 9-29 British Geological Survey (n.d.). Onshore GeoIndex. Available online: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.72770387.1366343283.1769184509-1538157131.1769184509 Accessed: October 2026.

Ref 9-30 James Kemble (2001) Prehistoric & Roman Essex: including Gazetteers for Essex and South Suffolk available online: https://archive.org/details/prehistoricroman0000kemb/page/84/mode/2up Accessed: October 2026.

Ref 9-31 Christopher Evan (2026), East of England Research Framework: Late Iron Age & Roman Resource Assessment available online: https://researchframeworks.org/eoe/resource-assessments/late-iron-age-and-roman/ Accessed: October 2026.

Ref 9-32 Essex Works (2011) The Historic Landscape Characterisation Report for Essex, Volume 1: HLC project background and overview

Ref 9-33 Historic England, map search available online: https://historicengland.org.uk/listing/the-list/map-search/ Accessed: October 2026.

Ref 9-34 Matt Brudenell (2026) Late Bronze Age to Middle Iron Age Resource Assessment, available online: https://researchframeworks.org/eoe/resource-assessments/late-bronze-age-to-middle-iron-age/#section-5 Accessed: October 2026.

10. Ecology and Biodiversity

10.1 Introduction

10.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with ecology and biodiversity during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the ecology and biodiversity chapter of the Environmental Statement (ES).

10.1.2 This chapter also identifies the scope of the assessment and the further ecological surveys that will be undertaken to ensure there is appropriate information to accurately characterise the baseline. This chapter sets out the potential impacts of the Proposed Development and provides an overview of the proposed assessment method that will be followed for the Ecological Impact Assessment (EcIA) that will be included within the Ecology and Biodiversity chapter of the Environmental Statement (ES).

10.1.3 To inform this chapter of the EIA Scoping Report, a Preliminary Ecological Appraisal (PEA) has been undertaken which consisted of three components:

a. A desktop study data review, including a request for data from Essex Field Club, which was undertaken in August 2026;
b. A walkover survey of accessible areas of land within which the Proposed Development will be located (the Energy Park), to record the broad habitats (using UKHab methods (Ref 10-1)), which was undertaken between 31st March and 8th May 2026; and
c. A protected species scoping survey (which was undertaken alongside the walkover survey, above), to inform the likelihood of the habitats within the Energy Park supporting protected species and other species of conservation importance.

10.1.4 The PEA report (information from which is included in this chapter) confirmed the need for ecological surveys and these commenced within the EIA Scoping Site in October 2025 (with surveys for non-breeding birds), to gather detailed baseline ecological information relevant to the Proposed Development (see also **Table 10-1**). Baseline data gathering will continue across the EIA Scoping Site into 2027, within the appropriate seasons for surveying and where access permits, see also **Table 10-1** for details of surveys that have been or will be completed.

10.1.5 The Ecology and Biodiversity chapter of the ES will fully identify and characterise any Important Ecological Features (IEFs), including statutorily and non-statutorily designated sites, priority habitats and protected or notable species within the relevant study areas (as defined in paragraph 10.2.3). The chapter will also consider the effects that the Proposed Development is likely to have on their conservation status, inter-relationships, and contribution to local, regional and (if appropriate) national biodiversity targets.

10.1.6 The assessment will identify prevention, avoidance, reduction, mitigation (including provisions for enhancements) and, if necessary, compensation measures that may be required to enable the Proposed Development to proceed, in compliance with relevant legislation and planning policies.

10.1.7 This chapter is supported by the following figures:

a. **Figure 10-1: Sites statutorily designated for their biodiversity value at an International (European) level up to 20km from the EIA Scoping Site Boundary**;
b. **Figure 10-2: Sites statutorily designated for their biodiversity value at a National or local level within 5km of the EIA Scoping Site Boundary**;
c. **Figure 10-3: Location of non-statutorily designated sites and priority habitats within 2km of the EIA Scoping Site Boundary**; and
d. **Figure 10-4: Habitats within the EIA Scoping Site**.

10.1.8 There are no appendices to accompany this chapter.

10.2 Characterising the baseline

10.2.1 Within this chapter, the following terminology is used when referring to the geographic areas within which assessments will be made, the extent of which depends on the ecological feature and nature of the impact:

a. Study area – the area within which the Proposed Development will be located and an appropriate radius (as defined in paragraph 10.2.3) which was and will be subject to collection of background information e.g., the location of non-statutorily designated sites within 2km of the Proposed Development;
b. Zone of Influence (ZoI) – the area over which IEFs may be affected by changes as a result of the Proposed Development and associated activities. Through a review of likely impacts of the Proposed Development and results of the desk study, the scope of field surveys was then defined. The ZoI was based on the following criteria, proportionate to the potential for the Proposed Development to impact on each feature:

i. the Proposed Development (a solar farm and associated infrastructure), the associated project activities, and the potential for effects at all stages (Construction, Operation (and Maintenance), and Decommissioning) of the Proposed Development;
ii. the current land use (predominantly arable) and habitats in the vicinity (majority being arable), their connectivity (e.g. through hedgerows, ditches or grassland margins), and how they may be used by different species;
iii. the presence and assemblages of species which may be in the area, identified during the desk study and based on the location of the Proposed Development; and
iv. the different habits, behaviours and preferences of different species that could be affected, and how these vary both spatially and seasonally. The desk study data and professional judgement was used to identify the likely species that may occur within the EIA Scoping Site and amend the ZoI based on likely presence and individual species disturbance distances, in the context of the EIA Scoping Site and surrounding area.

c. Survey area – synonymous with the ZoI, this is the area within which field survey work was, or will be, undertaken (see **Table 10-1**) which are specific to a given species, group of species or habitat.

Study Area

10.2.2 For the Proposed Development, the study area for which data was searched and collated through a desk study was based on the typical maximum distances expected by statutory consultees, professional judgement and experience of similar developments of this extent. The study area captures all designated sites, sensitive habitats, and species of importance that occur within the relevant ZoI of the Proposed Development. The study area and ZoI reflect standard good practice and are informed by published guidance (Ref 10-2) and professional judgement.

10.2.3 The study area within which data were searched and collated through a desk study included the EIA Scoping Site and up to:

a. 10km from the EIA Scoping Site Boundary for sites within the UK National Site Network (as defined in paragraph 10.3.4), (formerly European sites as defined in Regulation 8 of The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 10-3) and hereafter the Habitats Regulations), extended to 20km where birds with extensive foraging ranges (e.g. Golden Plover *Pluvialis apricaria*) are noted as a qualifying feature and

30km from any Special Areas of Conservation (SAC) where bats are noted as the, or one of, the qualifying features. In addition, a search beyond these distances was undertaken to determine whether the EIA Scoping Site is hydrologically connected to any sites within the UK National Site Network;

b. 5km from the EIA Scoping Site Boundary for sites statutorily designated for their biodiversity value at a national level, e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or local level (e.g. Local Nature Reserves (LNRs)). In addition, for the purposes of potential air quality impacts, consideration beyond this distance will be given where a designated site is identified as being within 200m of the Affected Road Network, if appropriate (refer to **Chapter 15: Traffic and Transport**);
c. 2km from the EIA Scoping Site Boundary for sites non-statutorily designated for their biodiversity value, e.g. Local Wildlife Sites (LWSs). In addition, for the purposes of potential air quality impacts, consideration beyond this distance will be given where a designated site is identified as being within 200m of the Affected Road Network, if appropriate (refer to **Chapter 15: Traffic and Transport**);
d. 2km from the EIA Scoping Site Boundary for ancient woodland, veteran and ancient trees, and priority habitats;
e. 2km from the EIA Scoping Site Boundary for records (from the preceding ten years) of protected and notable species. Protected and notable species are those listed under:

    i. Schedules 1 (birds), 5 (animals, excluding birds) or 8 (plants) of the Wildlife and Countryside Act 1981, as amended (WCA) (Ref 10-4);
    ii. Schedules 2 (animals) or 5 (plants) of The Conservation of Habitats and Species Regulations 2017 (Ref 10-3);
    iii. Section 41 (S41) of the NERC Act (Ref 10-5) which lists Species of Principal Importance (SPI) and Habitats of Principal Importance (HaPI) for nature conservation in England; or
    iv. Other habitats and species, such as those included in national, regional or local Red Data Books and Lists (assessed on a case-by-case basis).

f. 2km from the EIA Scoping Site Boundary for records (from the preceding ten years) of protected and notable aquatic species. An additional search of hydrologically connected water bodies within the catchment, upstream of the study area, was undertaken to consider connectivity for migratory fish species;
g. 2km from the EIA Scoping Site Boundary for any applications for European Protected Species Licences (EPSL) (e.g., for bats or Great Crested Newt

Triturus cristatus) and agri-environment schemes, e.g., Countryside Stewardship Schemes; and

h. 2km from the EIA Scoping Site Boundary for the status of water bodies subject to the Water Framework Directive (WFD) (Ref 10-6). As impacts may propagate downstream in hydrologically linked surface water bodies, the study area was extended beyond 2km where data was not available within 2km.

10.3 Legislation, Planning Policy Context and Guidance

10.3.1 Legislation, planning policy and guidance relating to ecology and biodiversity (including designated sites, priority habitats and protected or notable species) and pertinent to the Proposed Development is listed in this section.

Legislation

a. Habitats Directive – Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Ref 10-7);
b. Birds Directive - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Ref 10-8);
c. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (The Water Framework Directive) (Ref 10-9), later transcribed into UK Statutory Instruments as The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 10-6);
d. Regulation (EU) 1143/2014 of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species (Ref 10-10);
e. Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ref 10-11);
f. Wildlife and Countryside Act, 1981 (as amended) (Ref 10-5);
g. Environment Act 2021 (Ref 10-12);
h. Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 (Ref 10-13);
i. The Biodiversity Gain (Town and Country Planning) (Amendments and Transitional Provisions) (England) Regulations 2026 (Ref 10-14);
j. Countryside and Rights of Way (CRoW) Act 2000 (Ref 10-15);

k. The Conservation of Habitats & Species Regulations 2017 (as amended) (Ref 10-3);
l. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 10-16);
m. Natural Environment and Rural Communities (NERC) Act 2006 (Ref 10-5);
n. Protection of Badgers Act 1992 (Ref 10-17);
o. The Hedgerows Regulations 1997 (Ref 10-18);
p. Wild Mammals (Protection) Act 1996 (Ref 10-19);
q. Salmon and Freshwater Fisheries Act 1975 (Ref 10-20);
r. The Eels (England and Wales) Regulations 2009 (Ref 10-21); and
s. The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 10-22).

10.3.2 The above legislation will be referenced when identifying potential constraints to the Proposed Development, design options and mitigation. Compliance with the above legislation may require obtaining relevant protected species licences prior to the implementation of the Proposed Development.

Habitats Regulations Assessment

10.3.3 As part of the environmental assessment of the Proposed Development, it is necessary to consider whether the Proposed Development is likely to have a 'significant' effect on areas that have been internationally designated for nature conservation purposes (i.e., UK National Site Network sites).

10.3.4 UK National Site Network sites, designated for their biodiversity value, which include Special Protection Areas (SPA), SACs, potential SPAs (pSPA) and possible SACs (pSACs) are protected under the Habitats Regulations (Ref 10-3). Additionally, Ramsar sites and proposed Ramsar sites, which are designated under international convention are also included. Although Ramsar sites are not part of the network of designated sites, the National Planning Policy Framework (NPPF) (Ref 10-23) in England and the Overarching National Policy Statement for Energy (EN-1) (Ref 10-24) extends to Ramsar sites (and proposed Ramsar sites) the same level of protection as SPAs and SACs.

10.3.5 The UK left the European Union (EU) on 31st January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (termed the 'Withdrawal Act' (Ref 10-25)). However, the most recent amendments to the Habitats Regulations (i.e., The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Ref 10-16)) make it clear that the need for Habitats Regulations Assessment (HRA) continues to apply.

10.3.6 The HRA will be undertaken with reference to the general EU guidance on HRA (Ref 10-26), general guidance on HRA published by the UK government in July 2019 (Ref 10-27), and Planning Inspectorate Guidance on Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (Ref 10-29). Although the UK has departed the EU, the HRA will, where relevant, take account of relevant EU case law (for instance, the Holohan (Ref 10-30) and People over Wind (Ref 10-31) cases) as a precaution.

10.3.7 Regulation 63 of the Habitats Regulations requires a 'Competent Authority', in this case the Secretary of State (SoS) (who are informed by recommendations of the Planning Inspectorate as the appointed Examining Authority), to undertake an Appropriate Assessment of any plan or project (alone or in-combination with other plans and projects) which is likely to have a significant effect on the features of a UK National Site Network site unless the project is directly connected with the management of the site.

10.3.8 Whilst the HRA decisions must be taken by the Competent Authority, the information needed to undertake the necessary assessments must be provided by the Applicant. The information needed for the Competent Authority to establish whether there are any Likely Significant Effects (LSEs) from the Proposed Development and to assist in carrying out its Appropriate Assessment, will be provided in the HRA Report.

10.3.9 All plans and projects should identify any possible effects early in the plan / project making process and then either alter the plan/project to avoid them or introduce mitigation measures to the point where no adverse effects remain. In coming to a conclusion, the Competent Authority must consult with the statutory nature conservation body (in this case, Natural England) and have regard to their comments.

10.3.10 Stage 1 of the HRA process (Screening) will consider the potential impact pathways between the Proposed Development and UK National Site Network sites within the relevant study area (as defined in paragraph 10.2.3) and whether there is potential to have a significant adverse effect on the integrity of UK National Site Network sites, either alone or in combination with other plans or projects.

10.3.11 A HRA Stage 1 (Screening) Report will be presented at the consultation stage, and this will be updated as necessary for the Development Consent Order (DCO) Application including a report to inform Appropriate Assessment (Stage2), if required.

National Planning Policy

10.3.12 The following planning policies from relevant National Policy Statements (NPS) for energy have been taken into account as part of identifying the assessment methodology, receptor selection / sensitivity, potential significant environmental effects, and mitigation. These NPSs set out national policy for energy infrastructure and include relevant sections in relation to solar and the assessment of impacts on and protection of biodiversity. The Energy NPSs designated by the SoS have been reviewed as the primary policy basis for the assessment. The following NPSs are relevant to the Proposed Development and biodiversity:

a. Overarching NPS for Energy (EN-1), with particular reference to Sections 4.3, 4.6 and 5.4 (Ref 10-24);
b. NPS for Renewable Energy Infrastructure (EN-3) (Ref 10-32), with particular reference to Section 2.10 and paragraphs 2.10.67 to 2.10.84; and
c. NPS for Electricity Networks Infrastructure (EN-5), with particular reference to Section 2.5 (Ref 10-33).

10.3.13 The NPPF (Ref 10-23) sets out the UK Government's planning policies for England and how these are expected to be applied. While the NPPF does not contain specific policies for Nationally Significant Infrastructure Projects (NSIPs), it remains an important and relevant matter in determining a DCO Application. The NPPF, with particular reference to Section 19 (conserving and enhancing the natural environment), sets out policies to help drive nature recovery and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity.

10.3.14 Priority habitats and protected or notable species are of material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted and significant harm to biodiversity cannot be avoided, then adequate mitigation measures (or as a last resort, compensation) will be required to avoid or minimise impacts on certain habitats and species.

Local Planning Policy

10.3.15 The Proposed Development lies within the administrative area of Essex County Council and Basildon Borough Council, Chelmsford City Council, Maldon District Council and Rochford District Council. The following local planning documents are of relevance to the ecology and biodiversity assessment:

a. Basildon District Local Plan Saved Policies (adopted September 2007) specifically:

i. Chapter 5: Natural Environment and Nature Conservation.

b. Basildon Borough Local Plan 2023 – 2043 (Regulation 19) (Ref 10-34), specifically:

i. Chapter 11: Conserving the Local Environment.

c. Chelmsford Local Plan 2013-2036 (Ref 10-35), specifically:

i. Strategic Policy S4 – Conserving and Enhancing the Natural Environment;
ii. Policy DM16 – Ecology and Biodiversity; and
iii. Policy DM17 – Trees, Woodland and Landscape Features.

d. Chelmsford Local Plan Pre-Submission (Regulation 19) Document (February 2025), specifically:

i. Policy DM16 – Protection and Promotion of Ecology, Nature and Biodiversity; and
ii. Policy DM17 – Trees, Woodland and Landscape Features.

e. Maldon District Approved Local Development Plan 2014-2029 (Ref 10-36), specifically:

i. Policy N1: Green Infrastructure Network; and
ii. Policy N2: Natural Environment and Biodiversity.

f. Rochford District Council Local Development Framework – Core Strategy Adopted Version (adopted December 2011) (Ref 10-38);

g. Draft Rochford Local Plan (Ref 10-37), specifically:

i. Policy NE1 – Protecting the Natural Environment;
ii. Policy NE3 – Biodiversity and Ecology;
iii. Policy NE5 – Trees, Woodland and Hedgerows;
iv. Policy NE6 – Wallasea Island;
v. Policy NE7 – Delivering Blue and Green Infrastructure; and
vi. Policy NE13 – Local Green Space Designations.

h. Mayland Parish Council Neighbourhood Plan 2021-2042 (Ref 10-40), specifically:

i. Policy MAY E2: Biodiversity.

i. South Woodham Ferrers Neighbourhood Plan (Ref 10-41), specifically:

i. Policy SWF GS1: Completing the Green Necklace.

10.3.16 Additionally, parish councils have drafted biodiversity statements that commit to conserving biodiversity when circumstances permit and identify ways to integrate biodiversity into planning decisions. Whilst these statements do not form part of the local development plan (so do not contain policies for planning decisions), they do contain policy-related guidance and objectives relevant to the ecology and biodiversity assessment. These include:

a. Southminster Biodiversity Policy (Ref 10-42);
b. St. Lawrence Parish Council Biodiversity Policy, adopted July 2025 (Ref 10-43);
c. Steeple Parish Council Biodiversity Duty Statement, adopted November 2025 (Ref 10-44);
d. Althorne Parish Council Biodiversity Duty Statement, adopted May 2025 (Ref 10-45);
e. Latchingdon Parish Council Biodiversity Duty Statement, adopted November 2025 (Ref 10-46);
f. Purleigh Parish Council Climate, Environment and Suitability Policy (2024) (Ref 10-47);
g. North Fambridge Parish Council Environmental and Climate Policy (2026) (Ref 10-48); and
h. North Fambridge Parish Council Biodiversity Policy and Action Plan (2026) (Ref 10-49).

Relevant Guidance

10.3.17 Guidance documents relevant to the assessment of the impacts of the Proposed Development on ecology and biodiversity are:

a. The Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine (the CIEEM guidelines) (Ref 10-2);
b. Environmental Improvement Plan 2023 (Ref 10-50);
c. Natural England and Department for Environment, Food and Rural Affairs (DEFRA) Guidance: Protected species and development: advice for local planning authorities (Ref 10-51);
d. The Joint Nature Conservation Committee (JNCC) UK Biodiversity Framework (Ref 10-52);
e. The International Union for Conservation of Nature (IUCN) Red List of Threatened Species (Ref 10-53);
f. IUCN Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers (Ref 10-54);

g. Nature positive solar farms: policy guidelines for a bright future (Ref 10-55);
h. Solar Energy UK Guidance: A Standardised Approach to Monitoring Biodiversity on Solar Farms (2nd Edition) (Ref 10-56);
i. The Guidelines for the Selection of Biological Sites of Special Scientific Interest (SSSI) (Ref 10-57);
j. State of Nature 2023 report (Ref 10-58);
k. Nationally significant infrastructure projects: biodiversity gain statement for energy (Ref 10-59);
l. Essex County Council Biodiversity Plan (Ref 10-60);
m. Essex Local Nature Recovery Strategy (LNRS) (Ref 10-61);
n. Essex Local Wildlife Sites Partnership: Local Wildlife Sites Selection Criteria (Ref 10-62); and
o. Chelmsford City Council's Solar Farm Development Supplementary Planning Document (Ref 10-63).

10.3.18 Technical guidance that has been used to define the survey methods for habitats and species is included in **Table 10-1** and will be included in the methods section of the relevant technical appendices, submitted with the ES chapter.

10.4 Consultation

10.4.1 Consultation, as part of the EIA process, will be undertaken with statutory parties including Natural England, local council biodiversity officers and the Environment Agency, as well as other non-statutory interested parties. Agreement on the scope and methodology of surveys necessary to inform the assessment, ZoIs as defined by the CIEEM guidelines (Ref 10-2) and the IEFs to be considered as part of the assessment will be sought.

10.5 Baseline Conditions

10.5.1 This section describes the baseline environmental conditions for the Proposed Development area and surrounding areas with specific reference to ecology and biodiversity. The ecology and biodiversity baseline conditions, presented in this section, have been determined through a desk study of available information and field surveys undertaken to date (September 2026).

Sources of Information

Desk Study

10.5.2 The desk study included contacting Essex Field Club in August 2026 to obtain pre-existing ecological information on the location of non-statutorily designated sites and for records of priority habitats, protected and notable species and

Invasive and Non-Native Species (INNS) from the preceding ten years. The aim of a desk study is to help characterise the baseline context of a site and provide valuable background information that would not be captured by site surveys alone.

10.5.3 Online data resources that were reviewed for information within the relevant study areas include:

a. The Ramsar Sites Information Service (RSIS) website (Ref 10-64) for site information and designation details of any Ramsar's identified within the relevant study area (as defined in paragraph 10.2.3);
b. The Natural England website (Ref 10-65) for information on sites statutorily designated for their biodiversity value and to confirm reasons for designation and their condition;
c. Natural England's Impact Risk Zones for SSSI (Ref 10-66) to determine if the Proposed Development may have an effect on any SSSI or trigger the impact risk zones;
d. The Multi-Agency Geographic Information Centre (MAGIC) (Ref 10-67), to identify the location (and details) of sites statutorily designated for their biodiversity value, Priority Habitats; for any granted European Protected Species Licence applications or agri-environment schemes;
e. Natural England's Ancient Woodland – Revised (England) Completed Counties Inventory (Ref 10-68) for the location of ancient woodland;
f. Woodland Trust's ancient tree inventory (Ref 10-69), for details of ancient or veteran trees;
g. DEFRA and Environment Agency (EA) Ecology and Fish Data Explorer (Ref 10-70) for aquatic species records of fish, macroinvertebrate and macrophytes;
h. DEFRA and EA Catchment Data Explorer (Ref 10-71) for data on WFD water bodies and water catchments;
i. DEFRA and EA Statutory Main River Map (Ref 10-72) for locations of statutory main rivers and other watercourses;
j. National Biodiversity Network Atlas database (NBN Atlas) for notable species records (NB: only records with licences allowing for commercial use (OGL, CCO and CC-BY) were interrogated) (Ref 10-73); and
k. Records published in relevant documents, such as county bird reports.

Field Surveys

10.5.4 Review of ecological data within the study areas confirmed ecological surveys that were required and helped refine survey areas (see **Table 10-1**) which are specific to a given species, group of species or habitat. The survey areas defined

reflect standard good practice and are informed by published guidance for each ecological feature (see **Table 10-1**), consideration of potential impact pathways and professional judgement.

10.5.5 **Table 10-1** presents details of the identified surveys, methods and survey periods that have commenced or will be undertaken within the relevant survey areas. The extent of the survey areas varies according to the ecological feature in question and with regards to the precautionary principle i.e., if there is doubt as to whether or not an area should be surveyed it is included within the survey area. Accordingly, the survey areas that will be used in the assessment will ensure sufficient data is gathered to meet any design iterations which may change the likely ZoI used to undertake the impact assessment.

Table 10-1: Ecological surveys that have been, or will be, undertaken to characterise the baseline conditions within the EIA Scoping Site.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
UKHab Survey, including Habitat Condition Assessment for Biodiversity Net Gain	Walkover survey recording habitat types and boundary features, following the standard UKHab method (Ref 10-1). In addition, where appropriate, a habitat condition assessment, modular river surveys and hedgerows condition assessments will be undertaken for the purpose of the BNG assessment.	The land within the EIA Scoping Site and a zone of up to 50m beyond the EIA Scoping Site Boundary (where visible from within the EIA Scoping Site or accessible)	Using professional judgement, 50m from the EIA Scoping Site Boundary is an appropriate survey area within which to record habitats, acknowledging that those that are likely to be directly impacted by the Proposed Development are within the EIA Scoping Site itself and surveying up to 50m from the EIA Scoping Site Boundary is appropriate in evaluating adjacent habitats and informing on the potential presence, or otherwise, of protected species (e.g. Badger) within the vicinity of the Proposed Development.	Surveys to record the broad habitat types were undertaken within the Energy Park in March, April and May 2026. Habitat condition assessments have commenced alongside other habitat surveys and will continue, as required, between April and October.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
			The information from surveys undertaken within the EIA Scoping Site to support the BNG assessment will form the basis of the calculation of potential permanent and temporary effects.	
Terrestrial Habitat and Flora: Arable Flora Survey **Phase 2 botanical / National Vegetation Classification (NVC) Survey**	Surveys for important arable flora species involve walking arable field boundaries to record notable species as listed in Great Britain (Ref 10-74, Ref 10-75) and England (Ref 10-76) Red Data Lists or rated as locally, regionally or nationally scarce in 'A vascular plant red list for England'. Grassland surveys (including roadside verges) involve surveying such areas in more detail (i.e.: species lists with abundance ratings)	The EIA Scoping Site.	Using professional judgement, areas of terrestrial habitat to be surveyed in further detail are those within the EIA Scoping Site that have the potential to be impacted by the Proposed Development, informed by the desk study and as identified from the initial UKHab survey. The surveys will identify any areas of notable habitats or important for flora and inform any required avoidance, mitigation or enhancement.	Surveys were undertaken within the Energy Park between June and September 2026 and will continue, as appropriate in 2027.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	for notable species and species composition with the rarity of higher plants given based on 'New Flora of the British Isles' (Ref 10-77).			
Hedgerows	Hedgerows will be surveyed in accordance with the methodology as outlined in DEFRA's Hedgerow Survey Handbook (Ref 10-78), to assess their 'importance' against the Wildlife and Landscape Criteria, detailed in The Hedgerows Regulations (Ref 10-18) and to determine whether a hedgerow is species-poor or species-rich.	The EIA Scoping Site.	Using professional judgement, surveying all hedgerows within the EIA Scoping Site is appropriate, acknowledging that those hedgerows that are likely to be impacted by the Proposed Development are within the EIA Scoping Site itself. Hedgerows outside of the EIA Scoping Site will remain intact and unaffected by Proposed Development.	Hedgerow surveys were undertaken within the Energy Park in June, July and August 2026 and will continue, as appropriate in 2027.
Aquatic habitat and species surveys including for any invasive non-native species (potentially	An aquatic scoping survey comprising a desk-based assessment of available aquatic ecology data and a	Up to 2km from the EIA Scoping Site Boundary for the desk study and up to 250m for field survey.	Up to 250m from the EIA Scoping Site Boundary is an appropriate survey area to determine any potential impacts arising	Aquatic scoping surveys and macroinvertebrate surveys will be undertaken within the

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
including pond Predictive System for Multimetrics (PSYM), macrophytes, macroinvertebrates and fish surveys). and Modular River Physical Habitat Survey (MoRPh)).	walkover survey will inform site selection for further surveys. Selected waterbodies (ponds, ditches, rivers) likely to be impacted will be surveyed and assessed using relative standard methodologies for aquatic macrophytes (Ref 10-79), aquatic macroinvertebrates (Ref 10-80), MoRPh surveys (Ref 10-81), Fish (Ref 10-82) and PSYM specifically for ponds (Ref 10-83). MoRPh is required for the purposes of BNG.		from the Proposed Development both upstream and downstream (the desk study will assess a wider 2km area).	EIA Scoping Site in October 2026. Where required, the following surveys will be undertaken: Macroinvertebrate surveys: October-November 2026, and March- May 2027. Fish surveys: March-May 2027. Aquatic macrophyte surveys: June-September 2027. MoRPh surveys: March-May 2027.
Terrestrial invertebrates scoping survey	A walkover survey to identify areas of likely greater importance to terrestrial invertebrates.	The Energy Park.	Using professional judgement, surveying habitat within the Energy Park only is appropriate, acknowledging that habitats that have the potential to be permanently impacted	Scoping walkover survey not yet commenced.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
			(i.e. lost) by the Proposed Development and potentially supporting notable terrestrial invertebrates or assemblages are within this area. The surveys identified any areas likely to be important for terrestrial invertebrates and informed any required avoidance, mitigation or potential enhancement.	
Amphibians, including Great Crested Newt	Water bodies within 500m of the EIA Scoping Site Boundary were identified during the desk study. Habitat Suitability Index (HSI) surveys to evaluate the suitability of ponds and their potential to support Great Crested Newt (Ref 10-84). Further to the HSI assessment, suitable (as	HSI surveys will be undertaken on water bodies within 250m of the EIA Scoping Site Boundary and, where further survey identified as being required (based on the HSI score), using eDNA methods.	With reference to published guidance, habitats within and up to 250m of the EIA Scoping Site Boundary could constitute significant foraging areas, hibernation or resting sites for Great Crested Newt, which typically utilise terrestrial habitat up to 500m from their	eDNA surveys undertaken on water bodies within the Energy Park between mid-April and 30 June, where these held water and were accessible. Surveys will continue in 2027, where access is permitted, within the survey area.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	defined by the results of the HSI survey) and accessible water bodies identified within the survey area will then be scoped in for Environmental DNA (eDNA) survey (Ref 10-85) to determine presence or absence of Great Crested Newt.		breeding ponds (Ref 10-86). However, 250m is an appropriate survey area from the EIA Scoping Site Boundary for determining Great Crested Newt populations within the ZoI of the Proposed Development through HSI and eDNA surveys, acknowledging that there is a notable decrease in abundance of Great Crested Newt beyond a distance of 250m from a breeding pond (Ref 10-87).	
Reptiles	A Habitat Suitability Assessment will determine the suitability of the EIA Scoping Site for reptiles. If required, presence / absence surveys of terrestrial habitats for	Presence / absence surveys, if required will be undertaken in suitable habitat for reptiles (such as grassland) within the EIA Scoping Site that is potentially directly	With reference to published guidance, any surveys that are required within the survey area will provide sufficient information on reptile presence within the EIA Scoping Site,	Following the habitat suitability assessment, presence / absence surveys will be undertaken in September 2026 and between April and June 2027.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	reptiles using artificial refugia and observations of species in accordance with standard guidance for survey (Ref 10-88, Ref 10-89).	impacted by the Proposed Development.	acknowledging that good quality habitats, potentially supporting populations of reptiles and where these may be permanently impacted (i.e. lost) by the Proposed Development are within this area.	
Non-breeding birds	Non-breeding bird surveys, using an adapted walkover survey method (Ref 10-90, Ref 10-91), including frequent stopping points to view and observe bird behaviour and movements across the EIA Scoping Site. Also includes nocturnal observations and consideration of tidal state. Surveys to determine the use and distribution of waterbirds on the estuarine/intertidal	For the general non-breeding bird assemblage, the land within the EIA Scoping Site and up to 50m from the EIA Scoping Site Boundary will be surveyed. For species of greater conservation value and/ or higher sensitivity to potential noise or visual disturbance (e.g. Golden Plover), the survey area will be extended up to 500m from the EIA Scoping Site Boundary.	Whilst standardised survey zones for assessing the impacts of development on bird populations do not exist, the survey area provides information on the non-breeding bird population within the area immediately surrounding and contiguous with the EIA Scoping Site, where birds may potentially be adversely affected, either directly or indirectly. Therefore, the survey area is sufficient	Surveys of non-breeding birds have been undertaken on the EIA Scoping Site (where access permitted) since October 2025 (and are ongoing), comprising monthly walkover surveys, intertidal surveys and viewing point surveys.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	areas adjacent or near the Energy Park in accordance with the Wetland Bird Survey (WeBS) Methodology (Ref 10-90), with data collected over both high and low water periods to record both waterbirds roosting and feeding. The standard vantage point survey methods set out by NatureScot and accepted by Natural England for assessing impacts on birds from overhead lines are being used to provide coverage of the Energy Park and Connection and Access Corridor between land parcels. Timed watches from a fixed location, to record birds within a 180-degree viewing arc, up to 2km. Recording is focused on 'target		to determine the likely impacts of the Proposed Development on non-breeding bird species occurring or likely to occur in the area.	

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	species', these being species that are more sensitive to potential collision or displacement and in particular those associated with designated sites. Up to eight vantage point locations have been used.			
Breeding birds (including farmland birds)	Surveys for breeding birds are based on a standard territory mapping method for surveying breeding birds (Ref 10-90, Ref 10-91) and were adapted where necessary to include species-specific methods (as detailed in 'Bird Monitoring Methods' (Ref 10-90)) for other species, as required. The standard vantage point survey methods	For the general breeding bird assemblage, the survey area is the land within the EIA Scoping Site and up to 50m from the EIA Scoping Site Boundary. For species of greater conservation value and/ or higher sensitivity to potential noise or visual disturbance, where any such species are recorded, the survey area will be extended up	Standardised survey zones for assessing the impacts of development on bird populations do not exist, however, the survey areas provide information on the breeding birds within the area immediately surrounding and contiguous with the EIA Scoping Site, where birds may potentially be adversely affected. Published guidance (Ref 10-92) on disturbance	Surveys of the general breeding bird assemblage undertaken on the EIA Scoping Site (where access permitted) between March and June 2026, with additional survey effort as necessary in August and September to record any late-breeding species (e.g. Hobby *Falco subbuteo*). Viewing point surveys were undertaken throughout the breeding

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	set out by NatureScot and accepted by Natural England for assessing impacts on birds from overhead lines are being used to provide coverage of the Energy Park and Connection and Access Corridor between land parcels. Timed watches from a fixed location, to record birds within a 180-degree viewing arc, up to 2km. Recording is focused on 'target species', these being species that are more sensitive to potential collision and in particular those associated with designated sites. Up to eight vantage point locations have been used.	to 250m from the EIA Scoping Site Boundary.	distances for specially protected species e.g. those listed on Schedule1 of the WCA (Ref 10-4) was used to define the survey area for any such species likely to be present.	bird season (March to August 2026).
Bats – Daytime Bat Walkover (DBW) Survey	Trees (and structures, if present) will be subject	Relevant features within the EIA Scoping Site and	Information collated on the location of trees and	Surveys will be undertaken in December

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	to a DBW survey in accordance with The Bat Conservation Trust guidance (Ref 10-93).	a minimum of 10m from the EIA Scoping Site Boundary, where accessible and likely to be impacted by the Proposed Development.	structures that are suitable for roosting bats will inform design and offset buffers to avoid direct effects upon potential roost sites. Furthermore, the information will form the basis of the scope for roost surveys (as detailed below).	2026 within the Energy Park and will continue, as appropriate, in 2027.
Bats – Roost Surveys including Ground Level Tree Assessment (GLTA) and aerial survey	Where any works to trees potentially supporting bat roosts (as recorded during the DBW survey) has been confirmed prior to ES submission, a GLTA and aerial survey and/ or bat emergence surveys will be undertaken in accordance with standard survey guidance (Ref 10-93).	Features with bat roost suitability within the EIA Scoping Site that will be impacted by the Proposed Development (i.e. if the design cannot avoid the loss of trees).	It is anticipated that impacts to potential roosts are likely to be avoided and that any further survey work, if required, is likely to be minor (i.e. possibly a few individual trees) and undertaken on a precautionary basis.	If required, these will be undertaken between May and September 2027.
Bats – Night-time Bat Walkover (NBW)	Walked transect routes, to cover representative habitats within the	The Energy Park.	Using professional judgement and with reference to published	Surveys to record commuting / foraging bats were undertaken

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	Energy Park, with each transect surveyed once in spring, summer and autumn. The survey method is based upon published guidance (Ref 10-93) and supplemented by the deployment of static bat detectors, (at least one per transect).		guidance, the survey area will provide sufficient information on bat activity (commuting and foraging) of the Energy Park and where impacts are predicted, assessing commuting and foraging habitat and nearby roosts, and enabling determination of impacts on bat populations occurring within, or adjacent to, the Energy Park	within the Energy Park in the appropriate seasons for survey (May-June, July-August and September 2026) and will continue, as appropriate in 2027.
Riparian mammals (Water Vole, Otter *Lutra lutra*, Eurasian Beaver *Castor fiber* and the INNS, American Mink *Mustela vison*)	A Habitat Suitability Assessment (HSA) will determine the suitability of each watercourse or water body for riparian mammals. Watercourses and water bodies, deemed suitable for riparian mammals (as identified during the Habitat Suitability Assessment) will then be	All water bodies and watercourses within the EIA Scoping Site (and to a maximum of 10m from the EIA Scoping Site Boundary where access is permitted), identified as being potentially suitable for Water Vole. Note that where suitable habitat for Otter is present then the survey	With reference to published guidance and using professional judgement, surveying riparian habitats up to 10m (Water Vole) and 200m (Otter) from the EIA Scoping Site Boundary is sufficient to determine presence or absence of riparian mammals within, or	A HSA was completed on watercourses within the Energy Park in July and August 2026 and will continue, as appropriate, in 2027. Presence and absence surveys will be completed in the appropriate season in 2027.

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
	surveyed for evidence of riparian mammals, following standard guidance for surveying Water Vole (Ref 10-94, Ref 10-95) and for Otter (Ref 10-96, Ref 10-97, Ref 10-98). Any evidence of Eurasian Beaver and American Mink will also be recorded, using these survey methods.	will extend 200m upstream and downstream (where accessible). Additional surveys of woodland in the vicinity of water courses will also be checked for Otter holts.	adjacent to, the EIA Scoping Site as it covers the appropriate avoidance buffers around Water Vole burrows or Otter holts (which may be present outside of the EIA Scoping Site).	
Badger	A walkover survey, searching for signs of Badger activity (such as setts and latrines), and following standard survey guidance (Ref 10-99, Ref 10-100).	Within the EIA Scoping Site and to a maximum of 50m from the EIA Scoping Site Boundary, where viewable from within the EIA Scoping Site or where access is permitted.	With reference to published guidance and applying professional judgement, 50m beyond the EIA Scoping Site Boundary is an appropriate survey area as it covers the 30m distance of avoidance around setts at which direct or indirect effects on Badger setts could occur.	Surveys for Badger activity will be undertaken in November and December 2026 (where access permits) and will continue as appropriate in 2027.
Other SPI mammals (such as Hedgehog	No formal surveys have, or will be, undertaken for	The land within the EIA Scoping Site.	Using professional judgement, recording	In progress, observation of such species being

Survey	Survey Method	Survey Area	Justification for Survey Area	Status of survey and survey timing
***Erinaceus europaeus*, Brown Hare *Lepus europaeus* and Harvest Mouse *Micromys minutus*)**	such species and observations will be recorded when noted during other ecological surveys.		these species within the EIA Scoping Site is appropriate, acknowledging that any potential impacts (such as habitat loss) are within the EIA Scoping Site itself.	recorded alongside other ecological surveys.
Invasive non-native species (INNS)	INNS species observations will be recorded when noted during other ecological surveys. Plants will include notes on precise location and stand size. Aquatic and riparian INNS will be surveyed for as part of the aquatic ecology baseline.	The land within the EIA Scoping Site and a zone of 50m (where visible from within the EIA Scoping Site or accessible).	Using professional judgement, INNS will be recorded within the EIA Scoping Site and to a maximum of 50m to avoid and reduce the spread of any INNS species before, during and after construction.	In progress, observation of INNS being recorded alongside other ecological surveys.

Baseline Information

10.5.6 The known or predicted ecological baseline conditions for the EIA Scoping Site and surrounding areas with specific reference to designated sites, habitats, and species are summarised in the following sections. These will be fully defined as the Applicant continues to undertake detailed ecological surveys and assessment.

Statutorily designated sites

10.5.7 Statutory sites that are designated for their biodiversity value were identified through a review of the MAGIC (Ref 10-67) website.

10.5.8 Within the 10km study area (as defined in paragraph 10.2.3), there are 16 UK National Site Network sites that have been identified and these are presented in **Table 10-2**. These sites are designated for their habitats and the species for which they support, including birds.

10.5.9 There are no UK National Site Network sites within 30km of the EIA Scoping Site Boundary for which bats are a qualifying feature, but there are two additional UK National Site Network sites within 20km of the EIA Scoping Site Boundary for which birds are a qualifying feature.

10.5.10 In consideration of the proximity of designated sites to the EIA Scoping Site, more detail on qualifying features of statutorily designated sites and whether the EIA Scoping Site regularly supports such species (following completion of ecological surveys) will be included within the HRA Report, submitted as part of the DCO Application. Further to this there are no additional UK National Site Network sites with hydrological connections to the Proposed Development.

10.5.11 The locations of UK National Site Network sites is presented in Figure 10-1: Sites statutorily designated for their biodiversity value at an International (European) level up to 20km from the EIA Scoping Site Boundary.

Table 10-2: UK National Site Network sites within 10km of the Proposed Development

Statutorily designated site name	Approximate distance (kilometres (km) / metres (m)) and direction from closest point of the Proposed Development
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar	Adjacent to the Energy Park, to the south
Dengie (Mid-Essex Coast Phase 1) Ramsar	Adjacent to the Energy Park, to the east
Essex Estuaries SAC	Adjacent to the Energy Park, to the north

Statutorily designated site name	Approximate distance (kilometres (km) / metres (m)) and direction from closest point of the Proposed Development
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA	Adjacent to the Energy Park, to the south
Dengie (Mid-Essex Coast (Phase 1) SPA	Adjacent to the Energy Park, to the east
Outer Thames Estuary SPA	Adjacent to the Energy Park, to the east
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar	195m north of the Energy Park
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	195m north of the Energy Park
Foulness (Mid-Essex Coast Phase 5) Ramsar	585m south of the Energy Park
Foulness (Mid-Essex Coast Phase 5) SPA	585m south of the Energy Park
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar	3.3km north of the Energy Park
Colne Estuary (Mid-Essex Coast Phase 2) SPA	3.3km north of the Energy Park
Benfleet and Southend Marshes Ramsar	5.4km south of Grid Connection Corridor A
Benfleet and Southend Marshes SPA	5.4km south of Grid Connection Corridor A
Abberton Reservoir Ramsar	7.9km north of the Energy Park
Abberton Reservoir SPA	7.9km north of the Energy Park

10.5.12 There are 27 statutorily designated sites at a national level within the 5km study area (as defined in paragraph 10.2.3) and a description of these designated sites is presented in **Table 10-3**. The locations of statutorily designated sites are presented in **Figure 10-2: Sites statutorily designated for their biodiversity value at a National or local level within 5km of the EIA Scoping Site Boundary**.

Table 10-3: Statutorily designated sites at a national level within 5km of the Proposed Development

Statutorily designated site name	Approximate distance (kilometres (km) / metres (m)) and direction from closest point of the Proposed Development
Dengie NNR	Adjacent to the Energy Park, to the east
Crouch and Roach Estuaries SSSI	Adjacent to the Energy Park, to the south
Dengie SSSI	Adjacent to the Energy Park, to the east
Sandbeach Meadows SSSI	Enclosed by the Energy Park
Gidding Copse LNR	30m west of Grid Connection Corridor A

Statutorily designated site name	Approximate distance (kilometres (km) / metres (m)) and direction from closest point of the Proposed Development
Beauchamps Meadow LNR	50m west of Grid Connection Corridor A
Blackwater Estuary SSSI	250m north of Grid Connection Corridor D
Foulness SSSI	650m south of the Energy Park
Goldsands Road Pit SSSI	800m west of the Energy Park
Fenn Washland LNR	1.1km south of Grid Connection Corridor A
Kendall Park LNR	1.7km south of Grid Connection Corridor A
Blackwater Estuary NNR	1.7km north of Grid Connection Corridor D
Thundersley Great Common SSSI	2.1km south of Grid Connection Corridor A
The Cliff, Burnham-on-Crouch SSSI	2.9km south of Grid Connection Corridor A
Thrift Wood, Woodham Ferrers SSSI	3.0km north of Grid Connection Corridor A
Colne Estuary SSSI	3.2km north of the Energy Park
Colne Estuary NNR	3.4km north of the Energy Park
Nevendon Bushes LNR	4.0km west of Grid Connection Corridor A
Hanningfield Reservoir SSSI	4.0km north west of Grid Connection Corridor A
Hockley Woods LNR	4.3km east of Grid Connection Corridor A
Hockley Woods SSSI	4.3km east of Grid Connection Corridor A
Marylands LNR	4.5km east of Grid Connection Corridor A
Benfleet and Southend Marshes SSSI	4.6km south of Grid Connection Corridor A
Great Wood & Dodd's Grove SSSI	4.7km south of Grid Connection Corridor A
Belfairs LNR	4.7km south of Grid Connection Corridor A
Garrold's Meadow SSSI	4.8km south of Grid Connection Corridor A
Pitsea Marsh SSSI	4.9km south of Grid Connection Corridor A

10.5.13 Natural England's SSSI Impact Risk Zone (England) website (Ref 10-66) indicates that the Proposed Development falls within the impact risk zones for solar schemes and their associated infrastructure. Therefore, consultation will be undertaken with Natural England regarding potential impacts to nationally designated sites.

Non-statutorily designated sites

10.5.14 There are 40 sites that are non-statutorily designated for their biodiversity value within 2km of the Proposed Development (as per the study area in paragraph 10.2.3). These sites have been designated as LWS for their biodiversity value at a county level and are primarily designated for their habitats and supporting value to a wide variety of protected and important species.

10.5.15 The closest non-statutorily designated sites are Bradwell Brook LWS, which is immediately adjacent to the Energy Park and Bushey Hill LWS, which is within Grid Connection Corridor A.

10.5.16 The remaining 38 LWS's are outside of the EIA Scoping Site and those that are within the ZoI of the Proposed Development (in this case, 200m from the EIA Scoping Site Boundary) are presented in **Table 10-4**.

Table 10-4: Non-statutorily designated sites within the 200m ZoI of the Proposed Development

Non-statutorily designated site name	Approximate distance (kilometres (km) / metres (m)) and direction from closest point of the Proposed Development
Bradwell Brook LWS	Adjacent to the Energy Park
Bushey Hill LWS	Within Grid Connection Corridor A
North Fambridge Hall LWS	55m south of Grid Connection Corridor A
Woodside Wood LWS	70m west of Grid Connection Corridor A
Marshhouse Decoy LWS	175m south of the Energy Park

Ancient Woodland, Veteran and Ancient Trees

10.5.17 Natural England's Ancient Woodland - Revised (England) - Completed Counties dataset (Ref 10-68) identified eight areas of ancient woodland (irreplaceable habitat) located adjacent (within 30m) to the EIA Scoping Site Boundary. These are set out in **Table 17-1** of **Section 17.8: Arboriculture** of **Chapter 17: Other Environmental Topics**. All forms of ancient woodland are of equal status.

10.5.18 The Woodland Trust Ancient Tree Inventory (Ref 10-69) contains records of ancient and veteran trees, identified by volunteers, and there are no trees recorded which could be influenced by works within the EIA Scoping Site. The nearest recorded veteran tree is a Smooth-leaved Elm *Ulmus minor* c.100m to the south of the EIA Scoping Site Boundary (north of Asheldham).

Habitats

10.5.19 A walkover survey of accessible areas of the Energy Park, undertaken as part of the PEA (see paragraph 10.1.3), identified that the majority of habitat within the Energy Park is arable farmland, used for the production of crops (e.g., Wheat) (see **Table 10-6**).

10.5.20 HaPI under Section 41 of the NERC Act 2006 (Ref 10-5) potentially present (pending further survey) within the Energy Park that were identified at the time of writing this EIA Scoping Report (see also **Table 10-6**), include those within the broad habitat types of:

a. Hedgerows;
b. Grassland;
c. Running Water;
d. Standing Open Water/ Ponds; and
e. Field Margins.

10.5.21 Additionally, the MAGIC website (Ref 10-67) identified the presence of the following HaPI potentially present within the EIA Scoping Site or 2km study area:

a. Coastal saltmarsh;
b. Coastal and floodplain grazing marsh;
c. Deciduous woodland;
d. Semi-improved grassland;
e. Mudflats;
f. Ponds;
g. Reedbeds; and
h. Traditional orchard.

10.5.22 There are two Water Framework Directive (WFD) water bodies present within 2km of, or hydrologically linked to, the study area that have the potential to be impacted either directly or indirectly by the Proposed Development and these are presented in **Table 10-5**.

Table 10-5: Water Framework Directive (WFD) water bodies within 2km of, or hydrologically linked to, the study area

Water body	WFD Water body ID	Ecological Status	Distance	Operational Catchment
Rettendon Brook	GB105037028560	Moderate	>2km but hydrologically connected	Crouch and Roach
Crouch (d/s Wickford)	GB105037028550	Moderate	>2km but hydrologically connected	

Species

10.5.23 The desk study and field surveys were used to identify protected or notable species (IEFs) that are present within the EIA Scoping Site and the 2km study area. Several of the species recorded identified during the desk study are offered full or part protection under the WCA (Ref 10-4) and, or, are listed as SPI under Section 41 of the NERC Act (Ref 10-5).

10.5.24 The IEFs identified during the desk study or field survey as being present within the Site or ZoI / survey areas are included in **Table 10-6**.

10.5.25 The data gathered will be updated and used to inform the final assessment presented in the ES. These surveys will also inform any European Protected Species licences (where required). As part of the DCO Application for the Proposed Development any required licences will be prepared in draft for advisory comment from Natural England.

Table 10-6: Baseline detail identified at the time of drafting this EIA Scoping Report

Species / species group	Baseline detail identified at the time of drafting this EIA Scoping Report
Flora	**Desk Study**: Records of legally protected 'flowering plants' within 2km of the EIA Scoping Site Boundary (but outside of the EIA Scoping Site) and occurring in the last ten years include Jersey Cudweed *Gnaphalium luteoalbum* and Bluebell *Hyacinthoides non-scripta*. **Field Survey**: Surveys are ongoing.
Aquatic macroinvertebrates	**Desk Study**: Records of legally protected or notable aquatic invertebrates, within 2km of the EIA Scoping Site Boundary (but outside of the EIA Scoping Site) and occurring in the last ten years include Great Silver Water Beetle *Hydrophilus piceus* and Scarce Emerald damselfly *Lestes dryas*. **Field Survey**: Surveys proposed in October 2026 and between March-May 2027.
Aquatic macrophytes	**Desk Study**: Records of legally protected or notable aquatic macrophytes, within 2km of the EIA Scoping Site Boundary and occurring in the last ten years include Parsley Water-dropwort *Oenanthe lachenalia*. **Field Survey**: Surveys proposed in 2027.
Fish	**Desk Study**: Records of legally protected or notable fish, within 2km of the EIA Scoping Site Boundary and occurring in the last ten years include European Eel *Anguilla anguilla*, Brown / Sea Trout *Salmo trutta* and Bullhead *Cottus gobio*. **Field Survey**: Surveys proposed in 2027.
Terrestrial invertebrates	**Desk Study**: Records of legally protected or notable terrestrial invertebrates, within 2km of the EIA Scoping Site Boundary (but outside of the EIA Scoping Site) and occurring in the last ten years include Large Tortoiseshell *Nymphalis polychloros*, Purple Emperor *Apatura iris* and Fisher's Estuarine Moth *Gortyna borelii*. **Field Survey**: Areas of greater interest to terrestrial invertebrates within the EIA Scoping Site, identified at the time of writing this EIA Scoping Report, include hedgerows, ditches and grassland.
Amphibians, including Great Crested Newt	**Desk Study**: Legally protected or notable amphibians within the study area include Great Crested Newt, Common Toad *Bufo bufo* and Palmate Newt *Lissotriton helveticus*. **Field Survey**: Three of the seven suitable ponds within the Energy Park that were surveyed for Great Crested Newt (through eDNA), did not identify the presence of Great Crested Newt. No other amphibians have been recorded to date.

Species / species group	Baseline detail identified at the time of drafting this EIA Scoping Report
Reptiles	**Desk Study**: Four species of reptile (Grass Snake *Natrix helvetica*, Common Lizard *Zootoca vivipara* and Slow-worm *Anguis fragilis* and Adder *Vipera berus*) were recorded within the study area and within the last ten years. **Field Survey**: Incidental observations of individual Grass Snake, Adder and Common Lizard recorded within the Energy Park.
Non-breeding birds (including farmland birds)	**Desk Study**: The UK National Site Network sites presented in **Table 10-2** list birds as qualifying features. The data search returned a large number of records (>40,000) of birds, including records of specially protected and notable bird species from within the study area and from the preceding ten years of the request date. **Field Survey**: Surveys of non-breeding birds, to date, have recorded SPA Qualifying Species, such as Brent Goose *Branta bernicla* and Golden Plover (see also paragraph 10.5.10) alongside an assemblage of non-breeding birds within the EIA Scoping Site including SPIs (Ref 10-5) (such as Skylark and Yellowhammer).
Breeding birds (including farmland birds)	**Field Survey:** An assemblage of breeding birds, including WCA Schedule 1 species (Ref 10-4) and SPI species (Ref 10-5) such as Skylark, are present within the EIA Scoping Site.
Bats	**Desk Study**: Eleven species of bat have been recorded within 2km of the EIA Scoping Site Boundary. **Field Survey**: Full analysis of survey data, collected in 2026 has not yet been completed, however a small number of bat species were recorded using boundary features as commuting and foraging routes.
Riparian mammals (Water Vole, Otter *Lutra lutra*, Eurasian Beaver *Castor fiber* and the INNS, American Mink *Mustela vison*)	**Desk Study**: The data search returned records of Water Vole and Otter within the study area, with the majority of records for both species related to Wallasea Island, located approximately 500m to the south of the EIA Scoping Site Boundary. There were no records of either species identified within the EIA Scoping Site. No records of Eurasian Beaver and American Mink were returned. **Field Survey**: Many of the watercourses within the Energy Park have the potential to support Water Vole, following the HSA surveys and some incidental sightings have been made of Water Vole evidence (e.g. potential burrows) during the course of other ecological surveys. There has been no evidence of Otter, American Mink or Eurasian Beaver anywhere across the Energy Park and no incidental sightings have been made of these species during the course of other ecological surveys.

Species / species group	Baseline detail identified at the time of drafting this EIA Scoping Report
Badger	**Desk Study**: Records of Badger activity were returned from the desk study **Field Survey**: Evidence of Badger activity has been recorded around the Energy Park, mostly associated with boundary features.
Other SPI mammals (such as Hedgehog *Erinaceus europaeus*, Brown Hare *Lepus europaeus* and Harvest Mouse *Micromys minutus*)	**Desk Study**: Records of other SPI mammals, within 2km of the EIA Scoping Site Boundary (but outside of the EIA Scoping Site) and occurring in the last ten years were of Hedgehog, Brown Hare and Harvest Mouse. **Field Survey**: Brown Hare has been recorded within the EIA Scoping Site. No observations of other SPI mammals have been made. The habitat within the EIA Scoping Site could support Hedgehog and Harvest Mouse, although no evidence of either species has been made during ecological surveys. At this time, the presence of Harvest Mouse and Hedgehog will be assumed and assessed as appropriate.
Invasive non-native species (INNS)	**Desk Study**: Marsh Frog *Pelophylax ridibundus* was recorded within the study area, but outside of the EIA Scoping Site. New Zealand Pigmyweed *Crassula helmsii*, Floating Pennywort *Hydrocotyle ranunculoides* and Japanese Knotweed *Reynoutria japonica* were identified within the study area. **Field Survey**: Japanese Knotweed was recorded within the survey area.

10.5.26 Non-native INNS plant species listed under Schedule 9 of the WCA (Ref 10-4) and presented in **Table 10-6** are those that continue to pose a conservation threat to native biodiversity and habitats, as such it is illegal to plant or to otherwise encourage or cause these plants to grow in the wild.

10.5.27 The ecological baseline, identified to date, indicated the presence of protected and, or, notable species. However, the desk study and field surveys also indicated the absence of species:

a. Polecat is absent from the study area and, based on available information, from the Dengie Peninsula (Ref 10-101). Whilst this species does occur in northern Essex (Ref 10-101), it is likely to be absent from the EIA Scoping Site, as evidenced through field surveys undertaken to date. Therefore, Polecat has been scoped out of further assessment.

b. Hazel Dormouse was absent from within the study area and, based on available information (Ref 10-101) is absent from the study area. Therefore,

Hazel Dormouse is likely to be absent from the EIA Scoping Site and has been scoped out of further assessment.

c. Eurasian Beaver is absent from the study area and, based on available information, is absent from the Dengie Peninsula (Ref 10-101). Therefore, this species is not identified as an IEF and is not included for assessment. However, the Applicant acknowledges that the species is expanding its distribution in Essex and if evidence to suggest the species is present within the ZoI or if ongoing surveys identify this species' presence, then the species will be included for assessment, as appropriate.

Future Baseline

10.5.28 The future ecological baseline of the EIA Scoping Site, in the absence of the Proposed Development, is not anticipated to materially change between now and the beginning of the Construction and Operation (and Maintenance) phases as the land will continue to be in agricultural management. Habitats within the EIA Scoping Site (such as arable fields (cropped on rotation), mature trees, hedgerows, ponds) have and will continue to provide a number of species with potential habitat for foraging and reproduction.

10.5.29 In the longer term, in the absence of the Proposed Development, habitats within the EIA Scoping Site will continue to be under agricultural management and therefore the low biodiversity of this landscape and the damaged soil, poor water quality and artificially low water tables will remain, making recovery of these ecosystems harder to achieve. The distribution of some species will change in response to changes in crop type, whilst the assemblages are likely to remain broadly the same.

10.5.30 Irrespective of whether the Proposed Development were to proceed or not, the current national, regional and local trend is for a decline in species diversity and abundance e.g., farmland birds. These declines are likely to continue in the landscape surrounding the Proposed Development throughout its duration.

10.6 Potential Effects and Mitigation

10.6.1 With reference to **Chapter 3: Proposed Development**, prior to the implementation of any mitigation, the Proposed Development has the potential to affect ecology and biodiversity (positively or negatively) during Construction, Operation (and Maintenance) and Decommissioning, as presented below. Mitigation measures relevant to ecology and biodiversity are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

10.6.2 Impacts on biodiversity features during construction of the Proposed Development (including construction of compounds, access tracks (including vehicle movements), installation of PV panels (and Solar PV Mounting Structures), installation of cabling and substations) potentially include:

a. Habitat loss – direct impacts associated with changes in land use resulting from the construction of the Proposed Development, for example temporary works associated with site clearance (e.g. for site compounds and access), installation of buried cables, and permanent land-take (mainly arable land) associated with the installation of PV panels;
b. Fragmentation of populations or habitats – indirect impacts due to the Proposed Development potentially dividing a habitat, group of related habitats, site or ecological network, or the creation of partial or complete barriers (e.g. where any watercourses may be crossed) to the movement of species, with a consequent impairment of ecological function;
c. Disturbance – indirect impacts resulting from a change in normal conditions (e.g., light, noise, vibration and human activity) that result in individuals or populations of species changing behaviour or range;
d. Habitat degradation – direct or indirect impacts resulting in the reduction in the condition of a habitat and its suitability for some or all of the species it supports, for example changes in chemical water quality, increased sedimentation and dust deposition, or changes in surface flow or groundwater;
e. Species injury and/or mortality – direct impacts on species populations associated with mortalities due to construction activities, for example vegetation removal; and
f. Introduction and, or, spread of invasive species, due to the movement of personnel, equipment and plant machinery, potentially facilitating the introduction of invasive species.

Operation and Maintenance

10.6.3 With reference to **Chapter 3: Proposed Development**, impacts on biodiversity features during operation (and maintenance) of the Proposed Development could include:

a. Potential avoidance by species using the EIA Scoping Site, such as bats, due to indirect impacts through, for example, noise displacement of foraging/commuting bats by the presence of Solar PV Panels;

b. Disturbance or displacement of sensitive species whereby infrastructure may act as a barrier effect or pose a risk of collision;
c. Disturbance or displacement of sensitive species during operational maintenance activities;
d. Disturbance or displacement of sensitive species (e.g. fish) caused by Electro-Magnetic Fields (EMF) created by buried electric high voltage cables during operation (and maintenance) (refer to **Section 17.2: Electromagnetic Fields** of **Chapter 17: Other Environmental Topics**). This will be further explored if the design of the Proposed Development interacts with watercourses containing migratory fish species;
e. Polarised light pollution from the dark solar panels can mislead aquatic invertebrates such as mayflies, caddisflies, and dragonflies into laying eggs directly onto the panels potentially leading to localised population decline and disrupting the wider food chain; and
f. Fragmentation of habitats causing a barrier effect to some species, e.g., due to fencing.

10.6.4 With the incorporation of enhancements into the design of the Proposed Development, there are likely to be beneficial effects following completion of the Proposed Development (see also BNG in paragraphs 10.6.15 to 10.6.24) that will ensure no net loss of habitats and will provide an overall net gain in biodiversity, ensuring compliance with relevant legislation and planning policy relating to this. These beneficial effects are likely to include:

a. Increases in permanent grassland habitat of greater floristic diversity than arable farmland, increasing invertebrate assemblages and abundance;
b. Increased ecological connectivity across the Energy Park and into the wider area, through planting of trees and hedgerows;
c. Potential to contribute to nature recovery strategies in Essex;
d. Areas of habitat creation, such as fields and margins that provide permanent (and undisturbed) nesting and foraging habitats for farmland birds, small mammals and reptiles;
e. Potential increases in abundance and distribution of species, due to lack of human disturbance and changes in habitat (such as agricultural practices) within the Energy Park; and
f. Indirect beneficial impacts through a possible reduction of agricultural chemical inputs to watercourses/reduction in pesticide use on crops within the local area resulting in an increase in invertebrate abundance and diversity.

Decommissioning

10.6.5 Impacts on ecological features during decommissioning of the Proposed Development are likely to be the same as those during the construction phase. Field surveys would be required in advance of decommissioning to define the ecological baseline at the time of decommissioning and to ensure that impacts on ecological features are identified, avoided and, or, mitigated. Upon decommissioning, the above-ground physical infrastructure (with the exception of any new towers for overhead lines) will be removed and the EIA Scoping Site returned to landowners in the condition as at the end of operation and maintenance, including the established habitats.

Design Avoidance and Mitigation

10.6.6 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

10.6.7 The design for the Proposed Development will include consideration of IEFs and will incorporate, where reasonably practicable, measures to avoid or reduce the potential for adverse effects on these, in accordance with the mitigation hierarchy (as presented in paragraph 10.6.18) and relevant planning policy. The measures that will be identified and adopted include those that are inherent to the design of the Proposed Development and those that can realistically be expected to be applied as part of environmental best practice, or as a result of legislative requirements.

10.6.8 Standard best practice construction measures will be set out within an Outline Construction Environmental Management Plan (Outline CEMP), to reduce the effect of potentially harmful impacts on IEFs, in compliance with relevant legislation. The Outline CEMP will detail and formalise measures that will be implemented prior to and during construction of the Proposed Development to mitigate construction-related effects on IEFs. A detailed CEMP will be produced in accordance with the Outline CEMP following DCO consent to implement the measures outlined in the Outline CEMP for the Proposed Development.

10.6.9 The Proposed Development will avoid direct impacts to statutorily and non-statutorily designated sites and, through best practice construction methods, will minimise or remove any potential indirect impacts.

10.6.10 The Proposed Development will be located primarily on arable farmland, which substantially reduces the potential for the Proposed Development to result in significant adverse effects on ecological features.

10.6.11 The Proposed Development will be designed so that impacts upon HaPI (e.g. woodland, hedgerows, arable margins and watercourses) are avoided or reduced, where reasonably practicable. Replacement habitat will be included within the Energy Park, where this is not practicable and impacts upon HaPI are identified.

10.6.12 The Proposed Development will aim to avoid, protect and retain notable habitats and species, where practicable, including offsets of:

a. A minimum of 10m from the top of the watercourse and water bodies where practicable, other than where crossings are required, drainage or other essential infrastructure that has to be located nearer to the watercourse. Greater buffers are likely to be required where water bodies or watercourses support protected species, such as Great Crested Newt;
b. At least 15m from any type of woodland features, with a 25m minimum undeveloped zone, where practicable, from any ancient woodland; and
c. At least 5m from hedgerows without trees, where practicable, noting that there may be small incursions into hedgerows to facilitate access, fence-lines and any cabling. Woodland and retained trees will be protected, in line with British Standard Recommendations (Ref 10-102) with undeveloped buffers concordant with the requirements for each individual tree, (based on their root protection areas) both within and outside the EIA Scoping Site. Where protected species (e.g. bat roosts) are recorded within trees, then this buffer will be extended as appropriate. Fencing, as appropriate, will be included around working areas to protect above-ground vegetation and below-ground root systems.

10.6.13 Where cables need to cross watercourses, the Proposed Development will aim to avoid laying cabling directly on the channel bed of watercourses.

10.6.14 The Proposed Development will also aim to avoid, protect and retain protected or notable species, where practicable, including:

a. Retaining ponds and watercourses within the EIA Scoping Site, particularly those supporting Great Crested Newt;

b. Retaining boundary features where practicable, supporting breeding and non-breeding birds, commuting and foraging bats and other fauna, with undeveloped zones as presented in paragraph 10.6.12;
c. Retaining Badger setts, as far as is practicable, with an undeveloped zone of at least 30m from the sett (dependent on the activity); and
d. Retaining trees with the potential to support roosting bats, with a minimum undeveloped zone concordant with the Root Protection Area (RPA) of the tree and dependent on the bat roost categorisation.

Biodiversity Net Gain (BNG)

10.6.15 BNG is a quantitative process applied to development and the CIEEM defines BNG (Ref 10-103) as "*development that leaves biodiversity in a better state than before" and involves "an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation*". BNG is achieved when measurable improvements for biodiversity are delivered in association with a development through the creation of new habitats or enhancement and long-term management of existing habitats. Whilst BNG allows for these measures to be provided within the EIA Scoping Site, outside of this, or in combination, it is currently anticipated that the Proposed Development would seek to deliver BNG within the Energy Park, through the implementation of measures such as field boundary enhancements and the establishment of appropriate grassland habitats.

10.6.16 As of the 02 November 2026 a 10% Biodiversity Net Gain (BNG) becomes a mandatory requirement for NSIPs in England (Ref 10-59). An Outline Biodiversity Gain Plan and BNG Boundary Plan informed by appropriate baseline surveys and use of Defra's Statutory Biodiversity Metric Tool (Ref 10-107) will be submitted at ES stage.

10.6.17 Paragraph 4.6.6 of NPS EN-1 (Ref 10-24) also sets out how BNG should be addressed for Energy NSIP proposals stating that "*proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, where possible*"; and, in paragraph 4.6.10 (Ref 10-24) that "*biodiversity net gain should be applied after compliance with the mitigation hierarchy* [as presented in paragraph 10.6.18 of this chapter] *and does not change or replace existing environmental obligations*".

10.6.18 Compliance with planning policy in the NPS EN-1 (Ref 10-24) and the NPPF (Ref 10-23) requires that the Proposed Development considers and applies a mitigation hierarchy, requiring the highest level to be applied, where practicable. The mitigation hierarchy presented below, based on the CIEEM (Ref 10-2)

principles of avoidance, minimisation, restoration and compensation, is also fundamental to BNG and there are four sequential steps that must be taken throughout the lifecycle of a project, where there is potential for impacts on relevant ecological features:

a. Avoidance – actions taken to avoid causing impacts to the environment prior to beginning development (e.g. moving part of the Proposed Development to a different location);
b. Minimisation – measures taken to reduce the duration, intensity, extent and/ or likelihood of the unavoidable environmental impacts caused by the Proposed Development (e.g. adapting the design of the Proposed Development to minimise impacts);
c. Restoration or rehabilitation – actions taken to repair environmental degradation or damage following unavoidable impacts caused by the Proposed Development; and
d. Compensation – measures taken as a last resort to offset residual adverse effects that cannot be avoided, minimised and/or restored.

10.6.19 The currently approved method for calculating changes in biodiversity value of a site is DEFRA's Statutory Biodiversity Metric Tool (Ref 10-104). The change in biodiversity units is calculated pre- and post-development for three habitat modules of the metric: habitat area units, watercourse units and hedgerow units and indicates whether the Proposed Development would result in a net loss, no net change or a net gain in biodiversity value.

10.6.20 Surveys to record the pre-development biodiversity metrics, used to inform the BNG assessment, are undertaken by appropriately trained and experienced surveyors. Biodiversity metrics provide a measure of overall biodiversity value based on habitat type, area, condition, strategic significance and distinctiveness and surveyors record the area (or length) of each habitat along with a habitat condition assessment in line with UKHab (Ref 10-1) and guidance for river and ditch condition assessment (Ref 10-105, Ref 10-106).

10.6.21 The BNG assessment, therefore, will identify the opportunities of the Proposed Development, to contribute to delivery of measurable BNG, in line with the requirements of the Environment Act 2021 (Ref 10-12), NPS EN-1 (Ref 10-24), the NPPF (Ref 10-27), CIEEMs Biodiversity Net Gain Good Practice Principles for Development (Ref 10-28) and local planning policy (see paragraph 10.3.15).

10.6.22 Measures for the establishment, long term management and monitoring of habitat creation measures that would deliver BNG will also be included within the Outline Landscape and Ecological Management Plan (Outline LEMP), submitted as part of the DCO Application. The Outline LEMP will also incorporate

the elements of a Habitat Monitoring and Management Plan (HMMP), which will detail the specific measures to manage and maintain the on-site gains for at least 30 years from the date the habitat enhancement works are finished (Ref 10-103). Delivery of significant gains could include (Ref 10-108):

a. habitats of medium or higher distinctiveness in the biodiversity metric;
b. habitats of low distinctiveness which create a large number of biodiversity units relative to the biodiversity value of the site before development;
c. habitat creation or enhancement where distinctiveness is increased relative to the distinctiveness of the habitat before development;
d. areas of habitat creation or enhancement which are significant in area relative to the size of the development; or
e. enhancements to habitat condition, for example from poor or moderate to good.

10.6.23 The BNG assessment will be presented as an Outline Biodiversity Gain Plan and BNG Boundary Plan, informed by appropriate baseline surveys and use of Defra's Statutory Biodiversity Metric Tool (Ref 10-107). The outline gain plan will include:

a. a strategy for meeting the BNG objective, whether on-site, off-site or through statutory credits;
b. a schedule of timings for any allocation of off-site gains to the development after consent (if relevant); and
c. a description of any remaining uncertainty and how any changes to the BNG objective will be addressed.

10.6.24 Should the development be phased, the gain plan will include:

a. BNG proposals for the whole development site;
b. confirmation that detailed phase gain plans will be submitted after consent; and
c. information about how each phase is expected to contribute towards the BNG objective.

10.7 Assessment Methodology

10.7.1 Potential impacts of the Proposed Development on ecology and biodiversity will be assessed by:

a. Considering the existing (baseline) status of ecology and biodiversity within the EIA Scoping Site and relevant surrounds;
b. Identifying potential impacts of the Proposed Development on ecology and biodiversity during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;

c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

10.7.2 The approach used for the EcIA will be undertaken in accordance with best practice guidance, issued by the CIEEM (the CIEEM guidelines) (Ref 10-2).

10.7.3 The aims of the assessment will be to:

a. Identify (from a combination of desk-based study and field survey work) and evaluate any IEFs, which include designated sites, priority habitats, protected species and INNS, that are present and might be impacted by the Proposed Development (both those likely to be present at the time works begin and those predicted to be present at a set time in the future), placing their relative nature conservation importance into geographic context, which is then used to define the IEFs that need to be considered further;
b. Identify the changes or perturbations predicted to result as a consequence of the Proposed Development (i.e., the potential impacts) that could potentially affect IEFs (either directly or indirectly) and their conservation designations and contribution to local (and if appropriate county, regional and national) biodiversity. Established best-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are taken into account;
c. Describe and quantify the likely effects (positive or negative) on IEFs and whether these may be significant (taking into account impacts avoidance design measures and management activities);
d. Set out what steps will be taken to adhere to legal requirements relating to the relevant ecological features concerned;
e. Develop, where practicable, measures to avoid or reduce any predicted significant effects, in conjunction with other elements of the design (including mitigation for other environmental disciplines) and if necessary includes measures to compensate for effects on IEFs, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
f. Report any residual effects of the Proposed Development and where enhancement and net gains in biodiversity (i.e., BNG) are included.

10.7.4 It is not necessary in the assessment to address all habitats and species with potential to occur in the relevant study areas. Instead, the focus is on those that

are “relevant” i.e., IEFs that are considered to be potentially affected by the Proposed Development. This does not mean that efforts should not be made, where practicable and appropriate, to safeguard wider biodiversity including any combined and cumulative effects.

Determining Importance

10.7.5 To support a focussed assessment, there is a need to determine the scale at which the relevant IEFs are of value. The value (or sensitivity, as termed elsewhere within the EIA), of each relevant IEF has been defined with reference to the geographical level at which it matters, informed through relevant planning policy and legislation which is important in demonstrating how the Proposed Development will comply with statutory requirements and policy objectives for biodiversity, in accordance with Section 4.3 of the CIEEM guidelines (Ref 10-2).

10.7.6 Species populations are valued on the basis of their size, recognised status (such as through published lists of species of conservation concern and designation of BAP status) and legal protection. For example, bird populations exceeding 1% of published data for national populations are considered to be of national importance (and therefore of high sensitivity), and so on.

10.7.7 In assigning values to species populations, it is important to take into account the status of the species in terms of any legal protection. However, it is also important to consider other factors such as its distribution, rarity, population trends and the size of the population which would be affected. For example, whilst the Great Crested Newt is protected as a European protected species under the relevant legislation and therefore conservation of the species is of significance at an international level, this does not mean that every population of Great Crested Newt is internationally important. It is important to consider the particular population in its context. Therefore, in assigning values to species, the geographic scale at which they are important has been considered. The assessments of value rely on the professional opinion and judgement of experienced ecologists and will be set out clearly in the ES.

10.7.8 Plant communities are assessed both in terms of their intrinsic value and as habitat for protected species whose habitat is also specifically protected and for species of nature conservation concern which are particularly associated with them.

10.7.9 Due regard will also be paid to the legal protection afforded to species during the development of mitigation and compensation measures to be implemented for the Proposed Development. For European protected species, such as Great Crested Newt, there is a requirement that the Proposed Development should not

be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

10.7.10 For the purposes of the assessment, only ecological features of at least Local importance are considered as IEFs that require assessment for potential significant effects. Whilst consideration of impacts at all geographic scales is important, features of less than Local importance (i.e. of Site importance) are common and widespread (therefore of no local value) and are not legally protected or included within local planning policy. The CIEEM guidelines (Ref 10-2) make it clear that there is no need to "*carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*".

10.7.11 Assessing the value of features requires consideration of both existing and future predicted baseline conditions. Therefore, the description and valuation of ecological features will take account of any likely changes, such as trends in the population size or distribution of species which may arise either naturally through habitat changes or as a result of increased conservation effort, likely changes to the extent of habitats and the effects of other developments or land use changes.

10.7.12 A summary of the value (sensitivity) of ecological features and the geographical frames of reference used in the assessment, based on Section 4.7 in the CIEEM guidelines (Ref 10-2), is presented in **Table 10-7**.

Table 10-7: Summary of sensitivity of ecological features, according to geographic context

Sensitivity (value)	Geographic Frame of Reference	Examples
Very High	International (or European)	• Sites included in the UK National Site Network, such as SACs (including candidate SACs), SPAs (including potential SPAs), normally within the geographic area of Europe. Ramsar sites (including proposed sites), which are designated under international convention are also included. • Areas of habitat that would meet the selection criteria for inclusion in the UK National Site Network or as a Ramsar site. • Species occurring in numbers approaching that of international importance (i.e., >1% of a biogeographic population) that would meet the selection criteria for inclusion in the UK National Site Network or as a Ramsar site.

Sensitivity (value)	Geographic Frame of Reference	Examples
		• Qualifying species connected to a UK National Site Network (such as birds or bats).
High	UK or National (Great Britain), but considering the potential for certain ecological features to be more notable (of higher value) in England, with context relative to Great Britain as a whole	• Statutorily designated sites, protected through national legislation, such as a SSSI or NNR. • HaPI (Ref 10-5), considering factors such as its size, distribution and the size of the habitat which would be affected. This includes irreplaceable habitats such as ancient woodland and ancient or veteran trees. • Species occurring in numbers approaching that of national importance (i.e., >1% of the UK population) that would meet the relevant SSSI selection criteria (Ref 10-57).
Medium / High	Regional (East)	• Species, including SPI (Ref 10-5), occurring in numbers of greater geographical importance than within the county of Essex but does not reach the threshold to be of National importance.
Medium	County (Essex), City (Chelmsford), District (Maldon and Rochford) and / or Borough (Basildon)	• Non-statutorily designated sites, such as LWSs. • HaPI (Ref 10-5) not representing a nationally important habitat but recognised as a habitat which would or may fulfil the criteria for selection as a LWS. • Species occurring in numbers approaching that of county or district importance (i.e., >1% of the county or district (if known) population).
Low	Local (the EIA Scoping Site and up to 2km from the EIA Scoping Site Boundary)	• Areas of habitat that do not meet criteria for selection as LWS in Essex (Ref 10-62) but are considered to enrich the local area. • Species of conservation interest (e.g. SPI, red-listed or legally protected species) that are common and widespread but contribute to the local biodiversity.
Negligible	The EIA Scoping Site	• Species that are common and widespread and are not legally protected or included within local planning policy (e.g. Field Vole *Microtus agrestis*). • Areas of habitat that are widespread and of no local value (such as a fence-line or hard-standing).

Characterising Ecological Impacts and Effects

10.7.13 In accordance with Section 1.21 in the CIEEM guidelines (Ref 10-2), the terminology used within the assessment will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA these terms are defined as follows:

a. Impact – actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
b. Effect – outcome resulting from an impact acting upon the conservation status or structure and function of an ecological feature e.g., the effects on a population of bats as a result of the loss of a bat roost.

10.7.14 When describing potential impacts (and where relevant the resultant effects) consideration is given to the following characteristics likely to influence this:

a. Positive or negative - i.e., is the change likely to be in accordance with nature conservation objectives and policy and is that change:
    i. Positive - a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g., increasing the extent of a habitat of conservation value; or
    ii. Negative - a change that reduces the quality of the environment e.g., destruction of habitat.
b. Spatial extent - the spatial or geographical area or distance over which the impact or effect may occur under a suitably representative range of conditions;
c. Magnitude of change - the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible;
d. Duration - the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
e. Timing and frequency - i.e., consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and
f. Reversibility - i.e., is the impact temporary or permanent:
    i. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. Temporary

impacts for BNG are temporary losses of habitat that are restored to their original condition within two years.

ii. A permanent effect is an effect that extends beyond the lifetime of the Proposed Development and is one from which recovery is either not possible or cannot be achieved within a reasonable timescale i.e., the 40-year lifespan of the Proposed Development (in the context of the feature being assessed).

10.7.15 Combined, these characteristics form the magnitude of change criteria for effects of the Proposed Development on IEFs as summarised in **Table 10-8**.

Table 10-8: Magnitude of change criteria

Magnitude	Magnitude Criteria
High	Changes to the ecological feature pre-development (baseline) condition that almost always have an effect (positively or negatively) on its integrity or conservation status. Such changes may be long-term, permanent and/or irreversible.
Medium	Changes to the ecological feature baseline condition that in some circumstance may affect (positively or negatively) its integrity or conservation status. Although such changes may be long-term, they are potentially reversible.
Low	Changes to the ecological feature baseline condition that do not usually affect the baseline condition and are often short-term and/or reversible.
Very Low	There is no noticeable change to the ecological feature baseline condition.

Significance Criteria

10.7.16 For each ecological feature, only those characteristics relevant to understanding the ecological effect of the Proposed Development and determining the significance are described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant IEFs, as follows:

a. Not significant means that there is no effect on structure and function, or conservation status; and
b. Significant means that the structure and function, or conservation status is affected.

10.7.17 Sections 5.24 to 5.28 of the CIEEM guidelines (Ref 10-2) state that effects should be determined as significant (a significant effect) when: "*an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may*

be specific (e.g., for a designated site) or broad (e.g., national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)".

10.7.18 Using this information and professional judgement, it is determined whether the effects will be 'significant' or 'not significant' on the structure and integrity of site or ecosystems or conservation status of habitats and, or species of each ecological feature and the impact significance is determined at the appropriate geographical scale, as presented in **Table 10-7**.

10.7.19 There are a number of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines (Ref 10-2) recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology within this chapter, the terminology used in the CIEEM guidelines for impact assessment have been translated into the classification of effects scale, as outlined in **Table 10-9**, but still remain consistent with the CIEEM guidelines.

10.7.20 As a rule, major and moderate effects are considered to be significant, whilst minor and neutral/ negligible effects are considered to be not significant. However, professional judgement will be applied, including taking account of whether the effect is permanent or temporary, its duration and frequency, whether it is reversible, and/ or its likelihood of occurrence.

10.7.21 Beneficial effects, as described in **Table 10-9**, are assessed as those where there has, or will be, a change from the ecological baseline that improves (e.g. an increase in habitat or species population). Adverse effects are assessed as those where there will be a change from the ecological baseline that worsens (e.g. a reduction in habitat or decline in species population).

Table 10-9: Significance criteria for impacts and effects

Effect Classification Terminology	Equivalent CIEEM Terminology
Major beneficial (Positive)	1) Beneficial effect on structure/function or conservation status at a regional, national or international level; and

Effect Classification Terminology	Equivalent CIEEM Terminology
	2) The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate beneficial (Positive)	1) Beneficial effect on structure/ function or conservation status at a county level; and 2) The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (Positive)	1) Beneficial effect on structure/function or conservation status at a local level; and 2) The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	No effect on structure/function or conservation status.
Minor adverse (Negative)	1) Adverse effect on structure/function or conservation status at a local level; and 2) The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (Negative)	1) Adverse effect on structure/function or conservation status at a county level; and 2) The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (Negative)	1) Adverse effect on structure/function or conservation status at a regional, national or international level; and 2) The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

10.8 Limitations and Assumptions

10.8.1 The location and layout of certain elements of infrastructure (including the point of connection, construction methodologies and mitigation), have not yet been determined. This is of particular importance when considering potential impacts associated with ecology and biodiversity.

10.8.2 Baseline ecological surveys are ongoing and these surveys may highlight new IEFs with potential to be significantly affected that have not been identified (or considered not to be significant) at this stage of the assessment. These would be discussed on a case-by-case basis with the local authorities and Natural England, as appropriate.

10.8.3 It is currently assumed that should there be the requirement for the potential mitigation of ecological features and recommended enhancement measures, suitable on-site areas will be made available to deliver the required outcomes.

10.8.4 Any compound and material storage areas will be contained within the EIA Scoping Site.

10.9 Summary of Elements Scoped In and Out

10.9.1 The potential impacts of the Proposed Development on biodiversity are set out in paragraphs 10.6.2 to 10.6.5. The IEFs scoped into the assessment are presented in **Table 14-4** and the assessment of potential impacts on ecology and biodiversity will be presented in the ES. Habitats and species to be classified as IEFs will be based on the criteria set out in paragraphs 10.7.4-10.7.10. Anything not identified as an IEF will not be carried forward for assessment.

Table 10-10: Ecological Features scoped in and out of the ecology and biodiversity assessment

Ecological Feature	Scoped In / Scoped Out
Statutorily designated sites at an International (European) level (UK National Site Network sites)	**Scoped In** – UK National Site Network sites up to 10km from the EIA Scoping Site Boundary and up to 30km from the EIA Scoping Site Boundary with mobile species as qualifying criteria (30km for bats, 20km for birds). Potential for impact pathways to include indirect impacts such as disturbance to qualifying features and habitat degradation as per **Section 10.6** of this EIA Scoping Report. The ES will determine whether the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will impact upon identified sites, listed in **Table 10-2**.
	Scoped Out – UK National Site Network sites greater than 10km from the EIA Scoping Site Boundary and with no mobile species as qualifying criteria and such sites beyond 30km from the EIA Scoping Site Boundary are scoped out as there are no likely potential impact pathways (**Section 10.6** of this EIA Scoping Report) during any phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development which could interact with sites not identified above.
Statutorily designated sites of National importance	**Scoped In** – Statutorily designated sites of national importance, designated for their biodiversity value and within 5km of the EIA Scoping Site Boundary. Where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.

Ecological Feature	Scoped In / Scoped Out
	The sites to be considered in the assessment are presented in **Table 10-3**. In addition, should any further sites not already listed be within 200m of the Affected Road Network, then these will be included in the assessment.
	Scoped out – Statutorily designated sites of National importance, greater than 5km from the EIA Scoping Site Boundary, are scoped out as there are no potential impact pathways (**Section 10.6** of this EIA Scoping Report) during any phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development which could interact with sites not identified above.
Non-statutorily designated sites	**Scoped In** – non-statutorily designated sites within 2km of the EIA Scoping Site Boundary. Where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES. The sites to be considered in the assessment are included in paragraph 10.5.14 and **Table 10-4**. In addition, should any further sites not already listed be within 200m of the Affected Road Network, then these will be included in the assessment.
	Scoped Out – Non-statutorily designated sites, greater than 2km from the EIA Scoping Site Boundary are scoped out as there are no potential impact pathways (identified in **Section 10.6** of this EIA Scoping Report) during any phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development which could interact with sites not identified above.
Habitats	**Scoped In** - Habitats categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. At this stage this includes the HaPI within the ZoI of the EIA Scoping Site, as presented in **Table 10-6**. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
	Scoped Out – habitats not categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. Although no formal assessment of non-priority habitats is required due to an absence of legal protection or direction from relevant policy, there will be no direct impact to habitats outside of the EIA Scoping Site Boundary and good practice construction methods will ensure that there are no indirect impacts to habitats outside of the EIA Scoping Site Boundary. Therefore, there are no potential impact pathways during any

Ecological Feature	Scoped In / Scoped Out
	phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development.
Biodiversity Net Gain	**Scoped In** - The ES will follow the mitigation hierarchy and will make a clear distinction between measures that are considered to be mitigation for potential effects and where measures are enhancement compared to the existing baseline conditions. Furthermore, any ecological mitigation proposed for loss of habitat will not be double counted as enhancement.
Terrestrial Invertebrates	**Scoped In** – Notable terrestrial invertebrate species and assemblages categorised as IEFs.
	Scoped Out - Terrestrial invertebrates not categorised as IEFs. The Proposed Development design will seek to avoid those habitats of higher value to terrestrial invertebrates, such as through the retention of most habitats (e.g. woodland, hedgerows and ditch margins) within the Proposed Development, avoidance of habitats outside the Proposed Development and following good practice environmental methods during any phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development.
Aquatic Macroinvertebrates	**Scoped In** – notable aquatic macroinvertebrate species and assemblages categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. There are potential impact pathways for direct and indirect impacts to aquatic invertebrates as **per Section 10.6** of this EIA Scoping Report, and where necessary an assessment of these will be provided in the ES.
	Scoped Out – Aquatic Macroinvertebrates not categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. The design of the Proposed Development will, however, follow the principles of the mitigation hierarchy in seeking to avoid those habitats of higher value, including to aquatic macroinvertebrates. This may be through the retention of the majority of habitats (e.g. ponds, watercourses and ditches) within the Proposed Development, avoidance of habitats outside the Proposed Development and following good practice environmental methods during any phase (Construction, Operation (and Maintenance) and Decommissioning) of the Proposed Development.
Aquatic macrophytes	**Scoped In** - notable aquatic macrophyte species and assemblages categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10.

Ecological Feature	Scoped In / Scoped Out
	There are potential impact pathways for direct and indirect impacts to aquatic macrophytes as per **Section 10.6** of this EIA Scoping Report, and where necessary an assessment of these will be provided in the ES.
Fish	**Scoped In** - notable fish species and assemblages categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. There are potential impact pathways for direct and indirect impacts to fish as per **Section 10.6** of this EIA Scoping Report, and where necessary an assessment of these will be provided in the ES.
Amphibians, including Great Crested Newt	**Scoped In** – amphibian species categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. Great Crested Newt and Common Toad have been identified within the study area. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
	Scoped Out – amphibians not categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. This includes Common Frog and Smooth Newt due to an absence of legal protection or direction from relevant policy. Observations of these species will be recorded during other ecological surveys. Embedded mitigation described and included in the ES, submitted as part of the DCO Application, will minimise the risk of injury or killing of such species (where present) during construction of the Proposed Development.
Reptiles	**Scoped In** - reptiles have been identified within the EIA Scoping Site and study area. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
	Scoped Out - rare species of reptiles (e.g., Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis)* as the EIA Scoping Site is outside of the geographical range for these species.
Birds	**Scoped In** - bird species categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. Protected and notable bird species have been identified within the study area and the EIA Scoping Site. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.

Ecological Feature	Scoped In / Scoped Out
Bats	**Scoped In** - roosting and foraging/commuting bats have been identified within the study area. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
Riparian Mammals	**Scoped In** - Water Vole and Otter have been identified within the study area. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
	Scoped Out – Eurasian Beaver. Although expanding in range, this species is currently not known to be present in the study area and this species has not been recorded during surveys undertaken to date within the EIA Scoping Site. However, the status and distribution of Beaver will be kept under review and if evidence suggests a change in range, then this species may be scoped back in at a later stage, if necessary.
Badger	**Scoped In** - Badger have been identified within the EIA Scoping Site. Therefore, where appropriate, the potential impact pathways identified in **Section 10.6** of this EIA Scoping Report will be considered in the assessment provided in the ES.
Other SPI mammals, including Brown Hare, Hedgehog and Harvest Mouse	**Scoped In** - Mammal species categorised as IEFs based on the criteria set out in paragraphs 10.7.4-10.7.10. Brown Hare has been identified with the EIA Scoping Site and Hedgehog and Harvest Mouse have the potential to be present, based on the habitat within the EIA Scoping Site. Therefore, these species will be assumed to be present and assessed as such. Incidental records of these species will be recorded during other ecological surveys and any required mitigation measures formalised in the Outline CEMP secured as part of the DCO requirements.
	Scoped Out – Hazel Dormouse. Although present in Essex, this species is currently not known to be present in the study area. However, the status and distribution of Dormouse will be kept under review and if evidence suggests a change in range, then this species may be scoped back in at a later stage, if necessary.
INNS	**Scoped In** - due to legislative regulations and presence of INNS within the study area.

10.10 References

Ref 10-1 UKHab Ltd. (2023). The UK Habitat Classification Version 2.0. [online] Available at: https://www.ukhab.org Accessed: October 2026.

Ref 10-2 CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM, Winchester.

Ref 10-3 HMSO (2018). The Conservation of Habitats and Species Regulations 2017. [online] Available at: http://www.legislation.gov.uk/uksi/2017/1012/contents/made Accessed: October 2026

Ref 10-4 HMSO (1981). Wildlife & Countryside Act 1981 (as amended). [online] Available at: https://www.legislation.gov.uk/ukpga/1981/6 Accessed: October 2026.

Ref 10-5 HMSO (2006). The Natural Environment and Rural Communities Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents Accessed: October 2026.

Ref 10-6 His Majesty's Stationary Office (HMSO) (2017). The Water Environment (Water Framework Directive) (England and Wales) Regulations. [online] Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made Accessed: October 2026.

Ref 10-7 European Council (EC) (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. [online] Available at: https://www.legislation.gov.uk/eudr/1992/43/contents Accessed: October 2026.

Ref 10-8 EC (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). EC, Brussels. [online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147 Accessed: October 2026.

Ref 10-9 EC (2000). Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. [online] Available at: https://eur-lex.europa.eu/eli/dir/2000/60/oj/eng Accessed: October 2026.

Ref 10-10 EC (2014). Regulation (EU) 1143/2014 (2014) of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species (the IAS Regulation). [online] Available at: https://www.legislation.gov.uk/eur/2014/1143/introduction Accessed: October 2026..

Ref 10-11 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat. United Nations Educational, Scientific and Cultural Organization (1971) [online]. Available at: https://www.ramsar.org/sites/default/files/documents/library/scan_certified_e.pdf Accessed: October 2026.

Ref 10-12 HMSO (2021). Environment Act 2021. [online] Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted Accessed: October 2026.

Ref 10-13 HMSO (2024). The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024. [online] Available at: https://www.legislation.gov.uk/uksi/2024/48/contents/made Accessed: October 2026.

Ref 10-14 HMSO (2026). The Biodiversity Gain (Town and Country Planning) (Amendments and Transitional Provisions) (England) Regulations 2026. [online] Available at: https://www.legislation.gov.uk/uksi/2026/790/made/data.html Accessed: October 2026.

Ref 10-15 HMSO (2000). Countryside and Rights of Way Act 2000. [online] Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents . Accessed: October 2026.

Ref 10-16 HMSO. (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. [online] Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 Accessed: October 2026

Ref 10-17 HMSO (1992). Protection of Badgers Act 1992. [online] Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents Accessed: October 2026.

Ref 10-18 HMSO (1997). The Hedgerows Regulations 1997. [online] Available at: http://www.legislation.gov.uk/uksi/1997/1160/contents/made Accessed: October 2026.

Ref 10-19 HMSO (2006). Wild Mammals (Protection) Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/1996/3/contents Accessed: October 2026.

Ref 10-20 HMSO (1975). Salmon and Freshwater Fisheries Act 1975. [online] Available at: https://www.legislation.gov.uk/ukpga/1975/51/contents Accessed: October 2026.

Ref 10-21 HMSO (2009). The Eels (England and Wales) Regulations 2009. [online] Available at: https://www.legislation.gov.uk/uksi/2009/3344 Accessed: October 2026

Ref 10-22 HMSO (2019). The Invasive Alien Species (Enforcement and Permitting) Order 2019. [online] Available at: https://www.legislation.gov.uk/uksi/2019/527/made Accessed: October 2026.

Ref 10-23 Ministry of Housing, Communities and Local Government. (2026). National Planning Policy Framework [online]. Available at: https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National_Planning_Policy_Framework.pdf Accessed: October 2026.

Ref 10-24 Department for Energy Security and Net Zero (DESNZ) (2025). Overarching National Policy Statement for Energy (EN-1), 2025. [online] Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 10-25 HMSO (2020) European Union (Withdrawal Agreement) Act 2020. [online] Available at: https://www.legislation.gov.uk/ukpga/2020/1/contents . Accessed: October 2026.

Ref 10-26 European Commission, Directorate-General for Environment (2002). Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Publications Office, Luxembourg

Ref 10-27 Ministry of Housing, Communities & Local Government. (2019). Appropriate Assessment. Available at: https://www.gov.uk/guidance/appropriate-assessment Accessed: October 2026.

Ref 10-28 Chartered Institute of Ecology and Environmental Management (2016) Biodiversity Net Gain Good Practice Principles for Development. Available at: Biodiversity Net Gain: Good Practice Principles for Development. | CIEEM Accessed October 2026

Ref 10-29 Planning Inspectorate (PINS) (September 2024). Guidance: Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. [online] Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments Accessed: October 2026.

Ref 10-30 Holohan ruling (C-461/17).

Ref 10-31 People Over Wind and Sweetman v Coillte Teoranta (C-323/17).

Ref 10-32 DESNZ (2025). NPS for Renewable Energy Infrastructure (EN-3), 2025. [online] Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf . Accessed: October 2026.

Ref 10-33 DESNZ (2025). NPS for Electricity Networks Infrastructure (EN-5), 2025. [online] Available at: https://assets.publishing.service.gov.uk/media/64252f852fa848000cec0f53/NPS_EN-5.pdf Accessed: October 2026.

Ref 10-34 Basildon Borough Council (2024). Basildon Borough Draft Local Plan 2023 – 2043 [online] Available at: https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca3/media-upload/Basildon%20Borough%20Draft%20Local%20Plan%202023%20-%202043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026

Ref 10-35 Chelmsford City Council (2020). Chelmsford Local Plan. [online] Available at: https://www.chelmsford.gov.uk/media/fvfjkf0i/chelmsford-adopted-local-plan-may-2020-text-only.pdf Accessed: October 2026

Ref 10-36 Maldon District Council (2017). Maldon District Approved Local Development Plan 2014 – 2029

Ref 10-37 Rochford District Council (2026). Draft Rochford Local Plan. [online] Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 10-38 Rochford District Council, Local Development Framework Core Strategy Adopted Version (2011). Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planningpolicy_cs_adoptedstrategy.pdf Accessed: October 2026.

Ref 10-39 Burnham-on-Crouch Town Council (2017). Burnham-on-Crouch Neighbourhood Development Plan. https://www.maldon.gov.uk/info/7050/planning_policy/8112/community_led_planning_and_neighbourhood_plans/5 Accessed: October 2026

Ref 10-40 Mayland Parish Council (2025). Mayland Parish Council Neighbourhood Plan 2021-2042. [online] Available at: https://maylandparish.gov.uk/wp-content/uploads/2025/10/MayNDP_MadeVersion-1.pdf Accessed: October 2026

Ref 10-41 South Woodham Ferrers Town Council (2020). South Woodham Ferrers Neighbourhood Plan: Submission version 2020-2036. Available at: https://www.southwoodhamferrerstc.gov.uk/_UserFiles/Files/Neighbourhood%20Plan/SWF%20NDP%20Submission%20Plan%20Rev_A%20Low%20Res.pdf Accessed: October 2026

Ref 10-42 Southminster Parish Council (2026). Biodiversity Policy: Southminster. [online] Available at: https://southminsterparishcouncil.gov.uk/wp-content/uploads/simple-file-list/Policies/Biodiversity-Policy-2025.pdf Accessed: October 2026

Ref 10-43 St. Lawrence Parish Council Biodiversity Policy [online] Available at: https://stlawrence-pc.gov.uk/wp-content/uploads/2026/02/Biodiversity-policy.pdf Accessed: October 2026

Ref 10-44 Steeple Parish Council Biodiversity Duty Statement [online] Available at: https://steepleparishcouncil.gov.uk/wp-content/uploads/simple-file-list/Policies/Biodiversity-Duty-Statement.pdf Accessed: October 2026

Ref 10-45 Althorne Parish Council Biodiversity Duty Statement [online] Available at: https://althorneparishcouncil.gov.uk/wp-content/uploads/simple-file-list/Policies/biodiversity-duty-statement.pdf Accessed: October 2026

Ref 10-46 Latchingdon Parish Council Biodiversity Duty Statement [online] Available at: https://www.latchingdon-pc.gov.uk/wp-content/uploads/sites/116/2026/04/Biodiversity-Duty-Statement-Adopted-March-2026-1.pdf Accessed: October 2026

Ref 10-47 Purleigh Parish Council Climate, Environment and Suitability Policy [online] Available at: https://purleighparishcouncil.gov.uk/wp-

content/uploads/2024/09/Climate-Environmental-and-Sustainability-Policy59.pdf Accessed: October 2026

Ref 10-48 North Fambridge Parish Council Environmental and Climate Policy [online] Available at: https://www.northfambridgeparishcouncil.gov.uk/wp-content/uploads/sites/115/2026/04/Environmental-and-Climate-Policy.pdf Accessed: October 2026

Ref 10-49 North Fambridge Parish Council Biodiversity Policy and Action Plan [online] Available at: https://www.northfambridgeparishcouncil.gov.uk/wp-content/uploads/sites/115/2026/04/Biodiversity-Policy-and-Action-Plan.pdf Accessed: October 2026

Ref 10-50 Department for Environment, Food and Rural Affairs (DEFRA) (2023). Environmental Improvement Plan 2023. Available at: https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf . Accessed: October 2026

Ref 10-51 Natural England and DEFRA (updated 2025). Protected species and development: advice for local planning authorities. [online] Available at: https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications . Accessed: October 2026

Ref 10-52 Joint Nature Conservation Committee (JNCC) on behalf of the Four Countries' Biodiversity Group. (2024). UK Biodiversity Framework. [online] Available at: https://data.jncc.gov.uk/data/19a729f6-440e-4ac6-8894-cc72e84cc3bb/uk-biodiversity-framework.pdf . Accessed: October 2026.

Ref 10-53 The International Union for Conservation of Nature (IUCN) (2024). The IUCN Red List of Threatened Species. [online] Available at: https://www.iucnredlist.org/en . Accessed: October 2026.

Ref 10-54 Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N. and Carbone, G. (2021). Mitigating biodiversity impacts associated with solar and wind energy development. Guidelines for project developers. Gland, Switzerland: IUCN and Cambridge, UK: The Biodiversity Consultancy.

Ref 10-55 Carvalho, F., Morris, I., Gregory-Manning, S., White, P. C. L. and Armstrong, A. (2026) Nature positive solar farms: policy guidelines for a bright future. A joint policy report by Lancaster University, the Royal Society for the Protection of Birds, and the University of York. RSPB, Cambridge, UK

Ref 10-56 Solar Energy UK (2026). A Standardised Approach to Monitoring Biodiversity on Solar Farms (2nd Edition). [online] Available at: https://solarenergyuk.org/resource/a-standardised-approach-to-monitoring-biodiversity-2025/ Accessed: October 2026.

Ref 10-57 JNCC (2022). The Guidelines for the Selection of Biological Sites of Special Scientific Interest (SSSIs). [online] Available at: https://jncc.gov.uk/our-work/guidelines-for-selection-of-sssis/ Accessed: October 2026.

Ref 10-58 State of Nature Partnership (2023). State of Nature 2023. [online] Available at: https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf Accessed: October 2026.

Ref 10-59 DEFRA (2026). Nationally significant infrastructure projects: biodiversity gain statement for energy. [online] Available at: https://assets.publishing.service.gov.uk/media/6a185a1765bc5f798327f4c5/biodiversity-gain-statement-for-energy.pdf (Accessed: October 2026

Ref 10-60 Essex County Council (2025). Biodiversity Plan, Essex County Council [online] Available at: https://cmis.essex.gov.uk/Essexcmis5/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=J39ViHFlxKsvfFT3oZ9VvwqpBpCtLMT8LZDfVpqnSoGTSOL1TUVJuA%3d%3d&rUzwRPf%2bZ3zd4E7Ikn8Lyw%3d%3d=pwRE6AGJFLDNlh225F5QMaQWCtPHwdhUfCZ%2fLUQzgA2uL5jNRG4jdQ%3d%3d&mCTIbCubSFfXsDG Accessed: October 2026

Ref 10-61 Essex Nature Partnership (2025) Essex Local Nature Recovery Strategy [online] Available at: https://essexnaturepartnership.com/wp-content/uploads/2025/08/lnrs-jul-25.pdf Accessed: October 2026.

Ref 10-62 Essex Local Wildlife Sites Partnership (2016). Local Wildlife Sites Selection Criteria Available at: https://www.chelmsford.gov.uk/media/el0kfhov/eb-103f-local-wildlife-site-selection-criteria.pdf Accessed: October 2026.

Ref 10-63 Chelmsford City Council (2021). Solar Farm Development Supplementary Planning Document. [online] Available at: https://www.chelmsford.gov.uk/media/woueajxf/solar-farm-development-spd.pdf Accessed: October 2026

Ref 10-64 Ramsar. Ramsar Sites Information Service. [online] Available at: https://rsis.ramsar.org/?__goaway_challenge=meta-

refresh&__goaway_id=2d052f54574488c9625a863ba8a78354&__goaway_referer=https%3A%2F%2Fwww.google.com%2F Accessed: October 2026

Ref 10-65 Natural England. Designated Sites View. [online] Available at: https://designatedsites.naturalengland.org.uk/ Accessed: October 2026

Ref 10-66 Natural England. SSSI Impact Risk Zones (England). [online] Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::sssi-impact-risk-zones-england/about Accessed: October 2026

Ref 10-67 DEFRA (2024). Multi-Agency geographical information for the countryside (MAGIC) map. [online] Available at: https://magic.DEFRA.gov.uk/MagicMap.aspx Accessed: October 2026.

Ref 10-68 Natural England Open Data Geoportal. Ancient Woodland - Revised (England) – Completed Counties. [online] Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::ancient-woodland-revised-england-completed-counties-1/explore?location=51.680156%2C0.868719%2C12 Accessed: October 2026

Ref 10-69 Woodland Trust, Ancient Tree Inventory. [online] Available at: https://ati.woodlandtrust.org.uk/tree-search/?v=3122912&ml=map&z=10.521332609616172&nwLat=51.74829975588938&nwLng=0.45561812305820126&seLat=51.618382670701128&seLng=1.0641494511343694 Accessed: October 2026

Ref 10-70 DEFRA and Environment Agency (EA). Ecology & Fish Data Explorer. [online] Available at: https://environment.data.gov.uk/ecology/explorer/ Accessed: October 2026

Ref 10-71 DEFRA and EA. Catchment Data Explorer. [online] Available at: https://environment.data.gov.uk/catchment-planning/ Accessed: October 2026

Ref 10-72 DEFRA and EA. Statutory Main River Map. [online] Available at: https://environment.data.gov.uk/dataset/25dde009-ba7d-40de-8380-c5c3bb32ccdc Accessed: October 2026

Ref 10-73 National Biodiversity Network (NBN). NBN Atlas. [online] Available at: https://species.nbnatlas.org/ Accessed: October 2026

Ref 10-74 Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J. and Taylor, I. (2005). The Vascular Plant Red Data List for Great Britain. JNCC, Peterborough.

Ref 10-75 Botanical Society of Britain and Ireland (BSBI) (2021) Updated Vascular Plant Red List for Great Britain. [online] Available at: http://bsbipublicity.blogspot.com/2021/02/updated-vascular-plant-red-list-for.html Accessed: October 2026

Ref 10-76 Stroh, P.A., Leach, S.J., November, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. and Taylor, I. (2014). A Vascular Plant Red List for England. Botanical Society of Britain and Ireland, Bristol.

Ref 10-77 Stace, C.A. (2019). New Flora of the British Isles, 4th edition. C&M Floristics

Ref 10-78 DEFRA (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK (2nd edition). [online]. Available at: https://www.hedgelink.org.uk/cms/cms_content/files/89_hedgerow-survey-handbook.pdf Accessed: October 2026

Ref 10-79 WFD-UKTAG (Water Framework Directive – United Kingdom Advisory Group) (2014). UKTAG River Assessment Method Macrophytes and Phytobenthos: Macrophytes (River LEAFPACS2).

Ref 10-80 EA (2017). Freshwater macro-invertebrate sampling in rivers. Operational Instruction 018_08. Environment Agency, Bristol, UK

Ref 10-81 EA (2003) River Habitat Survey in Britain and Ireland. Field Survey Guidance Manual: 2003 Version (2022 Reprint)

Ref 10-82 Beaumont, W. R. C., Taylor, A. A. L., Lee, M. J., & Welton, J. S. (2002). Guidelines for electric fishing best practice. Environment Agency R&D Technical Report W2-054/TR.

Ref 10-83 EA (2002). A guide to monitoring the ecological quality of ponds and canals using Predictive System for Multimetrics (PSYM). [online] Available at: https://freshwaterhabitats.org.uk/wp-content/uploads/2013/09/NPMN_PSYM_MANUAL_July09.pdf Accessed: October 2026

Ref 10-84 Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal, Vol. 10, pp. 143-155.

Ref 10-85 Biggs, J., Ewald N., Valentini, A., Gaboriaud C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. DEFRA Project WC1067. Freshwater Habitats Trust: Oxford.

Ref 10-86 English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Ref 10-87 English Nature (2004). An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt. English Nature, Peterborough.

Ref 10-88 Froglife (1999) Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, London.

Ref 10-89 Sewell D., Griffith R.A., Beebee, T.J.C., Foster J. and Wilkinson J.W. (2013) Survey Protocols for the British Herpetofauna Version 1.0. Amphibian and Reptile Conservation Trust, University of Kent, University of Sussex. [online] Available at: https://www.arc-trust.org/Handlers/Download.ashx?IDMF=7c736bcd-9dde-4473-8115-12cf9a5d7462 Accessed: October 2026

Ref 10-90 Gilbert G., Gibbons D.W. and Evans J. (1998) Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire.

Ref 10-91 Bibby, C.J., Burgess, N.D. and Hill, D.A. (1992) Bird Census Techniques. The University Press, Cambridge.

Ref 10-92 Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283 [online] Available at: https://www.nature.scot/doc/disturbance-distances-selected-scottish-bird-species-naturescot-guidance Accessed: October 2026

Ref 10-93 Collins, J (editor) (2023) Bat Surveys for Professional Ecologists Good Practice Guidelines 4th edition

Ref 10-94 Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook. Third Edition. WildCRU, University of Oxford.

Ref 10-95 Dean, M., Strachan, R. Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Matthews, F. and Chanin, P. The Mammal Society, London

Ref 10-96 RSPB, NRA and RSNC (1994). The New Rivers & Wildlife Handbook. RSPB.

Ref 10-97 EA (2011). Fifth otter survey of England 2009 – 2010.

Ref 10-98 Chanin, P. (2003). Ecology of European Otter. Conserving Natura 2000 Rivers Ecology Series No.10 English Nature.

Ref 10-99 Harris, S., Cresswell, P. and Jefferies D (1989). Surveying Badgers

Ref 10-100 Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.

Ref 10-101 Essex Field Club – Species Search. [online] Available at: https://www.essexfieldclub.org.uk/portal.php/p/Species%20Search Accessed: October 2026

Ref 10-102 British Standards Institute (BSI) (2012). BS 5837:2012 Trees in relation to design, demolition and construction – recommendations

Ref 10-103 Baker, J., Hoskin, R. and Butterworth, T. (2019). Biodiversity Net Gain – Good Practice Principles for development, A practical guide. [online] Available at: https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf Accessed: October 2026

Ref 10-104 DEFRA (updated 2026) Statutory biodiversity metric tools and guides. [online] Available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides Accessed: October 2026

Ref 10-105 Gurnell et al. (2019). The MoRPh Survey: a Modular River Physical Survey Field Guide.

Ref 10-106 Gurnell et al. (2020). A guide to assessing River Condition Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric.

Ref 10-107 DEFRA (2026). Biodiversity net gain: nationally significant infrastructure projects. Available at: https://www.gov.uk/guidance/biodiversity-net-gain-nationally-significant-infrastructure-projects Accessed: October 2026

Ref 10-108 DEFRA (2023). Make on-site biodiversity gains as a developer. [online] Available at: https://www.gov.uk/guidance/make-on-site-biodiversity-gains-as-a-developer Accessed: October 2026

11. Landscape and Visual

11.1 Introduction

11.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with landscape and seascape character and visual amenity during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the landscape and visual chapter of the Environmental Statement (ES).

11.1.2 This chapter is supported by the following figures and appendices:

a. **Figure 11-1: Landscape, Seascape and Visual Study Area**;
b. **Figure 11-2: Bare-Earth Zone of Theoretical Visibility (ZTV)**;
c. **Figure 11-3: Proposed Viewpoints**;
d. **Appendix 11-A: Extracts of Natural England National Character Assessments**;
e. **Appendix 11-B: Extracts of County Landscape Character Assessments**; and
f. **Appendix 11-C: Extracts of District Landscape Character Assessments**.

11.1.3 Landscape effects relate to an assessment of the Proposed Development on the landscape as a resource (i.e. the potential change to the physical features of the landscape and/or the aesthetic, perceptual and experiential characteristics that make different landscapes distinctive).

11.1.4 Seascape effects relate to an assessment of the Proposed Development on the seascape (i.e. the potential change to the physical features of the seascape and/or the aesthetic, perceptual and experiential characteristics that make different seascapes distinctive). The seascape covers the coastal and marine areas seaward of the high-water mark, including the intertidal area between the high and low water marks.

11.1.5 Visual effects relate to an assessment of the potential change to the composition of people's views, due to the introduction of new features and / or the removal of existing features resulting from the Proposed Development.

11.1.6 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 9: Cultural Heritage**, particularly information on designated heritage assets, including conservation areas and non-designated heritage assets, listed buildings and scheduled monuments;
b. **Chapter 10: Ecology and Biodiversity**, particularly information on statutory and non-statutory ecological designations; and
c. **Section 17.3: Glint and Glare** of **Chapter 17: Other Environmental Topics**, for the impacts of glint and glare on visual receptors.

11.2 Study Area

11.2.1 The purpose of the landscape, seascape and visual study area is to identify the geographic area across which there is the potential for significant landscape, seascape and visual effects during the construction, operation (and maintenance) and decommissioning phases of the Proposed Development.

11.2.2 For ease of reference and to reflect the way in which the following baseline review refers to the Proposed Development, **Figure 3-1: EIA Scoping Site and Proposed Development Components**, illustrates the areas across the EIA Scoping Site, including:

a. The Energy Park, comprising multiple Energy Park Areas containing solar arrays and all associated equipment, including areas for new landscaping. The Energy Park consists of several separate areas of land, located broadly on a north to south alignment between the former Bradwell nuclear power station (in the north) and to the east of Burnham-on-Crouch (in the south). The fields across the Energy Park are referred to as EPA-001 (in the north), to EPF-008 (in the south) and are defined in **Figure 3-2: EIA Scoping Site Field References**;
b. The Connection and Access Corridors, which are located between the Energy Park Areas, comprising likely 33kV up to 400kV cabling either in underground trenches or on overhead lines (OHLs).OHLs would comprise new up to 60 metre (m) tall OHL towers and their associated overhead wires and are assumed to be located across these areas; and
c. The Grid Connection Corridor(s), which connect the Main On-Site Substation to the Point of Connection (either at the existing Rayleigh GSP Substation (Point of Connection A) or at a new substation at the Former Bradwell Substation (Point of Connection B). Works required under this option are to be confirmed in consultation with NGET, but may include:

i. Re-stringing existing overhead line tower;
ii. Refurbishment / modification of existing OHL towers;
iii. New OHL following similar route to existing decommissioned Bradwell-Rayleigh OHL;
iv. Underground routing along parts of the existing decommissioned Bradwell-Rayleigh OHL alignment; and/or
v. New sections of 400kV cabling (either OHL or underground) connecting the Main On-Site Substation to the Bradwell-Rayleigh OHL.

11.2.3 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the landscape, seascape and visual study area is proposed to extend to 5km from the boundaries of the Energy Park and Connection and Access Corridors and Grid Connection Corridors B, C and D. This is a precautionary approach as the Connection and Access Corridor Cabling approach retains flexibility for an up to 400kV OHL, the alignment of which is not confirmed. A precautionary approach has therefore been undertaken, which assumes that the 400kV OHL towers would be visible in theory from across the entire 5km study area.

11.2.4 For Grid Connection Corridor A, a precautionary approach has been taken, which assumes that there would be a new OHL, parallel to the existing decommissioned Bradwell-Rayleigh Overhead Line. The study area for Grid Connection Corridor A is proposed to extend 3km from the existing decommissioned Bradwell-Rayleigh Overhead Line. This is a smaller geographic area than the study area for the Energy Park, Connection and Access Corridors and Grid Connection Corridors B, C, and D because OHL towers are already present in the landscape and visible from a range of locations, along the alignment of Grid Connection Corridor A. Therefore, OHL towers already form part of the landscape character and visual amenity between the former Bradwell nuclear power station and the existing Rayleigh GSP Substation, such that the study area is considered proportionate at 3km.

11.2.5 With reference to the following sections of this chapter, the study area has been informed by desk-based reviews of relevant studies, ZTVs for the proposed ground mounted solar PV arrays (**Figure 11-2: Bare-Earth Zone of Theoretical Visibility**) and initial fieldwork in March 2026 (when deciduous vegetation was not in leaf and therefore maximum visibility across the study area) and August 2026 (when all vegetation was in leaf and therefore reduced visibility across the study area).

11.2.6 It is considered that from beyond the respective 3km and 5km study areas, the Proposed Development would not have the potential to result in significant adverse landscape, seascape or visual effects. This is due to the combination of

distance and intervening features, the lattice design of OHL towers (as a precautionary approach to this option being implemented) across the Connection and Access Corridors which enables a high degree of permeability to their form and that the Grid Connection Corridor consists of an existing OHL.

11.2.7 As set out previously, no ZTVs have been produced for the potential 400kV OHLs across the Connection and Access Corridors, due to the absence of a defined route and that the ZTVs would most likely indicate theoretical visibility from across all of the study area, due to the proposed height of the OHL towers. The initial fieldwork has been able to ascertain the likely visibility of new overhead line towers given there are existing OHL towers present. Similarly, taller equipment, including the On-Site Substations have not been included in the ZTVs due to an absence of defined locations. As these elements of the Proposed Development are confirmed, the ZTVs will be updated. However, from experience of working on similar schemes and professional judgement, these structures have been taken account of in the proposed 3km and 5km study areas.

11.2.8 The intention is to agree the study area, along with the Landscape and Visual Impact Assessment (LVIA) methodology and location of viewpoints with the Local Planning Authorities (LPAs) and specifically Maldon District Council (MDC) as the Energy Park and Connection and Access Corridors are within their district.

11.3 Legislation, Planning Policy Context and Guidance

11.3.1 Legislation, planning policy and guidance relating to landscape, seascape and visual matters and pertinent to the Proposed Development is listed in this section.

Legislation

11.3.2 Relevant legislation includes:

a. The European Landscape Convention (ELC), 2000 (Ref 11-1) - an international treaty dedicated to the protection, management and planning of all landscapes in Europe, introduced into the UK in 2007. The definition of landscape (including seascape) is *"an area as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."*

National Planning Policy

11.3.3 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. NPS EN-1, 2025 (Ref 11-2) – paragraph 4.1.1 to 4.1.4 in respect of general policies and considerations; paragraphs 4.3.1 to 4.3.17 in respect of environmental effects/considerations; paragraphs 4.7.1 to 4.7.15 in respect of criteria for good design for energy infrastructure; paragraphs 4.11.1 to 4.11.13 in respect of network connection; paragraphs 5.1.1 to 5.1.6 in respect of general impacts and paragraphs 5.10.1 to 5.10.38 in respect of landscape, seascape and visual assessment and mitigation matters;

b. NPS EN-3, 2025 (Ref 11-3) - paragraphs 2.3.1 to 2.3.10 in respect of factors influencing site selection and design; 2.5.1 to 2.5.3 in respect of consideration of good design for energy infrastructure; paragraphs 2.10.10 to 2.10.40 in respect of factors influencing solar photovoltaic site selection and design; paragraphs 2.10.51 to 2.10.56 in respect of site layout design and appearance; paragraphs 2.10.85 to 2.10.95 in respect of landscape, visual and residential amenity impacts and glint and glare; 2.10.123 to 2.10.125 in respect of landscape, visual and residential amenity mitigation and 2.10.149 in respect of landscape, visual and residential amenity impacts; and

c. NPS EN-5, 2025 (Ref 11-4) - paragraphs 2.2.1 to 2.2.12 in respect of factors influencing site selection and design; paragraphs 2.4.1 to 2.4.4 in respect of consideration of good design for energy infrastructure; paragraph 2.5.1 in respect of environmental and biodiversity net gain; paragraphs 2.9.7 to 2.9.20 in respect of landscape, seascape and visual impact, including the Holford (Ref 11-5) and Horlock Rules (Ref 11-6); paragraphs 2.10.5 to 2.10.8 in respect of landscape and visual mitigation and paragraphs 2.11.2 to 2.11.6 in respect of landscape and visual decision making matters.

11.3.4 Other relevant national planning and guidance is:

a. National Planning Policy Framework, 2026 (Ref 11-7) – Policy N4: Protected Landscapes Chapter 10 which includes policies to support the development of energy and water infrastructure, including policy W3 relating to renewable and low carbon energy development and electricity network infrastructure;

b. Planning Practice Guidance (PPG) Design: process and tools, 2019 (Ref 11-8) – which provides advice on the key points to take into account on design;
c. PPG Light Pollution, 2019 (Ref 11-9) – which sets out advice on lighting;
d. PPG Green Belt, 2025 (Ref 11-10) – which sets out Green Belt and Grey Belt matters;
e. PPG Natural Environment, 2025 (Ref 11-11) – which sets out the key issues to protect and enhance the natural environment; and
f. PPG Renewable and Low Carbon Energy, 2023 (Ref 11-12) – which provides guidance on planning considerations.

Local Planning Policy

11.3.5 The Proposed Development lies within the administrative area of Basildon Borough Council, Chelmsford City Council, Maldon District Council, Rochford District Council and Essex County Council (ECC). The following local planning documents are of relevance to the landscape, seascape and visual assessment:

a. Essex County Council

i. The local development plans prepared and adopted by Essex County Council do not contain policies that are directly relevant to the landscape, seascape and visual assessment.

b. Basildon Borough Council

i. Local Plan (Ref 11-13) Saved Policies September 2007: policy BAS C5: Trees and woodlands; and
ii. Basildon Borough Local Plan 2023-2043 Regulation 19 (Ref 11-14) policy CC1: Responding to Climate Change, policy CC6: Renewable & low carbon energy infrastructure, policy D1: Design and place shaping principles, D2: Major Developments – Design, policy NE1: Conserving and enhancing the natural environment and policy HE1: Conserving and enhancing the historic environment.

c. Chelmsford City Council

i. Chelmsford Local Plan 2013-2026, adopted 2020 (Ref 11-15) policy S1: Spatial Principles, S11: The Role of the Countryside, DM6: New Buildings in the Green Belt, DM8: New Buildings and Structures in the Rural Area, policy DM16: Ecology and biodiversity, policy DM17: Trees, woodland and landscape features, policy DM19: Renewable and low carbon energy, policy DM23: High quality and inclusive design and policy DM24: Design and place-shaping principles in major developments, DM26: Other Important Landscape Features; and

ii. Chelmsford Local Plan Pre-Submission (Regulation 19) Document (February 2025)(Ref 11-16) policy DM8: New Buildings and Structures in the Rural Area, DM16: Protection and promotion of ecology, nature and biodiversity, Policy DM17: Trees, woodland and landscape features, policy DM23: High quality and inclusive design and policy DM24: Design and place-shaping principles.

d. Maldon District Council

i. Approved Local Development Plan 2014-2029 adopted 2017 (Ref 11-16) policies S1: Sustainable Development, D1: Design Quality and Built Environment, D4: Renewable and Low Carbon Energy Generation; N1: Green Infrastructure Network. Policy D4 includes *"In principle, support will be given for the delivery of large-scale renewable and low carbon energy projects, excluding wind energy, provided adverse social, economic and environmental impacts have been minimised to an acceptable level."*;
ii. Renewable and Low Carbon Technologies Supplementary Planning Document (SPD), 2018 (Ref 11-19);
iii. Green Infrastructure Strategy SPD, 2019 (Ref 11-20) policies 5.4.19, 5.4.20 and 5.4.21: Landscape and Visual Impacts;
iv. Maldon District Design Guide SPD, 2019 (Ref 11-21);
v. Maldon Landscape Technical Document, 2017 (Ref 11-22); and
vi. Neighbourhood Plan 2021-2042 Made Version (Mayland Parish Council) (2025) (Ref 11-18). Policy: MAY G1: Sustainable Development.

e. Rochford District Council

i. Local Development Framework Core Strategy Adopted Version, adopted 2011 (Ref 11-23). Policies ENV1: Protection and Enhancement of the Natural Landscape and Habitats and the Protection of Historical and Archaeological Sites, Policy ENV2: Coastal Protection Belt, ENV6: Large scale renewable energy projects;
ii. Local Development Framework Development Management Plan adopted 2014 (Ref 11-24) Policy DM25: Trees and Woodland and DM26: Other Important Landscape Features; and
iii. Draft Rochford Local Plan Regulation 18 (February 2026) (Ref 11-25). Policies NE1: Protecting the Natural Environment, NE4: Landscape Character, SC6: Achieving High Quality Design.

Relevant Industry Guidance

11.3.6 Relevant industry guidance is:

a. The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3), 2013, (Ref 11-26);
b. Landscape Institute's Technical Guidance Note (TGN) 02-21: Assessing landscape value outside of national designations, 2021 (Ref 11-27);
c. Landscape Institute TGN-2024-01: Notes and Clarifications on aspects of GLVIA 3, 2024 (Ref 11-28);
d. Landscape Institute TGN 06/10: Visual Representation of development proposals, 2019 (Ref 11-29);
e. Landscape Institute TGN 02/19: Residential Visual Amenity Assessment, 2019 (Ref 11-30);
f. Natural England, An approach to landscape character assessments, 2012 (Ref 11-31);
g. Natural England, An approach to seascape character assessment, 2012 (Ref 11-32);
h. Marine Management Organisation, 2020 An approach to seascape sensitivity assessment (Ref 11-33);
i. The Holford Rules, 1959, (Ref 11-5);
j. The Horlock Rules, 2009, (Ref 11-6); and
k. Institute of Lighting Professionals Guidance Note 1: Avoidance of Obtrusive Light, 2021 (Ref 11-34).

11.4 Consultation

11.4.1 No consultation has been undertaken in respect of landscape, seascape and visual amenity. Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with statutory parties including MDC, as well as other non-statutory interested parties.

11.5 Baseline Conditions

11.5.1 This section describes the baseline environmental characteristics of the EIA Scoping Site and surrounding areas with specific reference to landscape, seascape and visual amenity matters.

11.5.2 Where relevant, landscape, seascape and visual amenity baseline conditions have been presented in a series of figures that support this chapter. **Figure 11-1: Landscape, Seascape and Visual Study Area** presents the relevant features and designations across the landscape, seascape and visual study area.

Sources of Information

11.5.3 The landscape, seascape and visual amenity baseline conditions have been determined by fieldwork in March and August 2026 and a desk study of available information.

Desk Study

11.5.4 Sources used to inform this report including both online/digital resources and data searches are:

a. Ordnance Survey Explorer 176 mapping;
b. Online aerial photography;
c. Essex County Council Definitive Public Rights of Way (PRoW) online data sets (Ref 11-35);
d. Planning policies and SPDs, as set out previously; and
e. Published character assessments, as set out in the following section and **Appendix 11-A to 11-C**.

Surveys

11.5.5 Initial fieldwork was undertaken in March 2026, which involved visiting the Energy Park and publicly accessible locations in the surrounding landscape, including along the northern banks of the River Blackwater and southern banks of the River Crouch. Fieldwork was undertaken in August 2026 to cover more of the Energy Park, the Connection and Access Corridors and the Grid Connection Corridors via visiting publicly accessible locations and walking parts of the EIA Scoping Site.

11.5.6 Following submission of the EIA Scoping Report, further surveys will be undertaken to inform the landscape, seascape and visual baseline for later phases of assessment:

a. Fieldwork between October 2026 and December 2026 to aid in the iterative design process and ascertain further detail on the proposed DCO Site;
b. Fieldwork between January 2027 and March 2027 to capture winter views, specifically with the intent of capturing photography from viewpoints to be agreed with the LPA and to continue to inform the iterative design process; and
c. Fieldwork between June and July 2027 to capture summer views and summer versions of the winter photography and to continue to inform the iterative design process.

Baseline Information

Study Area

11.5.7 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the study area covers a 5km radius, offset from the Energy Park and Connection and Access Corridors and a 3km offset from the Grid Connection Corridors, based upon the EIA Scoping Site.

The Eastern Part of the Study Area

11.5.8 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the eastern part of the study area, covers land between the northern banks of the River Blackwater, the Dengie Peninsula and land to the south of the River Crouch and River Roach across Foulness Island. This part of the study area is relevant to Energy Park, the Connection and Access Corridors and Grid Connection Corridors B, C and D.

11.5.9 To the north of the River Blackwater, the landform is low lying, at approximately 2m Above Ordnance Datum (AOD), across creeks and marshes at the conflux with the River Blackwater. The landform rises from these waterbodies to form relatively elevated land, up to approximately 25m AOD, across which the separate settlements of Tollesbury and West Mersea are situated. Both settlements have association with former ports and maritime activity, with tourist and visitor facilities, including several large-scale camping sites bordering West Mersea. There is a recreational value to this part of the study area, via numerous public rights of way (PRoW), including parts of the King Charles III England Coast Path. With reference to **Chapter 10: Ecology and Biodiversity,** there is also a functional value to the waterbodies via numerous ecological designations, including Special Protection Areas and Special Areas of Conservation. The Dengie Nature Reserve and Blackwater Site of Special Scientific Interest (SSSI) covers most of the coastline.

11.5.10 The River Blackwater is a gently curving waterbody, with St Lawrence Bay extending along the southern banks of the River Blackwater, between St Lawrence and Bradwell Waterside. There are several marinas along this part of the coastline, with the River Blackwater providing recreational value for water sports and sailing, as well as a functional value from the ecological designations.

11.5.11 The River Crouch is a narrower watercourse in comparison to the River Blackwater and flows in a straighter alignment across the eastern part of the study area, between Foulness Point and Burnham-on-Crouch. There are several marinas along the northern banks, providing recreational value. Wallasea Island, along the southern bank is an engineered amalgamation of smaller islands,

bordered by sea defences and used for grazing. There is functional value via nature reserves, and numerous PRoW which provide recreational value.

11.5.12 The River Roach flows between Wallasea Island and Foulness Island, with the conflux with the River Crouch to the south of the Energy Park. Foulness Island is characterised by a low-lying area of land, with restricted access due to military land uses.

11.5.13 Both the River Blackwater and River Crouch are bordered by coastal sea-walls which vary in scale and height. Those along the northern banks of the River Crouch are elevated above the shoreline and fields across the Energy Park.

11.5.14 The Dengie Peninsula covers the land between the River Blackwater and the River Crouch. The Dengie Peninsula is characterised by an area of low lying and very gently undulating landform, situated between 2m AOD and 30m AOD, comprising mostly medium to large scale arable fields. The Dengie Peninsula is former salt and grazing marsh, which was drained to enable the current agricultural land uses, and due to this there are numerous ditches and watercourses dividing fields. With reference to **Chapter 10: Ecology and Biodiversity**, the Dengie National Nature Reserve and Dengie SSSI cover the seascape and coastline.

11.5.15 Land uses across the northern part of the Dengie Peninsula include the former Bradwell nuclear power station and the disused RAF Bradwell Bay airfield. Bradwell on Sea is a small-scale settlement to the south of the disused RAF Bradwell Bay airfield, concentrated around St Thomas's Church. These land uses are situated at approximately 10m AOD, with the landform then falling towards the coast. The East End Road extends to the north-east of Bradwell on Sea and is bordered by several intermittent properties. A relatively large-scale public car-park is located at the north-east end of the East End Road, enabling visitors to access the local PRoW and the Chapel of St Peter on the Wall. There is recreational value via numerous PRoW, including parts of the King Charles III England Coast Path and St Peter's Way. There is functional value via the vegetation patterns, which although limited in extent includes ancient woodland at Curds Grove, between Bradwell on Sea and the former Bradwell nuclear power station.

11.5.16 Across the central part of the Dengie Peninsula, residential land uses are concentrated adjacent to the B1021 and include Tillingham and Asheldham. These settlements are situated at approximately 20m to 30m AOD, along a localised ridge, from which the landform then falls towards the coast. There are very small clusters of properties and intermittent farms beyond these settlements, located adjacent to the local road networks. Low lying arable land

is the main land use between the B1021 and the coast, characterised by medium to large scale fields. There is small scale gravel extraction facility bordering Asheldham. The area has recreational value provided by several PRoW which extend between the settlements, the St Peter's Way between Tillingham and the coast, and the King Charles III England Coast Path which extends adjacent to the coast line.

11.5.17 The southern part of the Dengie Peninsula consists of the larger scale settlements of Southminster and Burnham-on-Crouch, which are connected by the Crouch Valley Line railway. These settlements are situated at approximately 20m AOD, from which the landform then falls towards the coast, to form an extensive tract of low-lying land at approximately 2m AOD across the remainder of the southern part of the study area. The main land use is arable farming, characterised by large scale arable fields divided by numerous watercourses and ditches. Other areas of localised vegetation include ancient woodland at the eastern edge of Southminster.

11.5.18 Renewable infrastructure across the Dengie Peninsula includes three onshore wind farms, with Bradwell Marsh wind farm in the northern part of the peninsula, Middlewick wind farm in the central part of the peninsula and Turncole wind farm in the southern part of the peninsula. The turbines across these schemes are approximately 125m in height (to blade tip). Burnham Wick solar farm is located in the southern part of the peninsula, between Burnham-on-Crouch and the Energy Park. There is also a single wind turbine at Burnham Wick farm.

11.5.19 The existing Bradwell-Rayleigh Overhead Line extends across the northern part of the peninsula, from the former Bradwell nuclear power station to the east of Bradwell on Sea to the west of Tillingham, prior to extending across the remainder of the study area, towards Rayleigh.

11.5.20 The eastern part of the study area has a notable open character due to the combination of the generally flat landform and limited vegetation cover, enabling inter-visibility with the coast and the perception of a large-scale landscape with extensive skies. Whilst there are settlements and clusters of wind turbines, the perceptions of tranquillity and remoteness are increased towards the coast.

11.5.21 Local landscape and seascape character areas within the eastern part of the study area are therefore the settlements and their setting across the Dengie Peninsula, the River Blackwater and River Crouch, the King Charles III England Coast Path, arable land uses, wind farms and the former Bradwell nuclear power station and disused airfield at RAF Bradwell Bay

Central part of the Study Area

11.5.22 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the central part of the study area covers land between the Dengie Peninsula and South Woodham Ferrers. This part of the study area is relevant to the Grid Connection Corridor A.

11.5.23 The landform across the central part of the study area is characterised by lower lying land to the south of the River Blackwater and Lawling Creek, at approximately 5m AOD, which rises southwards to form a tract of more elevated land, up to 50m AOD, between Mayland and Althorne and the alignment of the B1012. To the south of the B1012, the landform falls towards the River Crouch and low-lying landform at approximately 10m AOD to the south of the River Crouch.

11.5.24 Settlement patterns are generally small in scale, concentrated adjacent to the road networks, or the coastline. The settlements include Maylandsea, Cold Norton, Latchingdon, Mundon, Althorne, and North Fambridge. Beyond these settlements, agriculture is the main land use, characterised by medium to large scale fields, many of which are geometric in form. Vegetation cover is characterised by scattered blocks of trees, linear tree belts and hedgerows dividing the fields. There are very small concentrations of ancient woodland between Latchingdon and Althorne, as well as to the west of Mundon and between North Fambridge and Cold Norton.

11.5.25 The B1010, B1012 and B1018 form the main roads across the eastern part of the study area and are generally located across more elevated landform. The Crouch Valley Line railway extends between South Woodham Ferrers and Burnham-on-Crouch. Other infrastructure includes the existing Bradwell-Rayleigh OHL, within Grid Connection Corridor A, extending from the west of Tillingham to the south of Latchingdon and the north-east edge of South Woodham Ferrers. The OHL towers are visible from across the central part of the study area due to the generally open character of the landscape and that they are often situated across elevated landform.

11.5.26 Numerous PRoW extend across the central part of the study area, including between the settlements, adjacent to the River Blackwater and the River Crouch. With reference to **Chapter 10: Ecology and Biodiversity**, most of the coastline adjacent to the River Blackwater and land bordering the River Crouch is designated as a SSSI.

11.5.27 Local landscape and seascape character areas across the central part of the study area are therefore the settlements, arable land uses, the River Crouch and River Blackwater.

Western part of the Study Area

11.5.28 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the western part of the study area covers land between South Woodham Ferrers and Basildon. This part of the study area is relevant to Grid Connection Corridor A.

11.5.29 The western part of the study area is situated across undulating landform, rising up to approximately 79m AOD to the north-west of Wickford, whilst falling to around 5m AOD between the southern edges of Basildon and South Benfleet. The River Crouch meanders through Runwell and Battlesbridge in a far narrower extent in comparison to the remainder of the study area.

11.5.30 The western part of the study area is characterised by predominantly arable land uses and woodland (including ancient woodland) to the north. The settlement pattern is generally small in scale, characterised by villages and hamlets, clustered around churches. In contrast, the southern part of the area is characterised by large scale settlements, separated by main road networks including the A127 and A130 to the south.

11.5.31 The existing OHL, and the associated alignment of Grid Connection Corridor A, extends around the northern and western edges of South Woodham Ferrers, between Runwell and Battlesbridge, to the existing Rayleigh GSP Substation, situated between the A130 and A1245.

11.5.32 Numerous PRoW extend across the western part of the study area, including across more elevated land to the north-west of Wickford.

11.5.33 Local landscape character areas within the western part of the study area are therefore the settlements and arable land uses.

Relevant Designations

11.5.34 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, there are no statutory landscape designations (i.e. National Parks or National Landscapes) within the study area. The Dedham Vale National Landscape is approximately 22km to the north of the Energy Park. Therefore, due to the intervening distance between the EIA Scoping Site and the designated landscapes, the Dedham Vale National Landscape is scoped out of the assessment.

11.5.35 **Figure 11-1: Landscape, Seascape and Visual Study Area** also demonstrates that there are no local landscape designations within the study area. There are also no Registered Historic Parks and Gardens within the study area.

11.5.36 Keelings Road and part of Bridgewick Road, across the central part of the Dengie Peninsula are protected lanes.

11.5.37 With reference to **Chapter 9: Cultural Heritage**, in the eastern part of the study area, there are Conservation Areas at Tollesbury and West Mersea on the northern banks of the River Blackwater. There are Conservation Areas at Bradwell on Sea, Tillingham, Southminster and across the southern part of Burnham-on-Crouch. There is a Conservation Area in the central part of the study area, at Purleigh and at the Stow Maries World War One Aerodrome. In the western part of the study area, there are Conservation Areas at East Hanningfield and Battlesbridge.

11.5.38 With reference to **Chapter 9: Cultural Heritage**, across the eastern part of the study area, there are listed buildings at Burnham-on-Crouch, Southminster, Tillingham and Bradwell on Sea. A high number of farmsteads across the Dengie Peninsula are also listed buildings, including the Chapter of St Peter on the Wall (Grade I), which is situated within the Saxon Shore Fort and Anglo-Saxon monastery scheduled monument. There are scheduled monuments at the south-east of the Site, comprising World War II pillboxes.

11.5.39 Across the central part of the study area, there are a low number of listed buildings within most of the settlements, including farms in proximity to the existing OHL. Across the western part of the study area, the listed buildings are concentrated within the smaller scale settlements.

11.5.40 Whilst not a landscape designation, the western part of the study area, to the south-west of South Woodham Ferrers, is within the Green Belt. There are spatial and visual aspects associated with the concept of 'openness'.

The Energy Park

11.5.41 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the Energy Park covers land across the Dengie Peninsula. This section should be read in combination with **Figure 3-2: EIA Scoping Site Field References**, which illustrates the individual field parcels (e.g. EPA-001) across the Main Stite.

11.5.42 The north-east part of the Energy Park (EPA-001 to EPA-011) covers land between East End Road and the King Charles III England Coast Path. The landform across this part of the Energy Park slopes from the East End Road, at approximately 11m AOD, to the coast at 2m AOD. The field pattern ranges between small to medium scale fields, most of which are divided by hedgerows, with a narrow shelter belt along the southern side of EPA-007, adjacent to East End Road. This part of the Energy Park is not publicly accessible, although with reference to the following initial fieldwork observations set out in paragraphs 11.5.71 onwards, there are

close range views from surrounding PRoW and longer distance inter-visibility with West Mersea.

11.5.43 The north-west part of the Energy Park (EPA-012 to EPA-021) covers land across the southern part of the former RAF Bradwell Bay airfield and fields to the north of residential land uses adjacent to East End Road. The landform rises from approximately 8m AOD across the former RAF Bradwell Bay airfield to approximately 10m AOD at East End Road. The fields are separated by Downhall Farm and small belts of vegetation, including ancient woodland at Curds Grove which provides functional value. The fields between residential properties adjacent to East End Road and the former RAF Bradwell Bay airfield are bordered by established vegetation. OHL towers are located in EPA-016 and EPA-020, with the overhead lines extending north-west to the former Bradwell nuclear power station. There is recreational value via PRoW (footpath) FP 3 241, which crosses EPA-016 and PRoW (footpath) FP 2 241, which crosses EPA-017. With reference to the following initial fieldwork, there is inter-visibility between this part of the Energy Park and these PRoW, along with residents bordering the fields.

11.5.44 The Energy Park covers flat and low-lying land, between approximately 2m AOD to 5m AOD, to the south of Bradwell-on-Sea extending to border the Bradwell Marsh wind farm (EPB-001 to EPB-009). This part of the Energy Park is characterised by arable fields of varying scales, many of which are geometric in form. The Bradwell Brook flows across this part of the Energy Park. Existing OHL towers are located in EPB-002.

11.5.45 To the east of the Bradwell Marsh wind farm, the Energy Park extends to the coast (EPB-010 to EPB-020). Like EPB-001 to EPB-009, the landform is similarly low-lying, whilst the fields are smaller in scale and more geometric in form. There is a recreational value via part of the King Charles III England Coast Path crossing this part of the Energy Park. PRoW (footpath) FP 19 241 also extends along Hockley Lane, which extends across this part of the Energy Park. From the initial fieldwork set out in the following sections, this part of the Energy Park is visible from the PRoW and the King Charles III England Coast Path.

11.5.46 The central part of the Energy Park covers fields bordering East Ware Farm (EPC-001 to EPC-010). Adjacent to the farm, the fields are situated at approximately 10m AOD, from which the landform then falls in all directions to around 3m AOD. The southern fields (EPC-009 and EPC-010) border the Asheldham Brook. The fields vary in scale, being smaller and more geometric in form in proximity to the farm, and larger and more irregular in form towards Asheldham Brook. This part of the Energy Park is not publicly accessible. With reference to the initial fieldwork, there is inter-visibility from Bridgewater Road to the south-east, as

well as PRoW across Dengie Marshes, due to this part of the Site being elevated in relation to the generally low-lying pattern of landform.

11.5.47 To the east of Southminster, the Energy Park covers Middlewick wind farm and fields to the south-west of Wraywick Farm (EPD-001 to EPD-026). The fields vary in scale and form, being divided by ditches. The main vegetation cover is around the perimeter of the fields consisting of the wind farm and dividing the fields to the south of the Asheldham Brook. The wind turbines result in an evident renewable infrastructure character to this part of the Energy Park. This part of the Energy Park is not publicly accessible, although the eastern edge of fields EPD-001 and EPD-008 are crossed by PRoW (footpath) FP 8 244, which extends from a public car-park to the south of EPD-008. With reference to the initial fieldwork set out in the following sections, there is inter-visibility between this part of the Energy Park and the PRoW, along with the local road networks.

11.5.48 The southern part of the Energy Park consists of an extensive area of arable fields, extending adjacent to Marsh Road and the coast (EPE-001 to EPE-050). The fields are situated across generally flat landform, situated around 2m AOD. The exception is along the eastern and southern edges of this part of the Energy Park, where the landform rises steeply to form the sea-defences. The fields vary in scale and form, and are divided by numerous ditches, including the Deal Hall Brook. Vegetation cover is very limited across this part of the Energy Park, resulting in an evident open character. Several large-scale farms border this part of the Energy Park, located adjacent to Marsh Road. The King Charles III England Coast Path extends along the top of the sea defence wall, along the eastern and southern parts of the Energy Park. St Peter's Way long distance path crosses the fields in the eastern part of this part of the Energy Park, with the PRoW extending through several of the farms. As demonstrated by the initial fieldwork set out in the following sections, there is a high degree of inter-visibility between this part of the Energy Park and these PRoW, particularly the King Charles III Coast Path, due to its elevated position atop of the sea defences. There is also inter-visibility with the residential properties bordering this part of the Energy Park.

11.5.49 The south-west part of the Energy Park consists of small-scale fields, located between the Crouch Valley railway line and Pannel's Brook (EPF-001 to EPF-008). The landform across this part of the Energy Park slopes consistently from approximately 10m AOD adjacent to the railway to approximately 5m AOD at Pannel's Brook. The fields are divided by hedgerows, and a PRoW crosses the eastern part of this part of the Energy Park, to connect with Marsh Road. There is close range inter-visibility from this PRoW, as well as Marsh Road, when adjacent to the Site.

Connection and Access Corridors

11.5.50 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, the Connection and Access Corridors cover predominantly arable land uses between the Energy Park. The landscape character reflects that described previously for the Dengie Peninsula, consisting of low-lying landform, an open character and where the perceptions of tranquillity and remoteness increase at distance from the settlements and development.

Grid Connection Corridors

11.5.51 With reference to **Figure 11-1: Landscape, Seascape and Visual Study Area**, Grid Connection Corridor A extends from the existing Rayleigh GSP Substation to the north of South Woodham Ferrers, between Mayland and Althorne and to the north-east of Tillingham. Grid Connection Corridor A is situated across relatively low-lying landform between the Rayleigh GSP Substation and South Woodham Ferrers, at 10m AOD, with land uses consisting of small-scale arable field and the B1018, B1012 and A130. The landform rises from South Woodham Ferrers, to form a localised ridge, extending up to approximately 45m AOD across Button's Hill, between Mayland and Althorne and approximately 39m AOD across Mayland and Steeple Hill. This part of the Grid Connection Corridor A is characterised by large scale fields and predominantly arable land uses, with recreational value via several PRoW. To the north-east of Tillingham, the landform is undulating, falling towards the Tillingham Brook, which forms a very localised valley with several waterbodies.

11.5.52 Grid Connection Corridor B extends from Grid Connection Corridor A to the west of Tillingham, to Keelings Road. Grid Connection Corridor B is situated across gently sloping landform, which falls from Tillingham, at approximately 20m AOD to approximately 5m AOD at the eastern end of Keelings Road. There are several small waterbodies within the fields across the western part of Grid Connection Corridor B. There is a recreational value via several PRoW across the eastern part Grid Connection Corridor B, extending between Southminster Road and Keelings Road. There are close range views of parts of Grid Connection Corridor B from these PRoW. As set out previously within the Relevant Designations section, Keelings Road is a protected lane.

11.5.53 Grid Connection Corridor C extends from Grid Connection Corridor A to the west of Asheldham and east of Southminster. The landform across Grid Connection Corridor C is undulating, due to the Asheldham Brook, which flows between Asheldham and Southminster, creating a very localised valley. The main land uses are arable, characterised by fields of varying scales, and the main concentration of vegetation is adjacent to the Asheldham Brook. There is a

recreational value via PRoW between Asheldham and Tillingham Road. There are close range views of parts of Grid Connection Corridor C from these PRoW.

11.5.54 Grid Connection Corridor D covers the northern part of the disused RAF Bradwell Bay airfield, where the landform is generally flat, at around 7m AOD, before falling across small-scale irregular fields, towards the coast. There are shelterbelts and small rectangular broadleaved woodlands within this part of the disused RAF Bradwell Bay airfield, in contrast to the less vegetated character of the fields. There are no PRoW across Grid Connection Corridor D.The fields are visible at close range from the King Charles III England Coast Path, which borders the northern edge of Grid Connection Corridor D.

Published Character Assessments

11.5.55 At the national scale and with reference to **Appendix 11-A: Extracts of Natural England National Character Assessments**, the following published studies cover the proposed study areas. They provide guidance to manage change but are proposed to be scoped out of the assessment as their geographic areas are very large in relation to the smaller geographic extent of the Proposed Development, such that significant adverse effects are considered not to occur to them:

a. The Seascape Character Assessment for the South East Inshore Marine Plan Area, (Ref 11-36) Marine Character Area 19 (MCA 19): Essex and South Suffolk Estuaries and Coastal Waters. MCA 19 covers the coastline across the study area and sea to the east of the Energy Park. The published study notes MCA 19 is characterised by an intricate pattern of estuaries, rivers, branching tributaries, shallow creeks, extensive mudflats, low lying islands and tidal salt marshes, and is one of the least settled parts of the English coast;

b. Natural England's National Character Area 81: Greater Thames Estuary (NCA 81) (Ref 11-37), NCA 81 which covers the Energy Park, Connection and Access Corridors, Grid Connection Corridor D, the north-east part of Grid Connection Corridor A, and the south-east part of Grid Connection Corridor C, as well as the coastlines across the study area. The published study describes NCA 81 as a predominantly remote and tranquil landscape. Statements of Environmental Opportunity (SEO) include maintaining and enhancing the expansive, remote coastal landscape and its tranquil character, along with incorporating green infrastructure in new developments; and

c. Natural England's National Character Area 111: Northern Thames Basin (NCA 111) (Ref 11-38), which covers the remainder of Grid Connection

Corridor A, between Tillingham and the Rayleigh GSP Substation, Grid Connection Corridor B and the remainder of Grid Connection Corridor C. The published study describes NCA 111 as a diverse area, in which arable agriculture is a large industry. SEO include managing the historic environment and expanding areas of broadleaf woodland and tree cover as part of new green infrastructure links.

11.5.56 At the county scale and with reference to **Appendix 11-B: Extracts of County Landscape Character Assessments**, the following published studies are relevant and proposed to be scoped in to the assessment. The published studies were undertaken before many of the wind turbine schemes in proximity to Proposed Development were implemented:

a. The Essex Landscape Character Assessment for the Essex and Southend-on-Sea Replacement Structure Plan Review, 2003 (Ref 11-39). The majority of the Energy Park and Connection and Access Corridors are covered by Landscape Character Area (LCA) F3: Dengie and Foulness Coast (LCA F3). The south-east part of Grid Connection C and all of Gird Connection Corridor D are also within LCA F3. The published study notes that LCA F3 is a large area of flat, low-lying land, with generally very sparse tree cover. The stated sensitivity to utilities development, including OHL towers is '*high*'. The majority of Grid Connection Corridor A and the western edge of the Energy Park are covered by LCA E1: South Essex Farmlands (LCA E1). All of Grid Connection Corridor B and the north-west part of Grid Connection Corridor B are also within LCA E1. The published study describes LCA E1 as a gently undulating landscape, with rectilinear field patterns and in which OHL towers are a frequent presence. The south-western part of Grid Connection Corridor A is covered by LCA F2: Crouch and Rouch Farmland (LCA F2). LCA F2 is described by the published study as an area of gently or strongly undulating arable farmland, in which small villages and newer suburban properties are concentrated across higher ground; and

b. Landscape Character Assessment of the Essex Coast, 2002, (Ref 11-40). Most of the Energy Park is covered by the Uniform Coastal Marshland or Diverse Coastal Marshland Landscape Character Types. The majority of the Energy Park and the Connection and Access Corridors are covered by LCA Dengie Coastlands, with the remainder of the Energy Park covered by LCA Tillingham Farmlands. The published study describes these LCAs as large areas, where settlement is not characteristic, although the former Bradwell nuclear power station and its OHL towers are noted as dominating the rural setting locally.

11.5.57 At the district scale, and with reference to **Appendix 11-C: Extracts of District Landscape Character Assessments**, the following published studies are relevant and proposed to be scoped into the assessment. These studies were undertaken before many of the wind turbine schemes in proximity to Proposed Development were implemented:

a. Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessments, 2006 (Ref 11-41). The majority of the Energy Park and Connection and Access Corridors is covered by Landscape Character Type (LCT) D: Drained Estuarine Marsh. the smaller geographic LCA D7: Bradwell Drained Estuarine Marsh covers the northern part of the Energy Park, Connection and Access Corridors and Grid Connection Corridor D. LCA D8: Dengie Drained Estuarine Marsh covers the remainder of the Energy Park and Connection and Access Corridors and the south-east part of Grid Connection Corridor C. LCT E: Coastal Farmland Landscape and LCA E2: Tillingham and Latchingdon Coastal Farmland cover the western edge of the Energy Park, Grid Connection Corridor A (between Tillingham and west of Latchingdon), Grid Connection Corridor C and the north-west part of Grid Connection Corridor B. The remainder of Grid Connection Corridor A, from the west of Latchingdon to South Woodham Ferrers and to the south-west of South Woodham Ferrers is covered by y LCA D9: Fambridge Drained Estuarine Marsh. The seascape to the east of the Energy Park is covered by LCT C: Estuarine Marsh/Mudflats and LCA C3: Dengie Flats Estuarine Marsh/Mudflats;
b. The Maldon District Characterisation Assessment, 2012 (Ref 11-42), which sets out information on the settlements bordering the River Blackwater and River Crouch; and
c. The Maldon District Historic Environment Characterisation Project, 2008 (Ref 11-43), which sets out the historic evolution of the area, as an area of reclaimed salt marshes.

Visual Amenity – Zones of Theoretical Visibility

11.5.58 In accordance with GLVIA 3, several Zones of Theoretical Visibility (ZTVs) (**Figure 11-2: Bare-Earth Zone of Theoretical Visibility**), have been generated in relation to new 4.5m tall solar PV arrays (illustrated schematically by the green dots) across the varying parts of the Energy Park in relation to the 5km study area.

11.5.59 The purpose of the ZTVs is to inform the fieldwork and they have been generated in relation to the varying parts of the Energy Park to enable a more detailed understanding of the theoretical visibility on a field parcel scale, as opposed to a single ZTV for the Energy Park.

11.5.60 As a precautionary approach, the ZTVs do not include existing vegetation, nor buildings, and therefore represent the theoretical visibility without potential screening from these features. The ZTVs are therefore termed 'bare-earth ZTVs' as they only account for the existing landform.

11.5.61 The ZTVs will be updated to include other equipment across the Energy Park, the potential OHL towers across the Connection and Access Corridors and where the Grid Connection Cabling differs from the existing alignment of OHL towers.

11.5.62 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-A** illustrates the theoretical visibility of new solar PV panels in the north part of the Energy Park, covering EPA-001 to EPA-021. The theoretical visibility extends across the River Blackwater, to the north banks of the river, including West Mersea. There is also consistent theoretical visibility across land to the south and west of EPA-001 to EPA-021, along with the sea to the east. The exception is along the alignment of the existing OHL towers, due to the slight undulation in landform.

11.5.63 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-B** illustrates the theoretical visibility of new solar PV panels to the south of Bradwell on Sea, covering EPB-001 to EPB-020. The theoretical visibility is consistent across the study area surrounding EPB-001 to EPB-020, with no theoretical visibility suggested along the northern parts of the coast line and to the east of Asheldham. This is considered to be due to the localised variation in landform across the central part of the Dengie Peninsula.

11.5.64 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-C** illustrates the theoretical visibility of new solar PV panels bordering East Ware Farm (EPC-001 to EPC-010). The theoretical visibility is concentrated to the north, east and south of EPC-001 to EPC-010, due to the more elevated position of this part of the Energy Park within the Dengie Peninsula. The extent of theoretical visibility is less to the west of EPC-001 to EPC-010, being concentrated between Asheldham and Tillingham, with very limited theoretical visibility across the north-west part of the study area. This is considered to be due to the more undulating pattern of landform within this north-west part of the study area.

11.5.65 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-D** illustrates the theoretical visibility of new solar PV panels across the central part of the Energy Park (EPD-001 to EPD-026), in part beneath Middlewick wind farm. The theoretical visibility of new solar PV panels is consistent across the study area, except for to the north-west of Southminster, where the theoretical visibility becomes more intermittent due to the undulating landform.

11.5.66 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-E** illustrates the theoretical visibility of new solar PV panels across the southern part of the

Energy Park (EPE-001 to EPE-050). The theoretical visibility is extensive across the 5km study area, due to this part of the Site being situated across low lying landform, which is open in character due to the arable land use. The theoretical visibility extends to Burnham-On-Crouch and Southminster, as well as to beyond the coast. To the south of the Energy Park, the theoretical visibility is notably less, extending across the River Crouch and more elevated land on Foulness Island. However, there is not theoretical visibility from across most of Wallasea Island, nor lower lying land across Foulness Island. This is considered to be due to the height of the sea-defence wall along the southern edge of the Energy Park being taller than the maximum height of the solar PV panels (4.5m).

11.5.67 **Figure 11-2: Bare-Earth Zone of Theoretical Visibility: PV-F** illustrates the theoretical visibility of new solar PV panels in the south-west part of the Energy Park, covering EPF-001 to EPF-008. The theoretical visibility is concentrated to within 2km of the north and west of EPF-001 to EPF-008, whilst it is more extensive across the eastern part of the study area. To the south of EPF-001 to EPF-009, the extent of theoretical visibility is very localised, to along the southern banks of the River Crouch and parts of the River Roach. In line with EPE-001 to EPE-050, this is considered to be due to the height of the sea defence wall.

11.5.68 In summary, **Figure 11-2: Bare-Earth Zone of Theoretical Visibility** demonstrates that the theoretical visibility of new solar PV panels across the Energy Park would be extensive across most of the study area, except for land to the south of the River Crouch, where the theoretical visibility is notably reduced due to the height of the sea-defence wall bordering the southern edges of the Energy Park.

11.5.69 The extent of theoretical visibility is considered to be due to the generally flat landform across the Energy Park and that the ZTVs do not include existing buildings nor vegetation, such that it is not representative of the screening which would be provided by the field boundaries, residential areas and farm buildings. As an example, the north-east part of the Energy Park (EPA-001 to EPA-011) is bound by vegetation along its southern edge, adjacent to East End Road. From the wider study area to the south, this vegetation would negate visibility from the southern part of the study area, in contrast to what is illustrated by the ZTV.

11.5.70 Additionally, the computer modelling assumes a ‘consistent’ visibility across 5km, whereas in reality, visibility of solar PV panels will decrease with distance. As an example, whilst the theoretical visibility suggests that solar PV panels in the northern part of the Energy Park would be visible from West Mersea, on the northern banks of the River Blackwater, from the fieldwork, the actual ability to

see solar PV panels from West Mersea and at over 3km is considered to be limited by the intervening distance.

Visual Amenity – Initial Fieldwork

11.5.71 Initial fieldwork has been undertaken from across the study area in March 2026 (when deciduous vegetation was not in leaf) and August 2026 (when vegetation was in leaf). The fieldwork involved visiting publicly accessible locations, e.g. PRoW and roads, as well as walking fields within the Energy Park.

11.5.72 From along the King Charles III England Coast Path to the immediate north and north-east of the Site, EPA-001 to EPA-011 are visible, due to the slightly elevated position of the PRoW and the open character of the intervening fields. This part of the Site is seen in the context of the former Bradwell nuclear power station and Bradwell Marsh Wind Farm, such that existing development and renewable energy is already visible, albeit across the skyline, rather than the fields. None of the fields across the remainder of the EIA Scoping Site are visible, due to the intervening vegetation, such that any inter-visibility from the wider study area to the south and west of EPA-001 to EPA-011 is considered to be over-stated by the ZTV. There is inter-visibility between EPA-001 to EPA-011 and the River Blackwater, including West Mersea.

11.5.73 From PRoW (footpath) 2/241m which crosses EPA-016, the north-west part of the Energy Park is visible at close range for recreational users, as well as residents adjacent to East End Road. OHL towers are visible, along with the upper parts of the former Bradwell nuclear power station, such that infrastructure and large-scale built form already forms part of the composition of views.

11.5.74 From along St Peter's Way and the Kings Charles III England Coast Path, the Energy Park to the south of Bradwell on Sea (EPB-013 to EPB-020) are visible to varying degrees. Whilst seen in the context of the Bradwell Marsh Wind Farm, the overall perception of the landscape is of limited development and the extent of visibility across the study area is less than suggested by the ZTVs, due to the existing vegetation, which whilst localised, reduces longer distance views. There is also no inter-visibility with the northern and southern parts of the Energy Park.

11.5.75 The extent of visibility is also less than suggested by the ZTVs from the settlement edges. e.g. Tillingham. This is due to the density of vegetation bordering residential land uses, as well as within the adjacent fields, such that in relation to the low-lying landform, the extent of visibility across the landscape is substantially reduced and EPB-001 to EPB-020 are not visible.

11.5.76 EPC-001 to EPC-010, bordering East Ware Farm are visible from Bridgewick Road, as the landform across this part of the Energy Park is elevated. The

intervening fields between the road the Energy Park are also open in character. The localised ridgeline across which East Ware Farm is located negates any longer distance views towards the northern part of the Energy Park, such that the extent of theoretical visibility illustrated by the ZTV is overstated.

11.5.77 In relation to the central part of the Energy Park, EPD-001 to EPD-026, in part beneath Middlewick wind farm, it is visible from along Middlewick Lane, as well as adjacent PRoW due to the low height of existing vegetation. There is also inter-visibility between this part of the Energy Park and EPC-001 to EPC-010. Longer range views from the north and west are negated by the vegetation, which is not accounted for in the ZTV, such that the overall visibility is overstated by the ZTVs.

11.5.78 In relation to the southern part of the Energy Park, EPE-001 to EPE-050, it is visible at close range from residential properties, PRoW across the Energy Park and the more elevated position of the Kings Charles III England Coast Path. Views also extend to EPD-001 to EPD-026. However, unlike the ZTV, the intervening vegetation between this part of the Energy Park and Burnham-on-Crouch negates any visibility of the fields across EPE-001 to EPE-050. From the south of the River Crouch, the fields across EPE-001 to EPE-050 are not visible due to the height of the intervening sea wall defences. Therefore, the more limited visibility of EPE-001 to EPE-050 from the southern part of the study area is considered to be more accurately reflected by the ZTV.

11.5.79 Fields EPF-001 to EPF-008 are visible at close range from the PRoW which crosses this part of the Energy Park, as well as from trains on the Crouch Valley railway line and road users on Marsh Road. In relation to the study area, the visible of EPF-001 to EPF-008 is limited in extent due to the intervening vegetation patterns which are not accounted for in the ZTV.

11.5.80 In relation to Grid Connection Corridor A, the existing OHL towers are visible to varying degrees from land to the north of the OHL tower alignment, as the OHL towers are situated across more elevated land. From the south of the OHL towers, their overall visibility is reduced due to more elevated intervening landform, such that it is the upper parts of the OHL towers which are visible. The OHL towers are also visible at close range from PRoW which cross beneath their alignments and the local road networks which the towers cross.

11.5.81 In summary, the fieldwork has identified that the Proposed Development has the potential to be visible from a number of locations, including residents at Bradwell-on-Sea and Burnham-on-Crouch, road users on several of the local road networks and recreational users on various PRoW, which cross the EIA Scoping Site and the wider landscape. Of these PRoW, there is the potential for a number of sequential views of the Proposed Development from along the King

Charles III England Coast Path, due to the elevated position of the route atop of the sea defences, which enables long distance views across the landscape.

11.5.82 The Energy Park is not visible in its entirety due to the intervening distances, landform and vegetation patterns. The extent of theoretical visibility is also overstated, due to the limited inter-visibility across the Energy Park and the vegetation patterns which are not accounted for in the ZTV.

11.5.83 Whilst wind turbines and built form are visible in many of the views across the Energy Park, they form concentrated areas of development on the skyline, such that the composition of views is generally of an undeveloped arable landscape and large skies across the Energy Park and Connection and Access Corridors. In contrast, in views towards Grid Connection Corridor A, the existing OHL towers are visible to varying degrees, such that they already form a notable part of the composition of views.

Visual Receptors

11.5.84 As set out in the introduction, the visual assessment assesses the potential impacts and effects of the Proposed Development on a representative range of people's views (visual receptors).

11.5.85 **Table 11-1** sets out the viewpoints and visual receptors scoped into the visual assessment and should be read in combination with **Figure 11-3: Proposed Viewpoints**, which illustrates the locations of the viewpoints. The exact locations of the viewpoints and the visual receptors will be refined during the planning application process and agreed with MDC and LPAs covered by the EIA Scoping Site Boundary. Photography from the sea or by boat, is scoped out, as viewpoints along the coastline are considered to be representative of seascape views.

Table 11-1: Proposed Representative Viewpoints

Ref	Viewpoint	Visual Receptor
1A to 1K	Various parts of the King Charles III England Coast Path.	Recreational users, demonstrating the sequential views from along the route.
2	Bradwell War Memorial.	Visitors and recreational users.
3	PRoW (footpath) FP 2 241.	Recreational users and residents adjacent to East End Road.
4	East End Road.	Residents at Bradwell on Sea and visitors to St Thomas's Church cemetery.
5	East End Road.	Residents adjacent to East End Road and road users.

Ref	Viewpoint	Visual Receptor
6	PRoW (footpath) FP 5 241 adjacent to the car-park.	Recreational users, visitors to the car-park and residents adjacent to East End Road.
7	PRoW (footpath) FP 5 241 adjacent to St. Peter's Chapel.	Recreational users and visitors to St Peter's Chapel.
8	PRoW (footpath) FP 10 241.	Recreational users at the eastern edge of Mill End.
9	PRoW (footpath) FP 15 262, part of the St Peters Way.	Recreational users, visitors to St Nicholas's Church and residents at the eastern edge of Tillingham.
10	PRoW (footpath) FP 33 262 at the Bradwell Brook.	Recreational users.
11	PRoW (footpath) FP 5 244.	Recreational users and residents adjacent to Keelings Road.
12	Bridgewick Road.	Road users.
13	Middlewick Lane.	Road users and residents at Wraywick Cottage.
14	PRoW (footpath) FP 8 244.	Recreational users.
15	PRoW (footpath) FP 22 259.	Recreational users.
16	PRoW (footpath) FP 17 259.	Recreational users and residents adjacent to Goldsands Road.
17	PRoW (footpath) FP 15 242.	Recreational users and residents at the eastern edge of Burnham-On-Crouch.
18	PRoW (footpath) 20 259.	Recreational users and residents adjacent to the PRoW.
19	PRoW (footpath) 20 242.	Recreational users and residents adjacent to the PRoW.
20	Marsh Road.	Residents adjacent to the road and road users.
21	PRoW (footpath) FP 21 282.	Recreational users on Wallasea Island and representative of seascape views from the southern bank of River Crouch.
22	PRoW (bridleway) BR 3 259.	Recreational users.
23	PRoW (footpath) FP 5 240.	Recreational users and road users on Southminster Road.
24	PRoW (footpath) FP 5 258.	Recreational users.
25	PRoW (footpath) FP 30 263.	Recreational users and representative of seascape views from the northern bank of the River Blackwater.
26	West Mersea Victoria Esplanade Open Space.	Recreational users, residents adjacent to Victoria Esplanade and representative of seascape views from

Ref	Viewpoint	Visual Receptor
		the northern bank of the River Blackwater.
27	PRoW (footpath) FP 4 260.	Recreational users and residents at Steeple.
28	PRoW (footpath) FP 8 255.	Recreational users.
29	PRoW (footpath) FP 10 250.	Recreational users and residents in Latchingdon.
30	PRoW (footpath) FP 2 239.	Recreational users and residents at Althorne.
31	PRoW (footpath) FP 14 243.	Recreational users and residents adjacent to St Stephens Road.
32	North Fambridge Playing Fields.	Recreational users and residents at North Fambridge.
33	PRoW (footpath) FP 19 237.	Recreational users and residents at Woodham Ferrers.
34	Marsh Farm Country Park.	Recreational users.
35	Beeches Road, Battlesbridge.	Road users and residents.
36	PRoW (footpath) FP 8 231.	Recreational users.
37	PRoW (footpath) FP 22 289.	Recreational users and residents at the western edge of Rayleigh.

11.5.86 For all of the above viewpoints the ES will include an annotated photograph of the existing view, according with TGN02/21 (Ref 11-27) Type 1 images. Requirements for verified views illustrating the Proposed Development will be discussed with the LPA once the viewpoint locations are agreed.

11.6 Potential Effects and Mitigation

11.6.1 This section sets out the potential effects of the Proposed Development on landscape, seascape and visual amenity matters.

11.6.2 Mitigation measures relevant to landscape, seascape and visual amenity are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

11.6.3 During construction of the Proposed Development the following adverse landscape, seascape and visual amenity impacts have the potential to occur if not mitigated:

a. Physical alteration to the landform;
b. Removal of vegetation;

c. Alteration to perceptual values of a settled and tranquil landscape and seascape due to the presence of construction machinery and activity of a greater scale and duration than general farming activity; and
d. Changes to the composition of people's views due to the construction activity in comparison to the predominantly settled rural landscape, coastline and localised infrastructure.

Operation

11.6.4 During the operation of the Proposed Development the following adverse landscape, seascape and visual amenity impacts have the potential to occur if not mitigated:

a. Change in character from a predominantly rural and open landscape and undeveloped coastline to one of solar PV arrays and associated equipment, potentially including a new 400kV OHL; and
b. Change in the composition of people's views due to the introduction of solar PV arrays, associated equipment and potentially a new 400kV OHL in comparison to the predominantly rural composition of views, with clusters of wind turbines and small-scale settlements.

Decommissioning

11.6.5 During decommissioning, potential impacts would be similar to the construction phase, whereby there would be activity and machinery of a greater scale than general farming to remove the equipment. However, OHL towers may remain across the Grid Connection Corridor(s) and Connection and Access Corridors, such that their potential impacts would remain as stated during the operational phases of the Proposed Development.

Mitigation

11.6.6 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

Construction

11.6.7 Construction mitigation is likely to include:

a. Adherence to best practice measures detailed in the relevant outline management plans and secured by the DCO, including suitable storage of materials, low height porta-cabins and construction compounds, suitably rendered hoardings or protective fencing and ensuring a clean and well-kept construction site;
b. Protecting retained vegetation by construction exclusion zones and adherence to measures set out in the Arboricultural Method Statement;
c. Suitable measures to protect soils along temporary access tracks and haul routes via ground protection measures or temporary surfacing;
d. Suitable design measures for the existing Marine Transfer Facility to reduce seascape impacts and visibility from the River Crouch;
e. Suitable measures for the handling and storage of topsoil to retain its soil integrity and avoid compaction, so as to enable it to be effectively reused; and
f. Limiting the use of temporary lighting and ensuring lighting spillage is minimised.

Operation

11.6.8 Operational mitigation is likely to be:

a. Offsetting the Proposed Development from the King Charles III England Coast Path and introducing new structural landscaping adjacent to the route to reduce the visibility and perception of the Proposed Development;
b. Offsetting the Proposed Development from the St Peter's Way and implementing new planting to reduce the visibility of the Proposed Development;
c. Offsetting the Proposed Development from watercourses and drains across the DCO Site, so as to enable new planting and enhancement measures as part of new green and blue infrastructure design approach to the DCO Site;
d. Offsetting the Proposed Development from PRoW within the DCO Site, so as to retain their recreational value, implementing new planting to reduce the perception of the Proposed Development;
e. Offsetting the Proposed Development from the local road networks, so as to reduce the visibility of the Proposed Development when travelling between settlements;
f. Retaining and reinforcing the existing field boundary vegetation via new native planting to reduce the visibility of the Proposed Development and provide opportunities for improved functional value and ecological connectivity in accordance with the published landscape guidance;

g. When possible, rendering equipment in sympathetic tonal colours to aid its integration within the landscape;
h. Engaging in discussions with NGET, to pursue utilising the existing OHL towers along Grid Connection Corridor A, so as to avoid new or extended OHL towers. The re-use of the existing towers would reflect the existing landscape character and visual amenity, thereby resulting in no landscape or visual likely significant effects during the operational phases of the Proposed Development;
i. Avoiding sensitive landscape features along the alignment of the potential 400kV OHL towers across the Connection and Access Corridors;
j. Reducing the potential for 'wirescape' issues and accordance with the Holford and Horlock Rules as best as practicable in the siting of OHLs;
k. Avoiding permanent lighting during the operation phase (except where required for substation and BESS access);
l. Contemporary design to the OHL towers to ensure their mass and scale is minimised, where this is within the Applicant's control;
m. Re-use (re-stringing) of the existing Bradwell-Rayleigh OHL, where practicable and agreed with the Operator/NGET, to avoid taller or additional towers being implemented and to reflect the existing landscape character and visual amenity; and
n. Maximising opportunities for new recreational, educational and ecological enhancements across the DCO Site to aid people's engagement and understanding of renewable energy.

Decommissioning

11.6.9 The decommissioning phase would apply similar design and mitigation measures as the construction phase, although given the establishment of the boundary planting, the impacts and effects may be lessened in comparison to the construction phase.

11.7 Assessment Methodology

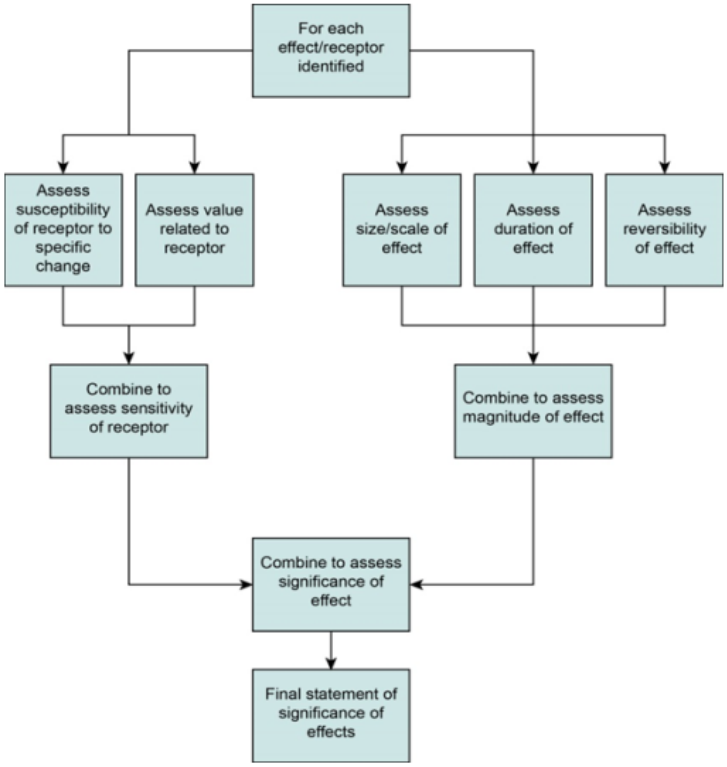
11.7.1 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on the landscape and seascape character and visual amenity will be undertaken using the principles of the guidance and criteria set out in GLVIA 3, and by Chartered Landscape Architects with extensive experience of solar and OHL assessments. The methodology is set out below.

11.7.2 Potential impacts of the Proposed Development on landscape, seascape and visual amenity will be assessed by:

a. Considering the existing (baseline) status of the landscape, seascape and visual baseline within the EIA Scoping Site Boundary and study area;
b. Identifying potential impacts of the Proposed Development on the landscape, seascape and visual amenity during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation (and maintenance), and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

11.7.3 As noted above, the landscape, seascape and visual amenity assessment will be derived from GLVIA 3 and tailored specifically for the Proposed Development. **Plate 11-1** illustrates GLVIA 3 Figure 3.5 illustrates the assessment process.

Plate 11-1: GLVIA 3 Figure 3.5 – The Assessment Process



11.7.4 In accordance with GLVIA 3, the landscape, seascape and visual assessment will include the following key stages:

a. A baseline review of published landscape assessments, relevant evidence base documents and supporting studies, aerial photography, mapping and

fieldwork to identify the landscape, seascape and visual baseline and representative receptors;

b. Following the identification of the landscape, seascape and visual receptors, these shall be presented to the LPA for agreement, along with aiming to agree the extent of the study area;
c. An assessment of the sensitivity (nature of the receptor) of landscape, seascape and visual receptors shall be undertaken, via an assessment of their value and susceptibility. The methodology for this is set out below;
d. An assessment of the magnitude of impact (nature of effect) of the Proposed Development (i.e. size, scale, duration and reversibility) during the construction (winter), year 1 (winter), year 15 (summer) and decommissioning (winter) phases shall be undertaken; and
e. An assessment of the significance of effect to the landscape, seascape and visual receptors for the above phases of the Proposed Development will be determined via professional judgement and the relationship between the sensitivity of the receptors and magnitude of impact.

11.7.5 The landscape, seascape and visual amenity assessment of the Proposed Development will be undertaken for:

a. Peak construction activity, i.e. assuming all construction activity is occurring across all of the DCO Site at the same time. The assessment will be undertaken for a winter season (i.e. when deciduous vegetation is not in leaf);
b. Year 1 of operation, which will assume the Proposed Development is fully built and operational, with new planting within the DCO Site being low in height. The assessment will be undertaken for a winter season;
c. Year 15 of operation, which will assume the Proposed Development is fully built and operational, with all new planting being taller in height in comparison to the year 1 assessment. The year 15 assessment will be undertaken for a summer season, such that all vegetation will be in leaf; and
d. Decommissioning, which will mimic the construction phase assessment.

Sensitivity

11.7.6 With reference to GLVIA 3, landscape, seascape and visual sensitivity is determined via an assessment of ‘value’ and ‘susceptibility’.

Landscape and Seascape Sensitivity

Landscape and Seascape Value

11.7.7 GLVIA 3 defines landscape value as *"the relative value that is attached to different landscapes by society."* The definition is considered to be applicable to seascapes.

11.7.8 With reference to **Table 11-2**, landscape and seascape value will be assessed based upon the criteria set out in the Landscape Institutes' Technical Guidance Note (TGN) 02-21: Assessing landscape value outside national designations (TGN 02-21). Reference is also made to the Marine Management Organisation Approach to seascape sensitivity assessment (Ref 11-33).

Table 11-2: TGN 02-21 Landscape Value

TGN 02-21 Landscape and Seascape Value Criteria	Definition
Natural heritage	Landscape / seascape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape / seascape.
Cultural heritage	Landscape / seascape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape / seascape.
Landscape condition	Landscape / seascape which is in a good physical state both with regard to individual elements and overall landscape / seascape structure.
Associations	Landscape / seascape which is connected with notable people, events and the arts.
Distinctiveness	Landscape / seascape that has a strong sense of identity and or where the seascape contributes to an adjoining landscape.
Recreational	Landscape / seascape offering recreational opportunities where experience of landscape / seascape is important.
Perceptual (scenic)	Landscape / seascapes that appeals to the senses, primarily the visual sense.
Perceptual (wildness, tranquillity)	Landscape / seascape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
Functional	Landscape / seascapes which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape / seascape.

11.7.9 The assessment criteria for landscape and seascape value is set out in **Table 11-3**.

Table 11-3: Landscape and Seascape Value Criteria

Landscape and Seascape Value	Landscape and Seascape Value Criteria
Very high	The receptor may exhibit all of the key features of TGN 02-21.
High	The receptor is likely to be highly representative of the criteria outlined in TGN 02-21.
Medium	The receptor is likely to contribute to the landscape / seascape character but could include some areas of degraded or eroded features. The receptor may represent some features of TGN 02-21.
Low	The receptor is likely to be of little recognised value, due to either being common in character and/or with limited representation of features TGN 02-21.
Very low	The receptor may be a detracting feature, damaged or eroded and/or exhibiting none or very few features of TGN 02-21.

Landscape and Seascape Susceptibility

11.7.10 GLVIA 3 paragraph 5.40 defines landscape susceptibility as "the ability of a landscape receptors (where it be the overall character or condition of a particular landscape type or area) or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation." The definition is considered applicable to seascapes.

11.7.11 Landscape Institute TGN-2024-01: Notes and Clarifications on aspects of GLVIA 3 (Ref 11-25) has clarified that the higher the susceptibility, the more liable it is to be harmed.

11.7.12 **Table 11-4** sets out the criteria for the assessment of landscape and seascape susceptibility, with reference to the Marine Management Organisation Approach to seascape sensitivity assessment (Ref 11-33).

Table 11-4: Landscape and Seascape Susceptibility Criteria

Landscape and Seascape Susceptibility	Landscape and Seascape Susceptibility Criteria
Very high	The landscape / seascape receptor is likely to have a pattern/texture/simplicity/landform/coastal edge or intactness with no or very limited ability to accommodate change.
High	The landscape / seascape receptor is likely to have a pattern / texture / simplicity / landform / coastal edge or intactness with a small ability to accommodate change.

Landscape and Seascape Susceptibility	Landscape and Seascape Susceptibility Criteria
Medium	The landscape /seascape receptor is likely to have a pattern / texture / simplicity / landform / coastal edge that is able to accommodate some change.
Low	The landscape / seascape receptor is likely to have a pattern / texture / simplicity / landform / coastal edge that it is tolerant of change.
Very low	The landscape / seascape receptor is likely to have a pattern / texture / simplicity / landform / coastal edge that is able to accommodate a high degree of change.

Landscape and Seascape Sensitivity

11.7.13 The landscape and seascape sensitivity will be determined via professional judgement on the combination of landscape value and landscape susceptibility. **Table 11-5** sets out the criteria for landscape and seascape sensitivity.

Table 11-5: Landscape and Seascape Sensitivity Criteria

Landscape and Seascape Sensitivity	Landscape and Seascape Sensitivity Criteria
Very high	A landscape and seascape that is highly valued and is likely to be fully representative of the key characteristics within published studies. The receptor is susceptible to very small changes.
High	A landscape and seascape with distinctive components and characteristics. The receptor is susceptible to small changes.
Medium	A landscape and seascape with some value, but of relatively common components and characteristics which is reasonably tolerant of change
Low	A landscape and seascape of limited value, with relatively inconsequential components and characteristics, which is potentially tolerant of change.
Very low	A landscape and seascape with very low or very limited value, potentially a degraded landscape, such that it is highly tolerant of change.

Visual Sensitivity

11.7.14 Visual sensitivity is assessed via a combination of an assessment of visual value and visual susceptibility.

Visual Value

11.7.15 GLVIA 3 sets out that visual value should take account of the recognition of the value of a view, e.g. via a planning designation and the indicators of value

attached to views, e.g. via guidebooks or references in art. **Table 11-6** sets out the criteria for visual value.

Table 11-6: Visual Value Criteria

Visual Value	Criteria
Very high	A view which is recognised as 'iconic' and/or a specific visitor attraction or fully representative of the key characteristics of visual amenity within published landscape or seascape assessments.
High	A recognised high-quality view, likely to be well frequented and/or promoted as a beauty spot/visitor destination; and / or a view with strong cultural associations and/or a view which related to the experience of other features, e.g. heritage assets and/or the view is likely to the primary reason for the receptor being present.
Medium	A view which is likely to be valued locally but is unlikely to be widely recognised for its quality.
Low	An ordinary but not necessarily unattractive view, with no recognised quality.
Very low	A poor quality or degraded view which is discordant. A view which detracts from the receptors experience of being present

11.7.16 GLVIA 3 sets out that visual susceptibility is mainly a function of the occupation of the people experiencing the view and the extent to which their attention or interest may be focused on the view. **Table 11-7** sets out the criteria for visual susceptibility.

Table 11-7: Visual Susceptibility Criteria

Visual Susceptibility	Visual Susceptibility Criteria
Very high	Visitors to iconic viewing locations and/or within a designated landscape such that their attention and interest is specifically focused on the location.
High	Residents at home or people engaged in outdoor recreation whose attention is focused on the landscape, including along public rights of way or visitors to heritage assets.
Medium	Road, rail or transport users on routes where there is an anticipation of some visual enjoyment of the landscape, but whose attention is not primarily focused on the landscape.
Low	Road, rail or transport users on A roads or motorways where views are not focused on the landscape and/or people engaged in outdoor recreation which does not depend upon an appreciation of the landscape.
Very low	People at their place of work whose attention may be focused on their work and not their surrounds.

Visual Sensitivity

11.7.17 The visual sensitivity will be determined by professional judgement on the combination of visual value and visual susceptibility. **Table 11-8** sets out the criteria for visual sensitivity.

Table 11-8: Visual Sensitivity Criteria

Visual Sensitivity	Visual Sensitivity Criteria
Very high	Activity specifically focused on a designated or iconic view.
High	Activity resulting in a particular interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation whose attention is focused on the landscape) and / or a high value of existing views.
Medium	Activity resulting in a general interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation that does not focus on the landscape) and / or a medium value of existing views.
Low	Activity where interest or appreciation of the view is secondary to the activity (e.g. people at work or motorists travelling through the area) and/or low value of existing views.
Very low	Activity where interest or appreciation of the view is inconsequential (e.g. people at work with limited views or drivers of vehicles in areas of dense vegetation or urban areas) and/or very low value of existing views.

Magnitude

11.7.18 The following section sets out the proposed methodology for landscape, seascape and visual magnitudes of impact. This includes for consideration of the conclusions of **Section 17.3 Glint and Glare** of **Chapter 17: Other Environmental Topics**.

11.7.19 Landscape and seascape magnitude relates to the scale, extent, duration and reversibility of the Proposed Development. Visual magnitude is assessed in relation to the changes to the composition of views, combining the degree and extent of the change, the exposure to the view and the reversibility or permanence of the change. **Table 11-9** sets out the criteria for magnitude.

Table 11-9: Landscape, Seascape and Visual Amenity Magnitude of Impact

Magnitude of Impact	Landscape / Seascape	Visual
High	The total or major loss or alteration of key characteristics or the addition of new features or components that would substantially alter the character of setting of the area. Change	Extensive change to the composition of the view (e.g. widespread loss or characteristic features or the widespread addition of new features within the view) and/or high degree of exposure to

Magnitude of Impact	Landscape / Seascape	Visual
	may be permanent or temporary.	the view (e.g. close, direct or open views). Change may be permanent or temporary.
Medium	The partial loss or alteration of characteristics or the addition of new features or components that would alter the character or setting of the area. Change may be permanent or temporary.	Partial change to the composition of the view (e.g. loss of some characteristic features or the addition of new features within the view) and/or medium degree of exposure to the view (e.g. middle-distance or partially screened views). Change may be permanent or temporary.
Low	The limited loss or alteration of components or the addition of new features or components that reflect the character of setting of the area. Change may be permanent or temporary.	Subtle change to the composition of the view (e.g. limited loss of characteristics features or the addition of new features within the view) and / or low degree of exposure to the views (e.g. long-distance, substantially softened or glimpsed). Change may be permanent or temporary.
Very low	Virtually imperceptible loss or addition of new features or components that overall retain the character or setting of the area. Change may be permanent or temporary.	Barely perceptible change to the existing view and / or very brief exposure to the view. Change may be permanent or temporary.
None	No change to the landscape character or setting of an area. Change may be permanent or temporary.	No change to the composition of the view.

Determining the Significance of Effects

11.7.20 The significance of landscape, seascape and visual amenity effects will be determined by professional judgement and considering the relationship between the sensitivity of the receptor and the magnitude of change. **Table 11-10** sets a guide to aid this professional judgement on the significance of effect.

Table 11-10: Landscape, Seascape and Visual Amenity Guide to Significance of Effects

Sensitivity	Magnitude High	Medium	Low	Very low	None
Very high	Major	Major	Major or Moderate	Moderate or Minor or Negligible	Neutral
High	Major or Moderate	Major or Moderate	Moderate or Minor	Minor or Negligible	Neutral
Medium	Major or Moderate	Moderate or Minor	Minor or Negligible	Negligible	Neutral
Low	Moderate or Minor	Minor	Minor or Negligible	Negligible or Neutral	Neutral
Very low	Minor or Negligible	Negligible	Negligible or Neutral	Negligible or Neutral	Neutral

11.7.21 Where the above table allows for a choice in the significance of effect, e.g. 'major or moderate', a single effect, e.g. 'moderate' will be presented, along with a reasoned justification in the assessment narrative.

11.7.22 The significance of effect can be beneficial or adverse.

11.7.23 Significance of effects predicted to be major or moderate will be considered 'significant', unless a reasoned justification is provided. Effects of minor, negligible and neutral will be considered 'not significant'.

Relationship to Residential Visual Amenity

11.7.24 The visual assessment will assess the potential visual effects to residential receptors, i.e. private views from properties which are either directly adjacent to the EIA Scoping Site Boundary or as groups of residents in settlements. As set out in the following limitation and assumptions, this assessment will be undertaken from publicly accessible locations, i.e. a PRoW or road adjacent to a dwelling.

11.7.25 The Landscape Institute's TGN 02/2019 sets out that the Residential Visual Amenity Threshold is considered as to whether "the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity."

11.7.26 The guidance is based upon a four-stage approach. Stages 1 to 3 accord with the above assessment methodology, whereby visual receptors area identified, along with the magnitude of impact and the significance of effect.

11.7.27 The fourth step is a more detailed examination of residential properties and their layouts where significant adverse visual effects are identified. Therefore, if at the

year 15 of operation assessment, i.e. accounting for the proposed establishment of new planting, significant adverse visual effects remain for residential receptors a Residential Visual Amenity Assessment shall be undertaken, with the methodology stated in the ES.

Character of the Night Sky

11.7.28 As any potential lighting during the construction phase would be temporary in duration and there would be no permanent visible lighting during the operation (and maintenance) phase, an assessment of lighting in relation to the character of the night sky is proposed to be scoped out of the landscape, seascape and visual assessment.

11.8 Limitations and Assumptions

11.8.1 The location and layout of certain elements of infrastructure (including the Point of Connection, construction methodologies and mitigation), have not yet been determined. This is of particular importance when considering impacts associated with landscape, seascape and visual amenity.

11.8.2 Limitations of the landscape, seascape and visual assessment are:

a. Photographs towards the DCO Site will only be taken from publicly accessible locations (viewpoints), e.g. PRoW, pavements or laybys. Where access is limited, the nearest publicly accessible location will be visited and noted in the assessment; and
b. No photography will be undertaken from boats or locations at sea. Publicly accessible locations along the coastline are considered to be representative of sea views and proportionate to the assessment.

11.8.3 The assumptions of the landscape, seascape and visual assessment are:

a. Best practice construction measures will be used to avoid or reduce the potential landscape, seascape and visual effects during the construction phase, including for protection of retained vegetation;
b. PRoW across the Site will remain accessible, where practicable, during the construction phase, but temporary diversions will be likely;
c. At year 1, new planting within the Site will range up to 3m in height;
d. Growth rates for new planting will be 1m in height every 3 years;
e. Solar panels are 4.5m in height and may rotate on a horizontal axis; and
f. Where new open spaces or permissive paths are created, these locations will not be included as viewpoints as they are not currently publicly accessible and are therefore not representative of views that could be impacted by the Proposed Development.

11.9 Summary of Elements Scoped In and Out

11.9.1 Due to the potential for effects on landscape, seascape and visual receptors and resources from the Proposed Development, landscape, seascape and visual amenity is scoped into the ES. The ES chapter will be supported by technical appendices for landscape, seascape and visual amenity, including plans and photographs. Visualisations of the Proposed Development are likely to be required and will be agreed with MDC. A summary of the elements scoped in and out of the landscape, seascape and visual amenity ES chapter is presented in **Table 14-4** below.

Table 11-11: Elements scoped in and out of the landscape, seascape and visual amenity assessment

Element	Scoped In / Scoped Out
Impacts to the DCO Site character covering the Energy Park and Connection and Access Corridors.	**Scoped in.**
Impacts to local landscape character areas identified by the LVIA in relation to the Energy Park and Connection and Access Corridors and their respective study areas.	**Scoped in.**
Impacts to county and district published landscape character areas covering the Energy Park and Connection and Access Corridors and their respective study areas.	**Scoped in.**
Impacts to county and district published seascape character areas covering the Energy Park and Connection and Access Corridors and their respective study areas.	**Scoped in.**
Impacts to people's views via the representative viewpoints set out in **Table 11-1** for the construction and operational phases of the Energy Park and Connection and Access Corridors.	**Scoped in.**
Impacts to the character of the night sky.	**Scoped out** as any lighting during the construction phase would be temporary in duration and localised to the area of construction activity. In operation, whilst there would be security lighting and lighting at the BESS and On-Site Substations, this would be

Element	Scoped In / Scoped Out
	controlled by lighting sensors, such that no part of the Proposed Development would be continually lit.
Impacts to Residential Amenity.	**Scoped in** as a precautionary approach but will be scoped out if no significant adverse visual effects are predicted at year 15 to residential receptors.
Views from the sea, i.e. from a boat.	**Scoped out** as viewpoints along the coastline are considered representative of views from the sea.
Views from new areas of open space or permissive paths created by the Proposed Development.	**Scoped out** as these locations do not currently exist and therefore are not representative of potential views which could be impacted by the Proposed Development.
Effects to published National Character Areas 81, NCA 111 and MCA 19.	**Scoped out** as the Proposed Development is too small a geographic area in relation to the wider geographic scale of the National Character Areas.
Impacts and effects from the Grid Connection Corridor(s) **on published county**, district and local landscape character areas during the construction, operation and decommissioning phases.	**Scoped in.**
Impacts and effects from the Grid Connection Corridor(s) on representative visual receptors set out in **Table 11-1** during the construction, operation and decommissioning phases.	**Scoped in.**

11.10 References

Ref 11-1 The Council of Europe European Landscape Convention (2016). Available at: https://www.coe.int/en/web/landscape. Accessed: October 2026.

Ref 11-2 Department for Energy Security & Net Zero (2025). Overarching National Policy Statement for Energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage Accessed: October 2026.

Ref 11-3 Department for Energy Security & Net Zero (2025). Overarching National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025 Accessed: October 2026.

Ref 11-4 Department for Energy Security & Net Zero (2025). Overarching National Policy Statement for electricity networks infrastructure (EN-5). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026.

Ref 11-5 Lord Holford (1959). The Holford Rules. Available at: https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf Accessed: October 2026.

Ref 11-6 National Grid Company (2009). The Horlock Rules. Available at: https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf Accessed: October 2026.

Ref 11-7 Ministry of Housing, Communities and Local Government (2026). Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026.

Ref 11-8 Ministry of Housing, Communities and Local Government. Planning Practice Guidance Design: process and tools (2019). Available at: https://www.gov.uk/guidance/design Accessed: October 2026.

Ref 11-9 Ministry of Housing, Communities and Local Government. Planning Practice Guidance Light Pollution (2019). Available at: https://www.gov.uk/guidance/light-pollution Accessed: October 2026.

Ref 11-10 Ministry of Housing, Communities and Local Government, Planning Practice Guidance Green Belt (2025). Available at: https://www.gov.uk/guidance/green-belt Accessed: October 2026.

Ref 11-11 Ministry of Housing, Communities and Local Government, Planning Practice Guidance Natural environment (2025). Available at: https://www.gov.uk/guidance/natural-environment Accessed: October 2026.

Ref 11-12 Ministry of Housing, Communities and Local Government, Planning Practice Guidance Renewable and low carbon energy (2023). Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy . Accessed: October 2026.

Ref 11-13 Basildon Borough Council, Local Plan (2007). Available at: https://www.basildon.gov.uk/adoptedplan https://www.basildon.gov.uk/adoptedplan.Accessed: October 2026.

Ref 11-14 Basildon Borough Council, Regulation 19 Local Plan Consultation (2026). Available at: https://www.basildon.gov.uk/article/9107/Local-Plan-Latest-news-and-updates Accessed: October 2026.

Ref 11-15 Chelmsford City Council, Chelmsford Local Plan (2020). Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026.

Ref 11-16 Chelmsford City Council, Chelmsford Local Plan Pre-Submission (Regulation 19) Document (2025). Available at: https://www.chelmsford.gov.uk/media/3pomrel4/pre-submission-regulation-19-local-plan-february-2025.pdf Accessed: October 2026.

Ref 11-17 Maldon District Council Local Development Plan (2017). Available at https://www.maldon.gov.uk/homepage/7031/emerging_local_plan/ . Accessed: October 2026.

Ref 11-18 Mayland Parish Council, Neighbourhood Plan 2021-2042 Made Version (2025). Available at: https://www.maldon.gov.uk/downloads/file/20279/mayland_neighbourhood_plan_2021-2042 Accessed: October 2026

Ref 11-19 Maldon District Council Maldon District Renewable and Low Carbon Technologies SPD (2018). Available at: https://www.maldon.gov.uk/info/7050/planning_policy/9731/maldon_district_renewable_and_low_carbon_technologies_spd Accessed: October 2026.

Ref 11-20 Maldon District Council Maldon District Green Infrastructure SPD (2019). Available at: https://www.maldon.gov.uk/info/7050/planning_policy/9729/maldon_district_green_infrastructure_strategy_spd Accessed: October 2026.

Ref 11-21 Maldon District Council, Maldon District Design Guide SPD (2017). Available at: https://www.maldon.gov.uk/info/7050/planning_policy/9715/maldon_district_design_guide Accessed: October 2026.

Ref 11-22 Maldon District Council Maldon District Landscape Technical Document (2017). Available at: https://www.maldon.gov.uk/downloads/file/16021/landscape_technical_document_december_2017 Accessed: October 2026.

Ref 11-23 Rochford District Council, Local Development Framework Core Strategy Adopted Version (2011). Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planningpolicy_cs_adoptedstrategy.pdf Accessed: October 2026.

Ref 11-24 Rochford District Council, Local Development Framework Development Management Plan (2014). Available at: https://www.rochford.gov.uk/development-management-plan Accessed: October 2026.

Ref 11-25 Rochford District Council, Draft Rochford Local Plan Regulation 18 (2026). Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026.

Ref 11-26 Landscape Institute and the Institute of Environmental Management (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition. Accessed: October 2026.

Ref 11-27 Landscape Institute (2021). LITGN 02-21: Assessing landscape value outside national designations. Available at: https://landscapeinstitute.org/publication/tgn-02-21-assessing-landscape-value-outside-national-designations/ Accessed: October 2026.

Ref 11-28 Landscape Institute (2024). LITGN: Notes and Clarifications on Aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment. Available at: https://landscapeinstitute.org/technical-resource/notes-and-clarifications-on-aspects-of-the-3rd-edition-guidelines-on-landscape-and-visual-impact-assessment-glvia3-litgn-2024-01/ Accessed: October 2026.

Ref 11-29 Landscape Institute (2019). LITGN 06/10: Visual Representation of Development Proposals. Available at: https://landscapeinstitute.org/policy-practice/technical/digital-practice-mapping-visualisation/visualisation/ Accessed: October 2026.

Ref 11-30 Landscape Institute (2019). LITGN 02/19: Residential Visual Amenity Assessment. Available at: https://landscapeinstitute.org/technical-resource/rvaa/ Accessed: October 2026.

Ref 11-31 Natural England, An Approach to Landscape Character Assessment (2014). Available at: https://assets.publishing.service.gov.uk/media/5aabd31340f0b64ab4b7576e/landscape-character-assessment.pdf Accessed: October 2026.

Ref 11-32 Natural England, An Approach to Seascape Character Assessment (2012). Available at: https://assets.publishing.service.gov.uk/media/5a7e2cb1ed915d74e33f088b/seascape-character-assessment.pdf Accessed: October 2026.

Ref 11-33 Marine Management Organisation An Approach to seascape sensitivity assessment (2020). Available at: https://www.gov.uk/government/publications/seascapes-methodology-mmo1204 Accessed: October 2026.

Ref 11-34 Institution of Lighting Professionals GN01/26 The Avoidance of Obtrusive Light (2026). Available at: https://theilp.org.uk/resource/gn01-26-the-avoidance-of-obtrusive-light.html Accessed: October 2026.

Ref 11-35 Essex County Council Definitive Map (2002). Available at: https://www.essexhighways.org/getting-around/public-rights-of-way/the-definitive-map Accessed: October 2026.

Ref 11-36 Marine Management Organisation Seascape assessment for the East Inshore and Offshore Marine Plan Areas (MMO 1369) (2024). Available at: https://assets.publishing.service.gov.uk/media/69b037f858d4ef5adaf0e3f9/MMO1369_East_Seascape-Character-Assessment_2024-final-report.pdf . Accessed: October 2026.

Ref 11-37 Natural England National Character Area 81: Greater Thames Estuary (2026). Available at: https://nationalcharacterareas.co.uk/greater-thames-estuary/ . Accessed: October 2026.

Ref 11-38 Natural England National Character Area 111: Northern Thames Basin (2026). Available at: https://nationalcharacterareas.co.uk/northern-thames-basin/ . Accessed: October 2026.

Ref 11-39 Essex County Council and Southend on Sea Borough Council Essex Landscape Character Assessment (2003). Available at: https://www.essexdesignguide.co.uk/media/2277/lca_essex_2002.pdf Accessed: October 2026.

Ref 11-40 SAIL and Essex County Council, Landscape Character Assessment of the Essex Coast (2002). Available at: https://www.essexdesignguide.co.uk/media/3286/lca-essex-coast-main-report.pdf Accessed: October 2026.

Ref 11-41 Braintree District Council, Brentwood Borough Council, Chelmsford City Council, Maldon District Council and Uttlesford District Council Landscape Character Assessments (2006). Available at: https://www.maldon.gov.uk/publications/LDP/pre-submission/2%20Design%20and%20Climate%20Change/EB009a%20Landscape%20Character%20Assessment.pdf Accessed: October 2026.

Ref 11-42 Maldon District Council Maldon District Characterisation Assessment, (2012). Available at: https://www.maldon.gov.uk/publications/LDP/pre-submission/2%20Design%20and%20Climate%20Change/EB053%20Maldon%20District%20Characterisation%20Assessment.pdf Accessed: October 2026

Ref 11-43 Maldon District Council Maldon District Historic Environment Characterisation Project (2008). Available at: https://www.maldon.gov.uk/publications/LDP/pre-submission/2%20Design%20and%20Climate%20Change/EB018%20Maldon%20District%20Historic%20Environment%20Characterisation%20Project.pdf Accessed: October 2026.

12. Materials and Waste

12.1 Introduction

12.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with materials and waste during construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the Materials and Waste chapter of the Environmental Statement (ES).

12.1.2 This chapter follows the methodology and checklist for action set out in the Institute of Sustainability and Environmental Professionals (ISEP) Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (referred to from herein as the 'ISEP Guidance') (Ref 12-1).

12.1.3 For the purposes of this EIA Scoping Report, the assessment considers:

a. The consumption of materials (key construction materials only); and
b. The generation and management of waste.

12.1.4 Materials are defined in the ISEP Guidance as "physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel."

12.1.5 Other material assets considered in the assessment include built assets such as landfill void capacity, allocated sites (term used in the ISEP Guidance, hereafter referred to as safeguarded mineral sites (e.g., quarries, wharves, depots, mineral plant)), and safeguarded waste sites.

12.1.6 Impacts on Mineral Safeguarding Areas (MSAs) are not assessed in a Materials and Waste assessment in accordance with the ISEP Guidance (Ref 12-1). MSAs are defined as *"an area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development"* (Ref 12-2). **Section 17.4: Ground Conditions** of **Chapter 17: Other Environmental Topics** considers impacts on MSAs, therefore this chapter should be read in conjunction with **Section 17.4 : Ground Conditions** of **Chapter 17: Other Environmental Topics**. **Chapter 14: Socio-economics and Land Use** scopes out socio-economic impacts to MSAs.

12.1.7 Waste is defined as per the European Waste Framework Directive (Ref 12-3) as "*any substance or object which the holder discards or intends or is required to discard*".

12.2 Study Area

12.2.1 There are two study areas for the assessment of impacts related to materials and waste defined in line with the ISEP Guidance (Ref 12-1): a Proposed Development study area and an expansive study area. These two study areas are described below.

Proposed Development Study Area

12.2.2 The Proposed Development study area for construction, operation (and maintenance), and decommissioning waste generation and use of construction materials (key construction materials only, i.e. aggregates, asphalt, concrete and steel) comprises the EIA Scoping Site Boundary (**Figure 1-1: Proposed Development Location Plan**). This comprises the Energy Park, the Connection and Access Corridor and the Grid Connection Corridors (GCC). This study area is deemed to include the footprint of the works, together with any temporary land required during construction. This will include temporary offices, compounds and storage areas, as well as temporary roadways to facilitate access to all land within the Proposed Development.

12.2.3 The Proposed Development study area for the impacts on safeguarded mineral and waste sites is defined by the EIA Scoping Site Boundary. Impacts on safeguarded waste sites are not included in the ISEP Guidance; however, they are included in this assessment for completeness.

12.2.4 The Proposed Development is located within the jurisdiction of Basildon Borough Council, Chelmsford City Council, and Maldon and Rochford District Councils and Essex County Council. The Minerals Planning Authority (MPA) and Waste Planning Authority (WPA) for the Site is Essex County Council.

Expansive Study Area

12.2.5 The expansive study area for non-hazardous and inert waste management is defined based on professional judgement and informed by consideration of the proximity principle (managing waste as close as possible to where waste has been generated) and value for money.

12.2.6 The expansive study area for non-hazardous and inert waste management is the East of England (as defined by the Environment Agency (EA)).

12.2.7 The expansive study area for hazardous waste management (landfill capacity) is England. This is defined based on professional judgement and informed by consideration of the proximity principle and value for money, outlined in 'Principle 2 – Infrastructure Provision in the Strategy for Hazardous Waste Management in England' (Ref 12-5):

"We look to the market for the development of hazardous waste infrastructure, which implements the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self-sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met."

12.2.8 Planning for hazardous waste management is also undertaken at National level.

12.2.9 The expansive study area for availability of key construction materials is as follows:

a. Aggregates – the region for crushed rock is 'South' which includes East of England, London, South East and South West and the region for sand and gravel is 'East of England'
b. Asphalt and concrete – East of England region; and
c. Steel – United Kingdom (UK)

12.3 Legislation, Planning Policy Context and Guidance

12.3.1 The assessment will be undertaken with reference to relevant legislation, planning policy, and guidance relating to the management of materials and waste, comprising:

Legislation

12.3.2 Relevant legislation includes:

a. European Waste Framework Directive (2008/98/EC) (Ref 12-3);
b. The Environmental Protection Act 1990 (Ref 12-6);
c. The Hazardous Waste (England and Wales) Regulations 2005 (as amended) (Ref 12-7);
d. The Waste (England and Wales) Regulations 2011 (as amended) (Ref 12-8);
e. The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (Ref 12-9);
f. The Environment Act 2021 (Ref 12-10);
g. The Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019 (Ref 12-11);

h. The Waste (Circular Economy) (Amendment) Regulations 2020 (Ref 12-12);
i. The Waste Batteries and Accumulators (Amendment) Regulations 2015 (Ref 12-13); and
j. The Waste Electrical and Electronic Equipment Regulations 2013 (Ref 12-14).

National Planning Policy

12.3.3 The following national policies and guidance are relevant to the Proposed Development:

a. Overarching NPS for Energy (EN-1) (adopted 2025) (Ref 12-15). Requirements for resource and waste management are outlined in section 5.15 of NPS EN-1.
b. National Planning Policy Framework (NPPF) (Ref 12-2);
c. National Planning Policy for Waste (2014) (Ref 12-16);
d. The Waste Management Plan for England (2021) (Ref 12-17);
e. Our Waste, Our Resources, A Strategy for England (Resources and Waste Strategy for England) (2018) (Ref 12-19);
f. The Waste Prevention Programme for England: Maximising Resources, Minimising Waste (2023) (Ref 12-20); and
g. The Environmental Improvement Plan (2025) (Ref 12-21).

Local Planning Policy

12.3.4 Local planning policy of relevance to the Materials and Waste assessment are as follows:

a. Essex County Council;
    i. Essex Minerals Local Plan – adopted July 2014 (Ref 12-22)
    ii. Essex and Southend-on-Sea Waste Local Plan 2017 – adopted July 2017 (Ref 12-23)
b. Basildon Borough Council;
    i. Basildon Borough Draft Local Plan 2023-2043 (emerging) (Ref 12-24)
    ii. There are no separate minerals or waste policies produced by Basildon Borough Council.
c. Chelmsford City Council;
    i. Chelmsford Local Plan 2013-2036 – adopted May 2020 (Ref 12-25)
    ii. There are no separate minerals or waste policies produced by Chelmsford City Council.

d. Maldon District Council; and

   i. Maldon District Local Development Plan – adopted July 2017 (Ref 12-26)
   ii. There are no separate minerals or waste policies produced by Maldon District Council.

e. Rochford District Council

   i. Rochford District Development Management Plan – adopted December 2014 (Ref 12-27)
   ii. Rochford District Core Strategy – adopted December 2011 (Ref 12-28)
   iii. There are no separate minerals or waste policies produced by Rochford District Council.

Relevant Industry Guidance

12.3.5 Other relevant industry guidance includes:

a. ISEP Guidance (Ref 12-1);
b. Planning Practice Guidance (PPG) for Minerals (2014) (Ref 12-29) and Waste (2015) (Ref 12-30);
c. Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice (DoWCoP), v2 (2011) (Ref 12-31);
d. Waste and Resources Action Programme (WRAP) Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 12-32);
e. Department for Environment, Food & Rural Affairs (DEFRA) and Environment Agency (2016). Waste Duty of Care Code of Practice (Ref 12-33); and
f. DEFRA (2011). Guidance on Applying the Waste Hierarchy. (Ref 12-34).

12.4 Consultation

12.4.1 Consultation will be undertaken following submission of this EIA Scoping Report with relevant statutory consultees, including Essex County Council and the Environment Agency, as appropriate. Consultation responses will be used to inform the scope and methodology of the Materials and Waste assessment presented in the ES.

12.5 Baseline Conditions

12.5.1 This section describes the baseline conditions relating to the availability of key construction materials and waste management infrastructure that may be used by the Proposed Development.

Availability of Key Construction Materials

12.5.2 At this stage, the Proposed Development design is still being developed and the exact quantities of key construction materials (aggregate, asphalt, concrete, and steel) required for the Proposed Development are not yet known. The assessment will therefore consider the availability of the principal construction materials likely to be required.

12.5.3 UK (for steel) and regional data (for aggregate, asphalt, and concrete) have been used to establish a quantitative baseline of the availability for key construction materials.

12.5.4 **Table 12-1** summarises UK requirement in 2025 for steel and regional sales in 2024 for aggregates, asphalt and concrete (the most recent years for which data are available). The region for crushed rock is 'South' and the region for sand and gravel is 'East of England' as outlined in **Table 12-1**.

12.5.5 It is anticipated that the majority of key construction materials would be sourced locally or regionally (e.g. concrete, aggregate, and asphalt), considering the proximity principle and value for money. Other materials such as steel would be sourced at a national or international level.

Table 12-1: Availability of Key Construction Materials

Materials	UK Availability (million tonnes, year)	Regional availability (million tonnes, year)	Baseline Data Year	Data description
Steel	17	Not applicable. Steel will be assessed at the national level	2025	UK's Steel Requirement 2015-2025. UK Steel Statistics 2026 (Ref 12-43)
Crushed rock	Not applicable. These materials will be assessed at	26.3 (South, includes the East of England, London, South	2024	Minerals and mineral product sales in Great

Materials	UK Availability (million tonnes, year)	Regional availability (million tonnes, year)	Baseline Data Year	Data description
	the regional level	East and South West)		Britain. Profile of the UK Mineral Products Industry – 2025 Edition (Ref 12-35)
Sand and gravel		8.9 (East of England)	2024	
Asphalt		2.6 (East of England)	2024	
Ready-mixed concrete*		3.6 (East of England)	2024	

**Data provided in cubic metres (m^3) converted to million tonnes using concrete density of 2.4 t/m^3*

12.5.6 Potential recycled contents for the main construction materials are outlined in **Table 12-2**. These "*good practice*" rates are derived from the Waste and Resources Action Programme's (WRAP) Designing Out Waste Tool for Civil Engineering (Ref 12-32).

Table 12-2: Potential Recycled Content of Key Construction Materials

Material Type	Potential recycled content (% by weight)
Concrete	16
Asphalt	25
Aggregates	50
Steel reinforcement	100
Structural steel	60

Safeguarded Mineral and Waste Sites

12.5.7 There are no safeguarded mineral sites within the EIA Scoping Site Boundary (Energy Park and GCCs inclusive) as per the Essex Minerals Local Plan (Policies Map) (Ref 12-45).

12.5.8 GCC A of the EIA Scoping Site Boundary runs immediately adjacent to the Dollymans Farm strategic site allocation for inert landfill waste management development, as set out in Section 7 of the Essex and Southend-on-Sea Waste Local Plan (Strategic Waste Management Allocations) (Ref 12-23) and shown in the Waste Policies Map of the Essex and Southend-on-Sea Waste Local Plan (Ref 12-37). The site is a former mineral borrow pit of 16.09ha with an indicative facility scale of 500,000 tonnes, with access via a private road adjoining the A129. The details of the site can be found in Appendix B of the Essex and

Southend-on-Sea Waste Local Plan (Ref 12-23). At the time of writing, no waste site application exists (Ref 12-40).

Landfill Capacity

12.5.9 Baseline information consists of current landfill capacity in the East of England for non-hazardous and inert waste and England for hazardous waste, as outlined in the EA's 2024 Waste Summary Tables for England – Version 1 (Ref 12-4) and presented in **Table 12-3**.

12.5.10 Hazardous restricted sites are not included since that capacity may not be available to the Proposed Development. Restricted landfills only accept waste from a restricted set of sources and producers, commonly only the site operator e.g. a manufacturing site.

Table 12-3: Landfill Capacity in the East of England region (2024)

Landfill Type	East of England Landfill Capacity (000s m^3)	England Landfill Capacity (000s m^3)
Hazardous merchant	Not applicable. Hazardous waste assessed at the England level	9,167
Non-hazardous with Stable Non-reactive Hazardous Waste (SNRHW) cell	3,658	Not applicable. Non-hazardous and inert waste assessed at the regional level
Non-hazardous	21,343	
Inert	27,626	
Total	52,627	

Waste Management Infrastructure

12.5.11 The ISEP Guidance (page 14) (Ref 12-1) "does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources." Therefore, a full list of waste management infrastructure is not included in the baseline.

Historic and Authorised Landfill

12.5.12 There are no authorised landfill sites recorded within the EIA Scoping Site Boundary, as outlined in the EA's Permitted Waste Sites – Authorised Landfill Site Boundaries (Ref 12-38). An authorised landfill is located adjacent to the south

east of the EIA Scoping Site Boundary at Dollymans Farm for Sewells Reservoir Construction Limited (EA/EPR/HB3907KS).

12.5.13 There is one historic landfill site located within the EIA Scoping Site Boundary, as outlined in the EA's Permitted Waste Sites – Historic Landfill Site Boundaries (Ref 12-39). This is situated in the south-eastern extent of the EIA Scoping Site Boundary, within the Energy Park. Details of the historic landfill site can be seen in **Table 12-4**.

Table 12-4: Historic landfill site details

Name of landfill site	Site reference	First input	Last input	Waste Types
Dengie Sea Wall	MAL017	31/12/1979	31/12/1980	Commercial, household

Permitted Waste Sites, Waste Site Applications, and Waste Exemptions

12.5.14 There is one Permitted Waste Site recorded within the EIA Scoping Site Boundary, within GCC A, as outlined in the EA's Permitted Waste Sites – permitted waste sites boundaries (Ref 12-40). The permitted site relates to the Enva Resource Management Limited site at Reddings Farm, CM0 7NE, which is a surrendered waste site not expected to be in operation. The permitted site is no larger than 40m by 20m in size.

12.5.15 There are no Waste Site Applications recorded within the EIA Scoping Site Boundary, as outlined in the EA's Permitted Waste Sites – waste site application boundaries (Ref 12-40).

12.5.16 There are 29 waste exemption sites recorded within the EIA Scoping Site Boundary, as outlined in the EA's Register of Waste Exemptions (Ref 12-44). However, as waste exemptions are associated with existing built assets and the associated activities of dredging of inland waters, storing sludge, spreading waste for farmland, end of life vehicle use, burning waste, and aerobic composting, they are unlikely to be impacted by the Proposed Development.

Targets

12.5.17 The national target for recovery of construction and demolition waste is 70% by weight, as set out in the European Waste Framework Directive (Ref 12-3). The target specifically excludes naturally occurring materials with European Waste Catalogue (EWC) Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)).

Recovery is deemed to include reuse, recycling and other recovery e.g. energy recovery.

12.5.18 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the ISEP Guidance (Ref 12-1). In 2022, England generated 63 million tonnes of non-hazardous C&D waste, of which 59.4 million tonnes was recovered. This represents a recovery rate of 94.3% (Ref 12-41).

12.5.19 Standard, good and best practice recovery rates by material are provided by WRAP (Ref 12-42). Recovery rates for key construction wastes relevant to the Proposed Development are provided in **Table 12-5**.

Table 12-5: Standard, Good and Best Practice Recovery Rates by Material

Material	Standard Practice Recovery (%)	Good Practice Recovery (%)	Best Practice Recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	70	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste, e.g. asbestos, must be landfilled.	

Future Baseline

12.5.20 There is no publicly available information on any potential changes to national or regional material availability by the anticipated time of the construction of the Proposed Development. Construction material demand, such as ready mixed concrete, is closely aligned to both the quantity of construction taking place and the general economy. It is deemed inappropriate to forecast future material availability as the demand is unlikely to be linear and it is not possible to set a future baseline for materials. As such, future material availability is assumed to remain the same as the current baseline as outlined in Table 12-1.

12.5.21 There is no publicly available information regarding any potential changes to landfill capacity by the anticipated time of the Proposed Development's construction, operation (and maintenance), and decommissioning.

12.5.22 Due to the cyclic nature of inert and hazardous landfill capacity (e.g. landfill capacity decreasing, and then new sites or landfill cells being opened with landfill capacity increasing), it is not realistic to forecast future landfill capacity. Therefore, inert and hazardous landfill capacity is assumed to remain the same as the current baseline as outlined in **Table 12-3**.

12.5.23 For non-hazardous waste, using the current rate of decline of landfill capacity and forecasting into the future would lead to the inevitable conclusion that there would be no void space remaining. However, this is not a credible scenario as if there is still a need for landfill, then the WPA will need to consent new landfill capacity to replace that which has been used up. Therefore, non-hazardous and hazardous landfill capacity is assumed to remain the same as the current baseline, as outlined in **Table 12-3**.

12.6 Potential Effects and Mitigation

12.6.1 This section sets out the potential effects associated with materials and waste during the construction, operation (and maintenance) and decommissioning phases of the Proposed Development.

12.6.2 Mitigation measures relevant to being incorporated in the design and construction of the Proposed Development are set out below. Prior to the implementation of the mitigation, the Proposed Development has the potential to affect materials and waste, during construction, operation and maintenance, and decommissioning, in the following ways:

a. Changes in availability of materials; and
b. Changes in available landfill void capacity.

12.6.3 Embedded mitigation measures relevant to materials and waste are included in **Appendix 6-A: Environmental Mitigation and Commitments** Register of this EIA Scoping Report.

Mitigation

12.6.4 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or the methods by which it will be constructed and operated/maintained. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the

opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation / mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

12.6.5 The following embedded measures have been and will be incorporated into the Proposed Development design, with detailed measures to be submitted with the Development Consent Order (DCO) Application.

Plate 12-1: The Waste Hierarchy, from DEFRA's Guidance on Applying the Waste Hierarchy, recreated by AECOM



12.6.6 The Proposed Development will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy, illustrated in **Plate 12-1**.

12.6.7 All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.

Construction

12.6.8 The construction of the Proposed Development will be subject to measures and procedures defined within a Construction Environmental Management Plan (CEMP). The CEMP will be secured by a Requirement in the DCO and will include the implementation of good industry practice and control measures for environmental impacts arising during construction, including the approach for material and waste management on-site. These measures will be set out in the Outline CEMP submitted with the DCO Application. The Principal Contractor will use the Outline CEMP to inform the detailed CEMP , prior to construction works commencing on-site. Any excavated material reuse would be managed via a Materials Management Plan which would form part of the Outline and detailed

CEMP, in accordance with the CL:AIRE DoW CoP, Waste Framework Directive exclusion, exemption or environmental permit.

Operation and maintenance

12.6.9 The operation (and maintenance) of the Proposed Development will be subject to measures and procedures defined within an Operational Environmental Management Plan (OEMP) secured by a Requirement in the DCO. An Outline OEMP will be submitted as part of the DCO Application which will include the approach for material and waste management on-site. The Applicant will use the Outline OEMP to produce a detailed OEMP prior to commencement of operation.

Decommissioning

12.6.10 The decommissioning of the Proposed Development will be subject to measures and procedures defined within a Decommissioning Environmental Management Plan (DEMP) secured by a Requirement in the DCO. An Outline DEMP will be submitted as part of the DCO Application which will include the approach for material and waste management on-site. The decommissioning contractor will use the Outline DEMP to produce the detailed DEMP prior to decommissioning works on-site. The Applicant is committed to maximising recycling and reuse of the Proposed Development components, e.g. solar panels at the end of their life.

12.6.11 At present solar PV panel waste generation is low, meaning that there is a limited demand for facilities that recycle this infrastructure and there is therefore associated limited available capacity. It is likely that there will be greater opportunities for recycling in the future, not least because the market will have expanded to meet demand as solar PV installations increase.

12.7 Assessment Methodology

12.7.1 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on materials and waste will be undertaken using the methodology set out below.

12.7.2 The ISEP Guidance offers two methods for the assessment of waste. Method W1 – void capacity - has been selected as this is a more detailed methodology and is appropriate for larger and more complex projects (Ref 12-1).

12.7.3 The sensitive receptors for the assessment of the construction, operation (and maintenance), and decommissioning phase materials and waste impacts are:

a. Materials, national and regional availability of key construction materials – as outlined in the ISEP Guidance (Ref 12-1):
“Materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long-

term availability; this results in the depletion of natural resources and adversely impacts the environment"; and

b. Landfill void capacity in the expansive study area of the East of England region (non-hazardous and inert landfill void capacity) – as defined in the ISEP Guidance (Ref 12-1):
"Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities, this requires the depletion of natural and other resources which, in turn, adversely impacts the environment."

12.7.4 The sensitivity of materials relates to the availability and type of construction materials to be consumed by the Proposed Development. The ISEP Guidance (Ref 12-1) criteria have been used to determine the sensitivity of materials.

12.7.5 Material receptor sensitivity is determined as *"low"*. On balance, the key construction materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. Key materials required for construction and operation are likely to be available comprising a high proportion of sustainable features and benefits (e.g. recycled content).

12.7.6 Potential recycled content for the main construction materials is outlined in **Table 12-2**.

12.7.7 The sensitivity of waste relates to availability of landfill capacity in the absence of the Proposed Development. This is outlined in the ISEP Guidance (Ref 12-1): "*landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste."* The sensitivity of landfill capacity is assessed based on a review of historic landfill void capacity trends where available and information from relevant policy documents.

12.7.8 The criteria described within Table 12-7 and Table 12-8 have been used to determine the sensitivity of landfill capacity.

12.7.9 As stated in the ISEP Guidance "due to uncertainties relating to future technologies and infrastructure, this first edition of the guidance does not incorporate a proposed methodology to assess impacts and effects during decommissioning or end of first life". However, the criteria in the ISEP Guidance are applied to decommissioning for the Proposed Development (Ref 12-1).

12.7.10 The waste receptor sensitivity is determined as *"very high"*. A scenario in which no landfill void space is available is deemed to be unrealistic as outlined in the Future Baseline section above, however, since there is no publicly available information on any potential changes to landfill capacity by the time of the

construction and operation of the Proposed Development, a worst-case scenario is considered (e.g. landfill capacity is assumed to remain the same but a very considerable reduction in capacity cannot be excluded).

12.7.11 The assessment of materials and waste considers the following:

a. Waste producers have a legal duty of care to manage their waste in accordance with regulations and to ensure that any waste leaving the site where it is generated is transferred to a suitably licensed facility for further treatment or disposal;
b. Facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a licence, and impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for these facilities themselves;
c. As part of their planning function, WPAs are required to ensure that sufficient land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA's area, or through export to suitable facilities in other areas; and
d. MPAs are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national and regional supply policies, and local development needs.

Methodology for Determining Construction, Operational (and Maintenance), and Decommissioning Effects

Materials

12.7.12 Effects upon materials during construction, operation (and maintenance) and decommissioning of the Proposed Development are assessed by:

a. establishing the baseline for national and regional availability of key construction materials by weight;
b. assessing the sensitivity of materials as related to the availability and types of materials to be consumed by the Proposed Development in construction, operation (and maintenance) and decommissioning;
c. establishing the quantities of key construction materials required for the construction of the Proposed Development; and
d. comparing the total quantities of key construction materials with the most recent national and regional availability (utilising a percentage approach).

Waste

12.7.13 Effects upon waste during construction, operation (and maintenance) and decommissioning of the Proposed Development is assessed by:

a. establishing the baseline landfill void capacity in the expansive study areas;
b. assessing the sensitivity of landfill void capacity;
c. establishing the quantities of construction, operation (and maintenance) and decommissioning waste to be generated during the construction, operation and decommissioning of the Proposed Development; and
d. comparing the total waste arising from the construction, operation and decommissioning of the Proposed Development against the landfill void capacity (using a percentage approach).

Assessment Criteria

Sensitivity

12.7.14 The sensitivity of materials relates to the availability and type of construction material to be consumed by the Proposed Development during the construction, operation (and maintenance) and decommissioning phases. The ISEP Guidance criteria (Ref 12-1) is described within **Table 12-6.**

Table 12-6: Material Receptor Sensitivity

Sensitivity	Criteria for materials receptor sensitivity
Negligible	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock. And/or are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*
Low	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock. And/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials.
Medium	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock. And/or are available comprising some sustainable features and benefits compared to industry-standard materials.

Sensitivity	Criteria for materials receptor sensitivity
High	On balance, the key materials required for the construction of the Proposed Development are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock. And/or Comprise little or no sustainable features and benefits compared to industry standard materials.
Very High	On balance, the key materials required for the construction of the Proposed Development are known to be insufficient in terms of production, supply and/or stock. And/or Comprise no sustainable features and benefits compared to industry-standard materials.

**Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.*

12.7.15 The sensitivity of waste relates to availability of landfill capacity in the absence of the Proposed Development. As outlined in the ISEP Guidance *"landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste"* (Ref 12-1). The sensitivity of landfill capacity is assessed based on a review of historic landfill void capacity trends where available and information from relevant policy documents.

12.7.16 The criteria described in **Table 12-7** is used to determine the sensitivity of non-hazardous and inert landfill capacity, while **Table 12-8** outlines the criteria for hazardous landfill capacity.

Table 12-7: Non-hazardous and Inert Landfill Capacity Sensitivity

Sensitivity	Criteria for Inert and Non-hazardous landfill capacity sensitivity
Negligible	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-

Sensitivity	Criteria for Inert and Non-hazardous landfill capacity sensitivity
	hazardous landfill capacity is expected to reduce minimally by <1%.
Medium	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to reduce noticeably by 1-5%.
High	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity is expected to reduce considerably by 6-10%.
Very High	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional inert and non-hazardous landfill capacity: is expected to reduce very considerably (by >10%); is expected to end during construction, operation (and maintenance) or decommissioning phases; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.

Table 12-8: Hazardous Landfill Capacity Sensitivity

Sensitivity	Criteria for Hazardous landfill capacity sensitivity
Negligible	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional (or where justified, national) hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.
Low	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional (or where justified, national) hazardous landfill capacity is expected to reduce minimally by <0.1%.
Medium	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional (or where

Sensitivity	Criteria for Hazardous landfill capacity sensitivity
	justified, national) hazardous landfill capacity is expected to reduce noticeably by 0.1-0.5%.
High	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional (or where justified, national) hazardous landfill capacity is expected to reduce considerably by 0.5-1%.
Very High	Across the construction, operation (and maintenance) and decommissioning phases, the baseline/future baseline (i.e. without the Proposed Development) of regional (or where justified, national) hazardous landfill capacity: is expected to reduce very considerably (by >1%); is expected to end during the construction, operation (and maintenance) or decommissioning phase; is already known to be unavailable; or would require new capacity or infrastructure to be put in place to meet forecast demand.

Magnitude

12.7.17 The magnitude of change describes the degree of variation from the baseline conditions as a result of the Proposed Development. The methodology for assessing the magnitude of change on materials comprises a percentage-based approach that determines the influence of construction materials use on the baseline national availability from the construction of the Proposed Development. The criteria used to assess the magnitude of change for materials are provided within **Table 12-9**.

Table 12-9: Materials Magnitude of Change

Magnitude of change	Criteria for materials magnitude of change
No change	Consumption of no materials is required.
Negligible	Consumption of no individual material type is equal to or greater than 1% by volume of the baseline availability.
Minor	Consumption of one or more materials is between 1-5% by volume of the baseline availability.
Moderate	Consumption of one or more materials is between 6-10% by volume of the baseline availability.
Major	Consumption of one or more materials is >10% by volume of the baseline availability.

12.7.18 The methodology for assessing the magnitude of change for waste comprises a percentage-based approach that determines the influence of waste generation from the construction, operation (and maintenance), and decommissioning of the Proposed Development on the baseline landfill capacity. The criteria used to assess the magnitude of change for waste are provided within **Table 12-10** and **Table 12-11**.

Table 12-10: Inert and Non-hazardous Waste Magnitude of Change

Magnitude of change	Criteria for Inert and Non-hazardous waste magnitude of change
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce expansive study area landfill capacity baseline by <1%
Minor	Waste generated by the development will reduce expansive study area landfill capacity baseline by 1-5%
Moderate	Waste generated by the development will reduce expansive study area landfill capacity baseline by 6-10%.
Major	Waste generated by the development will reduce expansive study area landfill capacity baseline by >10%.

Table 12-11: Hazardous Waste Management Magnitude of Change

Magnitude of change	Criteria for Hazardous waste magnitude of change
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce expansive study area landfill capacity baseline by <0.1%
Minor	Waste generated by the development will reduce expansive study area landfill capacity baseline by <0.1-0.5%
Moderate	Waste generated by the development will reduce expansive study area landfill capacity baseline by <0.5-1%.
Major	Waste generated by the development will reduce expansive study area landfill capacity baseline by >1%.

Determining the Significance of Effects

12.7.19 **Table 12-12** describes the effect thresholds used in determining the effects and **Table 12-13** shows the significance of the effect.

Table 12-12: Effect Thresholds

		Magnitude of change				
		No change	Negligible	Minor	Moderate	Major
Sensitivity of receptor	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

12.7.20 Professional judgment will be used to assign a single, specific effect threshold in the event where the matrix in **Table 12-12** presents a range (e.g. slight or moderate)and therefore the magnitude of change will be justified as 'neutral', 'slight' or 'moderate' based on circumstances for each effect.

12.7.21 The evaluation of the significance of an effect is important, as it is the effect significance that determines the resources that should be deployed in avoiding or mitigating a significant adverse effect, or conversely the actual value of a beneficial effect. **Table 12-13** shows the significance of effect is determined based on the magnitude of change outcome for both materials and waste.

Table 12-13: Significance of Effect

Magnitude of change	Materials	Waste
Neutral	Not significant	Not significant
Slight		
Moderate	Significant	Significant
Large		
Very Large		

12.8 Limitations and Assumptions

12.8.1 The material and waste scoping has been undertaken based on information available at the time of writing. Any assumptions made for scoping and the limitations this presents are reported below, including:

a. The detailed design of the Proposed Development is still being developed. Consequently, estimates of material consumption and waste generation are not confirmed at this stage and will be refined as the design and construction methodology develop;
b. It is not possible to reliably forecast the future availability of construction materials; therefore, UK and regional data has been used to establish a quantitative baseline of the consumption of key construction materials which is used as a proxy for availability;
c. Historic and authorised landfills are considered in the assessment since excavations within these sites can generate waste that may require off-site management; and
d. It is not possible to reliably forecast any potential changes to landfill void capacity by the time of the Proposed Development's construction, operation (and maintenance) or decommissioning. Therefore, landfill void capacity is assumed to remain the same as the current baseline as outlined in **Table 12-3**.

12.9 Summary of Elements Scoped In and Out

12.9.1 The scope and methodology of these assessments is described in **Section 12.7**. A summary of the elements proposed to be scoped in and out of the Materials and Waste ES chapter is presented in **Table 14-4** below.

12.9.2 The following matters are proposed to be scoped out of the Materials and Waste assessment:

a. Waste arising and material use from extraction, processing and manufacture of construction components and products has been scoped out of this assessment. This assumes that these products and materials are being produced in manufacturing facilities including quarries with their own waste management plans, planning and permitting permissions, facilities, and supply chains, which are potentially in different regions of England, the UK or the world, and therefore outside of the geographical scope of this assessment;
b. Environmental effects associated with the management of waste from the Proposed Development, e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste, are addressed separately where relevant in other chapters of the ES;
c. Environmental effects associated with the operation of off-site waste management facilities used by the Proposed Development in construction, operation and maintenance, and decommissioning. These environmental

effects are considered as part of the planning and permitting process for these facilities themselves;

d. Direct effects on safeguarded mineral sites. There are no safeguarded mineral sites within the EIA Scoping Site Boundary; and

e. Changes in the availability of materials due to the materials required for the solar panels. Unlike other construction materials covered by the assessment (e.g. aggregates, asphalt, etc.), solar PV modules, battery units and associated electrical equipment are manufactured products procured through national and international supply chains. Their availability is principally a commercial and procurement matter that responds to market demand and manufacturing capacity, rather than finite environmental resource that could be materially depleted by the Proposed Development.

12.9.3 Due to the limitation on information available at this stage, and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, waste generation and material use during the construction, operation (and maintenance), and decommissioning (changes in available landfill void capacity and changes in availability of materials) of the Proposed Development is scoped into the assessment.

Table 12-14: Elements scoped in and out of the Materials and Waste assessment

Element	Scoped In / Scoped Out
Changes in available landfill void capacity.	**Scoped in** - Due to the limitation on design information available at this stage, and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, waste generation during the construction, operation (and maintenance), and decommissioning (changes in available landfill void capacity) of the Proposed Development is scoped in to the assessment.
Changes in availability of materials (steel, aggregates, sand and gravel, asphalt, and ready-mixed concrete)	**Scoped in** - Due to the limitation on design information available at this stage, and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, material use during the construction, operation (and maintenance), and decommissioning (changes in availability of materials) of the Proposed Development is scoped into the assessment.
Changes in availability of materials (solar PV modules, battery units, and other associated electrical equipment)	**Scoped out** - Unlike other construction materials covered by the assessment (e.g. aggregates, asphalt etc.), solar PV modules, battery units and associated electrical equipment are manufactured products procured through national and international supply

Element	Scoped In / Scoped Out
	chains. Their availability is principally a commercial and procurement matter that responds to market demand and manufacturing capacity, rather than finite environmental resource that could be materially depleted by the Proposed Development.
Waste arising from extraction, processing, and manufacture of construction components and products.	**Scoped out** - Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.
Environmental impacts associated with the management of waste from the Proposed Development, e.g. on water resources, air quality, noise, or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste.	**Scoped out** - Environmental effects associated with the management of waste from the Proposed Development e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant sections.
Environmental impacts associated with the operation of offsite waste management facilities used by the Proposed Development in construction, operation and maintenance, and decommissioning.	**Scoped out** - Environmental effects are considered as part of the planning and permitting process for these facilities themselves.
Changes to safeguarded mineral sites.	**Scoped out** - There are no mineral safeguarding sites within the EIA Scoping Site Boundary.
Changes to waste sites.	**Scoped in** - There is a strategic waste management site allocation within Grid Connection Corridor A at Dollymans Farm) but at the time of writing no waste site application exists (Ref 12-40). Additionally, there is a permitted waste site within Grid Connection Corridor A at CM0 7NE (see 12.5.14) (Ref 12-40). As a conservative approach, the changes to these sites have been scoped in and the potential effects will be further discussed in the ES. However, the scoping in/out will be kept under review.

12.10 References

Ref 12-1 IEMA (now ISEP) (2020). Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach. Available at: https://www.isepglobal.org/media/0t5fwyhj/iemamaterials-and-waste-in-eia-march-2020.pdf. Accessed: October 2026

Ref 12-2 Ministry of Housing, Communities and Local Government (MHCLG) (Dec 2024, updated 2025) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf Accessed: October 2026

Ref 12-3 The European Parliament and the Council of the European Union (2008). Directive 2008/98/EC of the European parliament and of the council of 19 November 2008 on waste and repealing certain directives. Available at: https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=celex%3A32008L0098. Accessed: October 2026

Ref 12-4 Environment Agency (2026). 2024 Waste Data Interrogator, 2024 Waste Summary Tables for England – Version 1. Available at: https://www.data.gov.uk/dataset/81f9d676-e77c-4d68-ab0c-b67e0b0b353e/2024-waste-data-interrogator Accessed: October 2026

Ref 12-5 DEFRA (2010). A Strategy for Hazardous Waste Management in England. Available at: https://www2.richmond.gov.uk/docs/arlington/CDE10_hazardous_waste_strategy_england_2010.pdf Accessed: October 2026

Ref 12-6 Environmental Protection Act 1990 (as amended). Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed: October 2026)

Ref 12-7 Hazardous Waste (England and Wales) Regulations 2005 (as amended). Available at: https://www.legislation.gov.uk/uksi/2005/894/contents. Accessed: October 2026

Ref 12-8 The Waste (England and Wales) Regulations 2011 (as amended). Available at: https://www.legislation.gov.uk/uksi/2011/988/contents. (Accessed: October 2026

Ref 12-9 The Environmental Permitting (England and Wales) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents Accessed: October 2026

Ref 12-10 Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents Accessed: October 2026

Ref 12-11 The Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/uksi/2019/620/made Accessed: October 2026

Ref 12-12 UK Gov. (2020) The Waste (Circular Economy) (Amendment) Regulations 2020. Available at https://www.legislation.gov.uk/uksi/2020/904/made Accessed: October 2026

Ref 12-13 The Waste Batteries and Accumulators (Amendment) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/1935. Accessed: October 2026

Ref 12-14 The Waste Electrical and Electronic Equipment Regulations 2013. Available at: https://www.legislation.gov.uk/uksi/2013/3113 Accessed: October 2026

Ref 12-15 Department for Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 12-16 MHCLG and DLUHC (2014). Planning Policy for Waste. Available at: https://www.gov.uk/government/publications/national-planning-policy-for-waste Accessed: October 2026

Ref 12-17 DEFRA (2021). The Waste Management Plan for England. Available at: https://www.gov.uk/government/publications/waste-management-plan-for-england-2021 Accessed: October 2026

Ref 12-18 HM Government, A Green Future: Our 25 Year Plan to Improve the Environment (2018). Available at: https://assets.publishing.service.gov.uk/media/65fd713d65ca2f00117da89e/CD1.H_HM_Government_A_Green_Future_Our_25_Year_Plan_to_Improve_the_Environment.pdf Accessed: October 2026

Ref 12-19 DEFRA (2018). Our Waste, Our Resources: A Strategy for England. Available at: https://assets.publishing.service.gov.uk/media/5c18f11740f0b60bbee0d827/resources-wastestrategy-dec-2018.pdf. Accessed: October 2026

Ref 12-20 DEFRA (2023). The Waste Prevention Programme for England: Maximising Resources, Minimising Waste. Available at:

https://www.gov.uk/government/publications/wasteprevention-programme-for-england-maximising-resources-minimising-waste/the-wasteprevention-programme-for-england-maximising-resources-minimising-waste. Accessed: October 2026

Ref 12-21 DEFRA (2025). Environmental Improvement Plan (EIP) 2025. Available at: https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025 Accessed: October 2026

Ref 12-22 Essex County Council (2014) Essex Minerals Local Plan. Available at https://www.essex.gov.uk/planning-land-and-recycling/planning-and-development/minerals-and-waste-planning-policy/existing Accessed: October 2026

Ref 12-23 Essex County Council (2017) Essex and Southend-on-Sea Waste Local Plan. Available at https://www.essex.gov.uk/planning-land-and-recycling/planning-and-development/minerals-and-waste-planning-policy/waste-local Accessed: October 2026

Ref 12-24 Basildon Borough Council (2024) Basildon Borough Draft Local Plan. Available at https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca3/media-upload/Basildon%20Borough%20Draft%20Local%20Plan%202023%20-%202043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026

Ref 12-25 Chelmsford City Council (2020) Chelmsford Adopted Local Plan. Available at https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 12-26 Maldon District Council (2017) Maldon District Local Development Plan. Available at https://www.maldon.gov.uk/homepage/7031/emerging_local_plan/ Accessed: October 2026

Ref 12-27 Rochford Council (2014) Rochford District Development Management Plan, Available at https://www.rochford.gov.uk/development-management-plan Accessed: October 2026

Ref 12-28 Rochford Council (2011) Rochford District Core Strategy, Available at https://www.rochford.gov.uk/core-strategy Accessed: October 2026

Ref 12-29 MHCLG (2014). Planning Policy Guidance for Minerals. Available at: https://www.gov.uk/guidance/minerals. Accessed: October 2026

Ref 12-30 MHCLG (2024). Planning Policy Guidance for Waste. Available at: https://www.gov.uk/government/collections/planning-practice-guidance. Accessed: October 2026

Ref 12-31 Contaminated Land: Applications in Real Environments (CL:AIRE) (2011). Definition of Waste: Development Industry Code of Practice (DoW CoP). Available at: https://claire.co.uk/component/phocadownload/file/212-initiatives.html?Itemid=230. Accessed: October 2026

Ref 12-32 Waste & Resources Action Programme (WRAP) (2010). Designing out Waste: A design team guide for civil engineering. Available at: https://build360.ie/wpcontent/uploads/2023/01/WRAP_DoW_Civil_Engineering.pdf. Accessed: October 2026

Ref 12-33 DEFRA and Environment Agency (2018). Waste duty of care code of practice. Available at: https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice. Accessed: October 2026

Ref 12-34 DEFRA (2011). Guidance on Applying the Waste Hierarchy. Guidance on Applying the Waste Hierarchy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf. Accessed: October 2026

Ref 12-35 Mineral Products Association (MPA) (2025). Profile of the UK Mineral Products Industry (2025 Edition). Available at: https://mineralproducts.org/Facts-and-Figures/Profile-of-the-UK-Mineral-Products-Industry.aspx. Accessed: October 2026

Ref 12-36 Mouchel (2012). Minerals Safeguarding Areas for Essex: Mineral Safeguarding Areas Rationale Report. Available at https://www.essex.gov.uk/sites/default/files/2024-01/Mineral%20Safeguarding%20Areas%20Rationale%20Report%20%282012%29.pdf Accessed: October 2026

Ref 12-37 Essex County Council (2017). Essex and South-end on Sea Waste Local Plan: Waste Policies Map. Available at https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/4OteTNJawrCl0X7RZLd17m/7803de7636beb4738cc7919503e602dc/waste-policies-map.pdf Accessed: October 2026

Ref 12-38 Environment Agency (2026). Permitted Waste Sites - Authorised Landfill Site Boundaries. Available at: https://www.data.gov.uk/dataset/ad695596-d71d-4cbb-8e3299108371c0ee/permitted-waste-sites-authorised-landfill-site-boundaries1. Accessed: October 2026

Ref 12-39 Environment Agency (2026). Permitted Waste Sites – Historic Landfill Site Boundaries. Available at: https://www.data.gov.uk/dataset/17edf94f-6de3-4034-b66b-004ebd0dd010/historiclandfill-sites1. Accessed: October 2026

Ref 12-40 Environment Agency (2026). Environmental Permitting Regulations - Waste Sites. Available at: https://www.data.gov.uk/dataset/e2cc8101-d8b7-434d-a26a-9115061bb57c/environmentalpermitting-regulations-waste-sites1 Accessed: October 2026

Ref 12-41 DEFRA (2023). UK Statistics on Waste. Available at: https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste. Accessed: October 2026

Ref 12-42 WRAP (undated). Waste Recovery Quick Wins - Improving Recovery Rates Without Increasing Costs. Available at: https://www.environmental-expert.com/articles/waste-recovery-quickwins-improving-recovery-rates-without-increasing-costs-21516 Accessed: October 2026

Ref 12-43 UK Steel (2026). Key Statistics Guide 2026. Available at https://www.uksteel.org/reports-and-publications Accessed: October 2026

Ref 12-44 Environment Agency (2026). Register of Waste Exemptions. Available at: https://www.data.gov.uk/dataset/fe546d38-408d-4275-8e74-55e197c6f11a/waste-exemptions Accessed: October 2026

Ref 12-45 Essex County Council (2014) Essex Minerals Local Plan: Policies Map. Available at https://www.essex.gov.uk/planning-land-and-recycling/planning-and-development/minerals-and-waste-planning-policy/existing Accessed: October 2026

13. Noise and Vibration

13.1 Introduction

13.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects associated with noise and vibration during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the noise and vibration chapter of the Environmental Statement (ES).

13.1.2 This chapter is supported by the following figure:

a. **Figure 13-1: Noise and Vibration Study Areas**.

13.1.3 This chapter considers noise and vibration effects on human receptors and therefore excludes assessment of noise and vibration on ecological or heritage receptors. In-combination effects on local heritage or ecological receptors due to the introduction of the Proposed Development are considered in **Chapter 9: Cultural Heritage** and **Chapter 10: Ecology and Biodiversity**.

13.2 Study Area

13.2.1 Study areas have been defined to include construction, decommissioning and operational noise and vibration receptors likely to be at risk from possible direct and indirect impacts that might arise from the Proposed Development.

13.2.2 For construction and decommissioning noise effects from the Proposed Development, the area for which impacts are expected is based on guidance in BS 5228-1 (Ref 13-1), which states that construction noise predictions are generally reliable up to 300m. As such, the construction and decommissioning noise study area is set at a distance of 300m from the EIA Scoping Site.

13.2.3 BS 5228-1 does not contain any information on distances that construction vibration should be assessed up to. As such, reference is made to Design Manual for Roads and Bridges (DMRB) LA 111 (Ref 13-2), which identifies a distance of 100m as sufficient to encompass vibration sensitive receptors. As such, the construction and decommissioning vibration study area is set at a distance of 100m from the EIA Scoping Site.

13.2.4 The study area for operational Battery Energy Storage System (BESS) and Main On-Site Substation noise is set at 1km, which is based on the distance that the

International Organisation for Standardisation (ISO) 9613-2 (Ref 13-3) calculation methodology is valid to. The study area for operational inverter, Collector Substation(s) and 400kV OHL noise is a distance of 500m from the EIA Scoping Site, which is based on experience of these noise sources from previous solar farm projects.

13.2.5 A study area of 50m either side of construction traffic routes has been defined based on guidance in the DMRB LA111.

13.2.6 The study areas for the Proposed Development are illustrated in **Figure 13-1: Noise and Vibration Study Areas**. A final study area and list of receptors will be defined through the EIA assessment process and consultation with key stakeholders including Essex County Council in its capacity as the Local Highway Authority, Basildon Borough Council, Chelmsford City Council, Maldon District Council and Rochford District Council, as appropriate. This is to allow flexibility on potentially affected receptors given assessment calculation outcomes.

13.3 Legislation, Planning Policy Context and Guidance

13.3.1 Legislation, planning policy and guidance relating to noise and vibration and pertinent to the Proposed Development is listed in this section.

Legislation

13.3.2 Relevant legislation includes:

a. Control of Pollution Act (CoPA) 1974 (Ref 13-4) - requires that Best Practicable Means (BPM) (as defined in section 72 of CoPA) are adopted to control construction noise on any given site as far as reasonably practicable; and
b. Environmental Protection Act 1990 (Ref 13-5) prescribes noise and vibration emitted from premises (including land) so as to be prejudicial to health or a nuisance as a statutory nuisance.

National Planning Policy

13.3.3 The following planning policies from relevant National Policy Statements (NPS) have been considered as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (2025) (Ref 13-6) sets out national policy for energy. Reference will be made to Section 5.12 in relation to the assessment of noise and vibration.
b. NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 13-7) identifies in paragraph 2.5.2 that good design should be adopted to mitigate noise. It sets out the potential for impacts relating to noise and vibration generated by construction traffic and transport in paragraphs 2.10.112 – 2.10.118 and operational traffic in paragraphs 2.10.153 to 2.10.154.
c. NPS for Electricity Networks Infrastructure (EN-5) (adopted 2025) (Ref 13-8), taken together with NPS EN-1, provides the primary basis for decisions taken by the Secretary of State (SoS) on applications it receives for the categories of nationally significant electricity networks infrastructure included within it. Reference will be made to Section 2.9 and paragraphs 2.9.27 to paragraph 2.9.44 where relevant which relates to noise from substation equipment and OHL.
d. The National Planning Policy Framework (NPPF) (Updated August 2026) (Ref 13-9) contains the government's planning policies relating to noise in Policy P1 and Policy P3 of Chapter 17 Pollution, Public Protection and Security.
e. The Noise Policy Statement for England (NPSE) (2010) (Ref 13-10) sets out the long-term vision of the government's noise policy. The NPSE sets definitions for 'significant adverse effects' and 'adverse effects' using the concepts:

    i. Lowest Observed Adverse Effect Level (LOAEL) – the level above which, as an average response, adverse effects on health and quality of life can be detected; and
    ii. Significant Observed Adverse Effect Level (SOAEL) – the average response level above which, significant adverse effects on health and quality of life occur.

13.3.4 Other relevant national planning and guidance includes:

a. Planning Practice Guidance Noise (2019) (Ref 13-11) provides guidelines that are designed to assist with the implementation of the noise requirements set out in the NPSE.

Local Planning Policy

13.3.5 The Proposed Development lies within the jurisdiction of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and

Essex County Council. The following local planning documents are of relevance to the Noise and Vibration assessment:

a. Essex County Council

   i. Essex County Council - there are no planning policies relevant to the noise and vibration assessment.

b. Basildon Borough Council

   i. Basildon Borough Draft Local Plan (Emerging) 2023 – 2043 (Ref 13-12) Policy AQMP1 aims to prevent significant adverse effects as a result of noise and/or vibration levels resulting in disturbance for occupiers or users of any nearby property or land.

c. Chelmsford City Council

   i. Local Plan: Our Planning Strategy 2013 to 2036 (Ref 13-13) Policy DM29 aims to ensure development does not result in unacceptable levels of noise.

d. Maldon District Council

   i. Local Development Plan 2014 – 2029 (Ref 13-14) Policy D1 aims to protect the amenity of surrounding areas taking into account noise among other factors.

e. Rochford District Council

   i. Draft Rochford Local Plan - Regulation 18 – February 2026 (Ref 13-15) Policy SC5 aims to prevent adverse effects from noise and vibration by minimising noise impacts and protecting tranquillity in open spaces.

Relevant Industry Guidance

13.3.6 Relevant industry guidance includes:

a. British Standards (BS) 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Part 1 (Noise) (BS 5228-1) & Part 2 (Vibration) (BS 5228-2);
b. British Standards (BS) 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound (BS 4142) (Ref 13-16);
c. British Standard (BS) 7445-1:2003 – 'Description and measurement of environmental noise – Part 1: Guide to quantities and procedures' (BS 7445) (Ref 13-17);
d. IEMA (now ISEP) Guidelines for Environmental Noise Impact Assessment, 2014 (Ref 13-18);

e. Calculation of Road Traffic Noise (CRTN) (Ref 13-19); and
f. Design Manual for Road and Bridges (DMRB) LA 111 Noise and Vibration.

13.4 Consultation

13.4.1 Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with statutory parties including Basildon Borough Council, Chelmsford City Council, Maldon District Council and Rochford District Council, as appropriate.

13.5 Baseline Conditions

13.5.1 This section describes the baseline environmental characteristics for the EIA Scoping Site and surrounding areas with specific reference to noise and vibration.

Sources of Information

13.5.2 The noise and vibration baseline conditions have been determined by a desk study of available information.

Desk Study

13.5.3 Sources used to inform the EIA Scoping Report comprise:

a. Google Earth (Ref 13-20); and
b. Defra Noise Maps Rounds 3 & 4 (Ref 13-21).

Surveys

13.5.4 Following submission of the EIA Scoping Report, further assessments will be undertaken to inform the noise baseline:

a. Sensitive receptors will be identified using Ordnance Survey AddressBase Plus data. Baseline sound monitoring will be undertaken at selected locations to define representative baseline data at noise-sensitive receptors in the study areas. The monitoring procedures will follow guidance from BS 7445 and BS 4142;
b. Unattended monitoring for a minimum period of one-week will be undertaken to define baseline sound conditions at representative sensitive receptors within the study area;
c. A weather station will also be installed for the duration of the sound surveys so any periods of adverse weather conditions can be identified and omitted from noise data; and
d. Prior to undertaking the baseline sound survey, a detailed methodology will be prepared and consulted on with the Local Authorities listed under

13.3.5. The methodology will also include details on the study area and sensitive receptors for consultation.

13.5.5 Magnitude of impact for vibration effects will be determined with absolute limits as outlined in **Table 13-3**. Therefore, a vibration baseline survey will not be required.

Baseline Information

13.5.6 All sources of noise contributing to the prevailing ambient environment within the associated buffer zones of the Energy Park, Connection and Access Corridors, Grid Connection Corridor B-D and the eastern portion of Grid Connection Corridor A (Bradwell-Rayleigh Overhead Line) are likely to be minor; comprised of road traffic on small local roads, rail operations on the Crouch Valley line and localised agricultural and industrial activity.

13.5.7 The primary sources of existing noise within the western and southwestern portion of the Grid Connection Corridor A buffer zone are likely to be major road noise from nearby A roads such as the A130, A132, A127 and A1245, rail operations on the Shenford-to-Southend line and industrial, commercial and residential activity noise sources through Wickford and Rayleigh.

13.5.8 When defining the existing baseline, DEFRA Round 4 (2022) strategic noise maps have been referenced. The majority of the EIA Scoping Site is located away from major road or rail routes, but Grid Connection Corridor A passes close to major roads.

13.5.9 Noise Important Areas (NIAs) are locations identified as being most affected by high levels of environmental noise. They contain the top 1% of the population exposed to high levels of noise.

13.5.10 The EIA Scoping Site passes through the following road NIAs, all of which are associated with roads for which Essex County Council is the relevant highway authority:

a. 5638 East of the A1245/A127 roundabout;
b. 5639 South of the A129/A1245 roundabout;
c. 5678 North-east of Battlesbridge on the A132/A1245 roundabout;
d. 13471 East of the A1245/A129; and
e. 13472 on the A1245/A127 roundabout.

13.6 Potential Effects and Mitigation

13.6.1 This section sets out the potential noise and vibration effects of the Proposed Development. Mitigation measures relevant to noise and vibration are set out

below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

13.6.2 If not mitigated, noise and vibration effects may occur as a result of works activities associated with site preparation, plant installation, Main On-Site Substation and Collector Substation(s) construction, cable laying including Horizontal Directional Drilling (HDD), repowering and construction of OHL equipment, and construction-related vehicle movements within the EIA Scoping Site.

13.6.3 Construction traffic movements on public roads have the potential to cause temporary noise disturbance. It is therefore important that the routing and timing of vehicle movements is carefully managed. However, any increases in road traffic noise levels during construction works will be temporary, short term, and dependent on the actual number of traffic movements.

13.6.4 Construction traffic can cause vibration on poorly maintained road surfaces. DMRB LA 111 states that road traffic vibration should be scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so road traffic vibration will not have the potential to lead to significant adverse effects. This implies that a well-maintained road surface would not result in adverse levels of traffic induced vibration at sensitive receptors. It is assumed that Essex County Council maintain good quality conditions. Should defects such as potholes be found adjacent to receptors prior to or during construction, a discussion would be initiated with Essex County Council requesting the timely repair of any defects. This is due to the potential for vibration annoyance at receptors if in very close proximity to road defects such as potholes. Therefore, no significant construction traffic vibration effects are expected, and an assessment of construction traffic vibration has been scoped out of the assessment.

Operation

13.6.5 During the operation of the Proposed Development the following adverse noise and vibration impacts have the potential to occur if not mitigated:

a. The potential noise effects during operation of the Proposed Development are likely to include noise from the Energy Park (e.g. inverters, transformers, BESS, On-Site Substations), 400kV OHLs, and any associated vehicle movements;

b. Other equipment such as the Solar PV Panels, and potential underground cabling (both in the Grid Connection Corridors and Connection and Access Corridors) will not produce any operational noise emissions;
c. Moving parts in the Proposed Development's identified equipment are restricted to cooling fans and tracker motors, which generate low levels of vibration that would not be perceptible off-site. As such, there will be no associated operational vibration effects and operational vibration is scoped out of any further assessment; and
d. Repowering activities would include the replacement of equipment such as Solar PV Panels and BESS when required. These works may include use of plant that would generate temporary noise and vibration that may be perceptible off-site along with associated traffic on local roads. Plant and traffic associated with replacement activities will be no greater than construction-phase.

Decommissioning

13.6.6 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that the Grid Connection Corridor and Connection and Access Corridor cabling may be left in situ.

Mitigation

13.6.7 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation approach will be taken into account when evaluating the significance of the potential effects of the Proposed Development.

Construction

13.6.8 Measures to control noise as defined in Annex B of BS 5228-1 and measures to control vibration as defined in Section 8 of BS 5228-2 will be adopted where reasonably practicable.

13.6.9 Adoption of the noise and vibration control measures identified in BS 5228 constitutes Best Practicable Means (BPM) (as defined by section 72 of CoPA 1974) to manage noise and vibration emissions from construction activities. Examples of BPM that may be implemented during construction works are presented below:

a. Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use;
b. Appropriate routing of construction traffic on public roads and along access tracks;
c. Drop heights of materials will be minimised;
d. Plant and vehicles will be sequentially started up rather than all together;
e. Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas; and
f. Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturer's specifications.

13.6.10 Embedded measures relevant to the construction phase will be described within an Outline Construction Environmental Management Plan (CEMP) (to be submitted with the DCO Application), which will be developed into a detailed CEMP by the Principal Contractor prior to the start of construction.

Operation

13.6.11 Embedded mitigation measures that will be applied for the operational phase of the Proposed Development are summarised as follows:

a. The Site layout shall be designed in such a way that minimises noise at sensitive receptors, including locating inverters, transformers, BESS plant, substations and new OHL equipment in areas away from large concentrations of receptors, such that noise emissions are less impactful; and
b. Selection of plant with consideration to noise emission level.

13.6.12 Embedded measures relevant to the operational phase will be described within an Outline Operational Environmental Management Plan (OEMP), to be submitted with the DCO Application. The Outline OEMP will be developed and implemented into a detailed OEMP prior to the start of commissioning and will further include any additional mitigation if required.

Decommissioning

13.6.13 The decommissioning phase would apply similar design and mitigation measures as the construction phase. an Outline Decommissioning Environmental Management Plan (DEMP) will be prepared and submitted with the DCO Application. The Outline DEMP will be developed and implemented into a detailed DEMP prior to the start of decommissioning and will further include any additional mitigation if required.

13.7 Assessment Methodology

13.7.1 The assessment of potential noise and vibration effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) will be undertaken using the methodology set out below.

13.7.2 A new source of noise is assessed through the absolute noise level it generates at sensitive receptors and, in the case of operational noise, relative to the existing background sound level at the receptor. Where an exceedance of the defined SOAEL for each noise source occurs, it is an indication of a likely significant effect. However, where an existing noise source is changed (i.e. construction traffic changing road traffic noise levels), the assessment of the effect level due to the change in noise refers to guidance within the IEMA Guidelines for environmental noise impact assessment.

13.7.3 Potential impacts of the Proposed Development on noise and vibration will be assessed by:

a. Considering the existing (baseline) status of noise and vibration within the EIA Scoping Site and relevant surrounds with respect to construction, operation (and maintenance) and decommissioning;
b. Identifying potential impacts of the Proposed Development on noise and vibration during the construction, operational and maintenance, and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to offset adverse impacts (i.e. embedded mitigation) where possible; and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

Sensitivity

13.7.4 Government policy for noise is based on community exposure response relationships and noise insulation of a typical dwelling. Consequently, an assessment based on LOAELs and SOAELs cannot be applied to non-residential sensitive receptors (such as places of worship and Public Rights of Way (PRoW)). As such, the approach to the assessment of non-residential receptors differs from that adopted for residential receptors. Non-residential receptors are considered on a case-by-case basis by considering the applicable acoustic conditions. The methodology for assessing noise and vibration effects at non-residential receptors will be discussed and agreed with the Council Officers after submission of Scoping.

13.7.5 **Table 13-1** provides examples of residential and non-residential noise-sensitive receptors to be considered within the noise and vibration impact assessment.

Table 13-1: Receptor Types

Receptor Group	Receptors in Group
Residential	Individual dwellings and private open spaces (e.g. gardens)
Non-Residential	Non-residential locations such as: a. Educational establishments b. Hospitals and care homes c. Libraries d. Auditoriums e. Places of worship f. Offices g. Indoor and Outdoor community facilities h. Designated sites valued for their tranquillity

Magnitude

Construction Noise

13.7.6 Noise and vibration levels associated with construction and decommissioning works will be assessed at representative sensitive receptors. Annex E of BS 5228-1 provides example methods for the assessment of the significance of construction noise effects. With reference to the NPSE, the LOAEL, and SOAEL thresholds have been set in **Table 13-2**.

Table 13-2: Thresholds of Potential Effects of Construction and Decommissioning Noise at Residential Receptors

Time Period	Threshold Value ($L_{Aeq,T}$ dB)	
	LOAEL	SOAEL
Daytime **Weekdays (07:00 – 19:00)** **Saturday (07:00 – 13:00)**	65	75
Evening **Weekdays (19:00 – 23:00)** **Saturday (13:00 – 23:00)** **Sundays and Bank Holidays (07:00 – 23:00)**	55	65
Night (23:00 – 07:00)	45	55

Construction Vibration

13.7.7 **Table 13-3** details Peak Particle Velocity (PPV) levels (a standard measure of vibration effects) and their potential effect on humans based on guidance from BS 5228-2.

13.7.8 At receptors where vibration levels above the SOAEL are predicted, further consideration of whether an effect is significant is undertaken using professional

judgement, taking account of the duration and frequency of the effect, as well as the time of day that the effect would be experienced.

13.7.9 In addition to human annoyance, building structures may be damaged by high levels of vibration. The levels of vibration that may cause building damage (as set out in Annex B of BS 5228-2) are far in excess of those that may cause annoyance. Consequently, if vibration levels are controlled to those specified by annoyance, then it is highly unlikely that buildings will be damaged by construction vibration.

Table 13-3: Construction Vibration Assessment Criteria

Effect Level	PPV Vibration Level	BS 5228-2 Description of Impact
LOAEL	0.3mm/s	Vibration might be just perceptible in residential environments.
SOAEL	1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint, but it can be tolerated if prior warning and explanation has been given to residents.

Operational Noise

13.7.10 The impact of the proposed operational plant, such as noise from the On-Site Substations, inverters, BESS and any associated plant items will be assessed following guidance from BS 4142. Reference is also made to the Association of Noise Consultants (ANC) Guide to BS 4142 (Ref 13-22), BS 8233:2014 Guidance (Ref 13-23) on sound insulation and noise reduction for buildings and the World Health Organization (WHO) 'Guidelines for Community Noise' (1999) (Ref 13-24) when defining minimum values for LOAEL and SOAEL.

13.7.11 The assessment criteria for noise from fixed plant installations are summarised in **Table 13-4**. The assessment will be based on available information on the operating conditions and the levels of noise generated by the plant.

Table 13-4: Operational Noise Assessment Criteria

Effect Level	Rating Level (External) at Receptor ($L_{Ar,Tr}$)	
	Daytime (07:00-19:00) and Evening (19:00 – 23:00)	Night-time (23:00 – 07:00)
LOAEL	Equal to the typical background sound level ($L_{A90,T}$) – minimum of 35 dB $L_{Ar,Tr}$	Equal to the typical background sound level ($L_{A90,T}$) – minimum of 30 dB $L_{Ar,Tr}$
SOAEL	10 dB above the background sound level – minimum of 45 dB $L_{Ar,Tr}$	10 dB above the background sound level – minimum of 40 dB $L_{Ar,Tr}$

Construction and Decommissioning Traffic Noise

13.7.12 The temporary changes in road traffic noise levels along the local road network due to construction and decommissioning traffic will be assessed with reference to DMRB LA111 criteria. Assessment criteria are presented in **Table 13-5**, which is an adaption of Table 3.17 in DMRB LA111 (Ref 13-2). Typically, moderate and major impacts would be lead to significant effects.

Table 13-5: Construction and Decommissioning Traffic Noise Magnitude of Impact Criteria

Impact Level	Magnitude Criteria
Negligible	≥ 0 dB and < 1 dB
Minor	≥ 1 dB and < 3 dB
Moderate	≥ 3 dB and < 5 dB
Major	≥ 5 dB

13.8 Limitations and Assumptions

13.8.1 The final location and layout of certain elements of infrastructure (including the Connection and Access Corridors and the Grid Connection Corridors, construction methodologies and mitigation) have not yet been determined.

13.8.2 Baseline monitoring locations will be selected such that they are representative of nearby sensitive receptors and allow for the data collected to inform reasonable worst-case scenario(s) for assessment purposes. In some instances, there may be constraints on access and where equipment can be safely left unattended so an alternative proxy location would be required to provide representative baseline sound data. In this case, all efforts will be made to find a suitable representative location with a similar sound environment to the associated sensitive receptor(s).

13.8.3 Consultation with the relevant local authorities mentioned in paragraph 13.3.5 on monitoring locations will be undertaken after EIA Scoping.

13.8.4 Any measurement of existing ambient or background sound levels will be subject to a degree of uncertainty. Environmental sound levels vary between days, weeks, and throughout the year due to variations in source levels and conditions, meteorological effects on sound propagation, and other factors. Hence, any measurement survey can only provide a sample of the ambient levels, and a small degree of uncertainty will always remain in the values taken from such a measurement survey. The proposed unattended period of a minimum of seven days is considered appropriate for reducing uncertainties that may occur due to variations in diurnal noise levels.

13.8.5 Every effort will be made to ensure that measurements are undertaken in such a way as to provide a representative sample of conditions, such as avoiding periods of adverse weather conditions, and school holiday periods (which are often considered to result in atypical sound levels). Consequently, the level of uncertainty in measurements will be reduced as far as reasonably practicable.

13.8.6 Noise and vibration effects during the decommissioning phase of the Proposed Development will be similar to or less than noise and vibration effects during the construction phase due to the type of plant that will be used. The noise assessment presented for the construction phase will therefore be considered representative, or an overestimate, of the decommissioning phase.

13.8.7 Construction works noise levels will be predicted following guidance from BS 5228-1 which provides a realistic estimate of sound propagation from construction plant. The predictions will use representative noise levels, sourced from industry standard guidance documents such as BS 5228-1, for typical items of plant that are used in such developments.

13.8.8 Construction phase vibration will be assessed based on historic vibration measurement data from relevant guidance documents including BS 5228-2 and Transport Research Laboratory (TRL) Report 429 (Ref 13-25).

13.8.9 Predictions of operational plant and activities sound pressure levels will be undertaken following guidance from the ISO 9613-2:2024 'Attenuation of sound during propagation outdoors' (Ref 13-26), which as a calculation method contains some inherent uncertainty. The standard however assumes a moderate downwind propagation, and hence could be considered as a worst-case calculation.

13.9 Summary of Elements Scoped In and Out

13.9.1 A summary of the elements scoped in and out of the Noise and Vibration ES chapter is presented in **Table 13-6**.

Table 13-6: Elements scoped in and out of the Noise and Vibration assessment

Element	Scoped In / Scoped Out
Noise and vibration levels associated with construction works	**Scoped in**: temporary noise and vibration emissions from construction works may adversely impact on sensitive receptors.
Noise and vibration levels associated with decommissioning works	**Scoped in**: temporary noise and vibration emissions from decommissioning works may adversely impact on sensitive receptors.
Operational noise	**Scoped in**: permanent noise emissions from the Energy Park, Connection and Access Corridors and Grid

Element	Scoped In / Scoped Out
	Connection Corridors(s) infrastructure may adversely affect nearby sensitive receptors.
Construction traffic noise	**Scoped in**: temporary noise from construction traffic movements may adversely affect receptors near public roads that are part of construction traffic routes.
Decommissioning traffic noise	**Scoped in**: temporary noise from decommissioning traffic movements may adversely affect receptors near public roads that are part of decommissioning traffic routes.
Operational traffic noise	**Scoped out**: operational traffic flows would be minimal and not sufficient to result in a 1 dB increase in noise, which would require a 25% increase in traffic volume.
Construction traffic vibration	**Scoped out**: Similarly to operational traffic vibration, which includes heavy goods vehicles, traffic induced vibration during construction is not considered to generate likely significant effects and is therefore scoped out.
Operational traffic vibration	**Scoped out:** DMRB LA 111 states that operational vibration should be scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so vibration will not have the potential to lead to significant adverse effects.
Decommissioning traffic vibration	**Scoped out**: road traffic can cause vibration; however, DMRB LA 111 states: "*operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effects*." It is assumed that Essex County Council will maintain good quality conditions for highways used to access the EIA Scoping Site. Therefore, an assessment of decommissioning traffic vibration has been scoped out.
Operational vibration	**Scoped out**: no plant that would generate perceptible levels of vibration, such as large compressors, and water pumps, are part of the Proposed Development and, as such, there will be no associated operational vibration effects. It is proposed that operational ground-borne vibration is scoped out of any further assessment.

13.10 References

Ref 13-1 British Standards Institute (2014) BS 5228:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1 (Noise) (BS 5228-1) & Part 2 (Vibration) (BS 5228-2).

Ref 13-2 Highways England (2020); Design Manual for Road and Bridges LA111: Noise and Vibration, Revision 2.

Ref 13-3 International Organisation for Standardisation (2024) ISO 9613-2:2024 Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation.

Ref 13-4 Control of Pollution Act 1974. Available at: https://www.legislation.gov.uk/ukpga/1974/40 Accessed: October 2026

Ref 13-5 Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents Accessed: October 2026

Ref 13-6 Department of Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 13-7 DESNZ National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 13-8 DESNZ National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf Accessed: October 2026

Ref 13-9 Ministry of Housing, Communities and Local Government (MHCLG) (Dec 2024, updated 2026) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/6aabe97844ec1aa417346c0b/National_Planning_Policy_Framework.pdf Accessed: October 2026

Ref 13-10 DEFRA (2010); Noise Policy Statement for England. Available at: https://www.gov.uk/government/publications/noise-policy-statement-for-england Accessed: October 2026

Ref 13-11 MHCLG (2019). National Planning Practice Guidance (NPPG) for Noise. Available at: https://www.gov.uk/guidance/noise--2 Accessed: October 2026

Ref 13-12 Basildon Borough Council (Emerging 2026) Basildon Borough Draft Local Plan 2023 – 2043. Available at: https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca3/media-upload/Basildon%20Borough%20Draft%20Local%20Plan%202023%20-%202043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026

Ref 13-13 Chelmsford City Council (Adopted 2020) Chelmsford Local Plan. Available at: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026

Ref 13-14 Maldon District Council (Adopted 2017) Maldon District Approved Local Development Plan. Available at https://www.maldon.gov.uk/downloads/file/14807/approved_maldon_district_local_development_plan_2014-2029 Accessed: October 2026

Ref 13-15 Rochford District Council (Emerging 2026) Draft Rochford Local Plan Regulation 18. Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 13-16 British Standards Institute (2014) BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound.

Ref 13-17 British Standards Institute (2003) BS 7445-1:2023 – Description and measurement of environmental noise – Part 1: Guide to quantities and procedures.

Ref 13-18 Institute of Environmental Management & Assessment – Guidelines for environmental noise impact assessment (2014)

Ref 13-19 Department of Transport (1988) Calculation of Road Traffic Noise.

Ref 13-20 Google Earth (Accessed 1st September 2026). Satellite imagery of the proposed study areas. Retrieved from https://www.google.com/earth/

Ref 13-21 Department for Environment, Food & Rural Affairs – Road Noise – All Metrics – England Rounds 3 and 4.

Ref 13-22 Association of Noise Consultants BS4142:2014+A1:2019 Technical Note, Version 1.0 March 2020.

Ref 13-23 British Standards Institution (BSI) (2014). BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI Standards Limited, London

Ref 13-24 World Health Organization (1999), Guidelines for Community Noise

Ref 13-25 Hiller, D.M. and Crabb, G. I. (2000) Groundborne Vibration Caused by Mechanised Construction Works. TRL Report 429.

Ref 13-26 International Organisation for Standardisation (ISO) (2024) ISO 9613 Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation. Switzerland: ISO.

14. Socio-economics and Land Use

14.1 Introduction

14.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects on socio-economics and land use during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the socio-economics and land use chapter of the Environmental Statement (ES).

14.1.2 This chapter is supported by Figure 14-1: Socio-economic and Land Use Study Areas.

14.1.3 Socio-economic and land use effects may interact with other environmental topics assessed within the EIA. Interrelationships are anticipated with and this chapter should be read alongside **Chapters 1-6** of this EIA Scoping Report and, where relevant, **Chapter 7: Agriculture and Soils**, **Chapter 9: Cultural Heritage**, **Chapter 11: Landscape and Visual Amenity**, **Chapter 12: Waste and Materials**, **Chapter 13: Noise and Vibration**, **Chapter 15: Traffic and Transport** and **Chapter 17: Other Environmental topics (particularly Air Quality and Human Health)**.

14.2 Study Area

14.2.1 The potential economic and employment impacts of the Proposed Development, both temporary and permanent, will be considered in relation to a key economic area, as defined by Local Planning Authority boundaries; typical travel time from the EIA Scoping Site; and relevant demographic and economic data.

14.2.2 The study area for socio-economic and land use receptors (residential properties, local businesses, visitor attractions relevant for tourism, farming businesses, community facilities, open space, recreational assets and development land) reflects the potential direct and indirect effects of the Proposed Development.

14.2.3 The study area for direct effects is the area within the EIA Scoping Site Boundary, comprising the Energy Park, Connection and Access Corridors and the Grid Connection Corridors, including the extent of receptors beyond this boundary where they are contiguous.

14.2.4 The study area for indirect effects is principally the area within 500m of the EIA Scoping Site Boundary, with community, recreation and tourism receptors considered within a 2km radius. The rationale for assessing potential indirect effects within 500m and 2km is based on professional judgement, the nature of impacts arising from the Proposed Development, and established practice in other comparable NSIPs in England, including solar energy developments. This area is shown in **Figure 14-1: Socio-economic and Land Use Study Areas**. The study area will be reviewed and refined, where necessary, as the Proposed Development evolves and the final EIA Scoping Site Boundary is defined.

14.3 Legislation, Planning Policy Context and Guidance

14.3.1 Legislation, planning policy and guidance relating to socio-economics and land use and pertinent to the Proposed Development is listed in this section.

Legislation

14.3.2 There is no legislation specifically applicable to the assessment of socio-economics and land use.

National Planning Policy

14.3.3 The following planning policies from relevant National Policy Statements (NPS) have been considered as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. NPS EN-1, 2025, (Ref 14-1) with particular reference to paragraphs 4.1.5 and 4.1.6 in relation to adverse effects and benefits, paragraph 4.3.1 in relation to requirements for the content of an Environmental Statement, paragraph 4.3.2, section 5.11 in relation to land use and section 5.13 in relation to socio-economics; and

b. NPS EN-3, 2025, (Ref 14-2) where applicable includes the additional consideration of socio-economic impacts associated specifically with solar photovoltaic generation Proposed Developments and highlights the need to consider effects on public rights of way (PRoW). Paragraph 2.10.61 references the socio-economic benefits of retaining site infrastructure after the operational life of a solar farm, such as retaining pathways through the Site.

14.3.4 Other relevant planning policy and guidance includes

a. The National Planning Policy Framework (NPPF), 2026, (Ref 14-3) with particular reference to Section 6: Building a strong, competitive economy (paragraphs 85-87);
b. PPG (Ref 14-4) with particular reference to guidance on planning and the economy and the potential future needs of the population in terms of economic development, jobs and employment opportunities.

Local Planning Policy and Strategy

14.3.5 The Proposed Development lies within the jurisdiction of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the socio-economics and land use assessment.

Maldon District

14.3.6 The Maldon District Local Development Plan (2014-2029) (Ref 14-13) supports economic prosperity through policies that encourage employment-generating development, investment, skills development and the retention of community facilities. The Plan also supports agricultural and rural diversification, sustainable tourism development and initiatives that enhance local training and educational opportunities.

Basildon Borough

14.3.7 The Basildon Borough Draft Local Plan (2023-2043) (Ref 14-11) promotes growth through a combination of urban densification and urban extensions focused on Basildon, Billericay and Wickford. The Plan also seeks to support employment growth, town centre regeneration, high-quality design and the delivery of mixed-use development that contributes to sustainable communities.

Chelmsford City

14.3.8 The Chelmsford Adopted Local Plan (2013-2036) (Ref 14-12) promotes sustainable development through the integration of economic, social and environmental objectives. The Plan supports economic growth, investment in key sectors including advanced manufacturing, low-carbon and renewable industries, and seeks to reduce deprivation, strengthen local services and encourage collaboration between businesses and higher education institutions to support long-term economic development.

Rochford District

14.3.9 The Draft Rochford Local Plan Regulation 18 (2026) (Ref 14-14) promotes sustainable economic growth through support for employment development, regeneration and alignment with national and local economic strategies. The

Plan also supports tourism development, including green tourism initiatives, recognising their contribution to rural regeneration, investment attraction and the wider economic vitality of the district.

Essex County

14.3.10 Essex County Council's strategic plans, including Our Vision for Essex, the Reforming Essex 100-Day Plan (Ref 14-5) and the Annual Plan (Ref 14-6), seek to support sustainable economic growth, improved productivity, investment, skills development and the delivery of thriving communities across the county.

14.3.11 Essex County Council's economic strategies, including the Sector Development Strategy (Ref 14-7), Skills in Essex (Ref 14-8), Housing Strategy 2021-2025 (Ref 14-9) and Destination Management Plan (Ref 14-10), promote economic growth, workforce development, housing delivery and the enhancement of Essex's visitor economy. The strategies highlight the importance of supporting growth sectors, strengthening skills provision and attracting investment.

Relevant Industry Guidance

14.3.12 Relevant industry guidance includes the Institute of Sustainability and Environmental Professionals (ISEP) guidance Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland (Ref 14-15). The guidance provides a framework for the identification, assessment and evaluation of social effects arising from development proposals, including effects on communities, wellbeing, quality of life, accessibility, recreation and local services. The guidance has been used to inform the proposed scope and methodology for the socio-economics and land use assessment.

14.4 Consultation

14.4.1 Following EIA Scoping, and to inform the ES, targeted consultation with the host Local Planning Authorities (particularly Maldon District Council), Essex County Council and other relevant stakeholders will be undertaken if required to inform baseline data collection and identify any local socio-economic and land use issues that should be considered within the assessment.

14.5 Baseline Conditions

14.5.1 This section describes the existing socio-economic and land use conditions within the study area and surrounding area that may be affected by the Proposed Development.

14.5.2 The description of potential effects, presented within **Section 14.6**, considers the extent to which the Proposed Development may result in changes to existing baseline conditions, drawing on regional and national datasets where appropriate:

a. Population and deprivation;
b. Economic profile and business activity;
c. Labour market characteristics; and
d. Existing land use and development patterns (excluding agricultural land quality, which is considered within **Chapter 7: Agriculture and Soils**).

14.5.3 The Proposed Development lies within the administrative areas of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils, within Essex County. Baseline information is presented for these four local authority areas and compared, where appropriate, with the East of England region and at a national scale, England.

Sources of Information

Desk Study

14.5.4 A high-level summary of baseline conditions has been presented in the following paragraphs, based upon review of the following data sources:

a. Office for National Statistics (ONS), 2011 Census (Ref 14-16) and 2021 Census data (Ref 14-17);
b. Ministry of Housing, Communities and Local Government, (2025); English indices of deprivation (Ref 14-18);
c. ONS, (2025); Business Register and Employment Survey (Ref 14-19);
d. ONS (2025); Gross Value Added (Balanced Approach) 2023 (Ref 14-20);
e. ONS (2025); Claimant Count by sex and age (November 2025) (Ref 14-21);
f. ONS (2024); Annual Population Survey (January 2024 to December 2024 and July 2024 to June 2025) (Ref 14-22); and
g. ONS (2022); Population projections – local authority based by single year of age (Ref 14-24).

14.5.5 The socio-economics and land use baseline has been informed through a review of the above publicly available datasets, together with planning policy documents, published reports and mapping resources.

Surveys

14.5.6 No field surveys specific to socio-economics and land use have been undertaken at the EIA scoping stage or are envisaged to be required to inform the ES.

Baseline Information

14.5.7 Overall, the study area is characterised by relatively low levels of deprivation and a strong labour market, although pockets of deprivation exist within parts of Basildon.

Population and Deprivation

14.5.8 Census data from the 2011 Census (Ref 14-16) and the 2021 Census (Ref 14-17) indicates that the population of the four relevant local authority areas increased between 2011 and 2021, reflecting growth trends consistent with those observed across the East of England and England. Population growth was recorded across Basildon, Chelmsford, Maldon and Rochford, indicating continued demand for housing, employment opportunities and supporting infrastructure within the study area.

14.5.9 The study area contains varying levels of deprivation. Based on the Index of Multiple Deprivation (IMD), Basildon is the most deprived of the affected local authority areas and records a deprivation score above the national average. Chelmsford, Maldon and Rochford are comparatively less deprived and perform better than the England average. Overall, deprivation levels across the study area are generally lower than the national average, although pockets of deprivation exist within parts of Basildon and other urban areas.

Local Economy and Labour Market

14.5.10 In 2023, Gross Value Added (GVA) per head in Essex (£28,293) was lower than both the East of England (£31,739) and England (£36,632), indicating a comparatively lower level of economic output per resident (Ref 14-20).

14.5.11 The construction sector forms an important component of the local economy and is relevant to the delivery of the Proposed Development. In 2023, the construction industry generated approximately £7.4 billion of GVA in Essex, demonstrating a substantial existing construction sector (Ref 14-20).

14.5.12 The study area contains a substantial working-age population. According to the 2021 Census (Ref 14-17), Essex contained approximately 914,000 residents aged between 16 and 64, with Basildon and Chelmsford containing the largest concentrations of working-age residents among the affected local authority areas.

14.5.13 Annual Population Survey data (Ref 14-22) indicates relatively high levels of economic activity across the study area. Between April 2025 and March 2026, the economic activity rate ranged from 71.4% in Maldon to 81.8% in Basildon. Economic activity rates in Basildon, Chelmsford and Rochford were broadly

consistent with, or above, the Essex, East of England and England averages, indicating a generally active labour market.

14.5.14 Annual Population Survey data (Ref 14-22) recorded unemployment rates ranging from 3.0% in Basildon to 6.9% in Chelmsford, with Essex (4.1%), the East of England (4.0%) and England and Wales (4.7%) recording similar levels. Data for Maldon was unavailable due to disclosure controls.

14.5.15 Claimant count data (Ref 14-21) provides a similar picture. Basildon records the highest proportion of claimants (3.9%) among the affected local authority areas. However, claimant rates across all authorities were broadly comparable with the Essex average and below, or close to, the national average.

Employment

14.5.16 Business Register and Employment Survey (BRES) data indicate that employment within the study area is concentrated in a range of sectors. The health sector is the largest employer in both Basildon (14.6%) and Chelmsford (17.5%), while construction represents a particularly important sector in Maldon (11.9%) and Rochford (10.4%). The proportion of employment in the health sector within Chelmsford is notably higher than the averages recorded for Essex, the East of England and England.

14.5.17 The mining, quarrying and utilities sector, which includes energy generation and supply activities, accounts for a relatively small proportion of employment across the study area. However, employment in this sector is proportionally higher in Chelmsford (1.3%), Maldon (1.4%) and Rochford (1.9%) than in Basildon (0.9%) and at county, regional and national levels (1.1%).

Farming businesses

14.5.18 The Proposed Development is located predominantly on agricultural land within the Dengie Peninsula and comprises a number of field parcels currently in agricultural use. Land use receptors within the study area include farming businesses operating agricultural land holdings. The area is characterised by large arable fields and an active farming landscape that contributes to the local rural economy.

14.5.19 Agricultural Land Classification (ALC) surveys are ongoing to confirm the extent and quality of land affected. While agricultural land quality is assessed through ALC grading, socio-economic effects on farm businesses may arise irrespective of land quality and are influenced by factors such as land loss, severance, access, operational disruption and business viability. Farming businesses and agricultural operations located within or adjacent to the Proposed Development area will be identified and assessed as part of the ES.

Residential Properties

14.5.20 The Proposed Development is situated within a predominantly rural landscape characterised by agricultural land and dispersed residential properties associated with villages, hamlets and isolated farmsteads.

14.5.21 Nearby residential receptors include a number of individual dwellings, farmsteads and residential properties located adjacent to, or in close proximity to, the Energy Park. These receptors are primarily associated with Bradwell-on-Sea and the surrounding rural area.

14.5.22 There are also a number of residential properties located within, adjacent to, and within 500m of the Grid Connection Corridors, and Connection and Access Corridors.

14.5.23 Residential receptors will be identified and mapped in more detail as part of the ES using design information and publicly available address and property datasets.

Community Facilities

14.5.24 Educational receptors are located throughout the study area and surrounding settlements. These include Woodville Primary School and South Woodham Pre-School in South Woodham Ferrers, as well as a number of other schools and educational facilities, including but not limited to St Cedd's Church of England (C of E) Primary School in Bradwell-on-Sea, Tillingham Saint Nicholas C of E Primary School in Tillingham, Southminster Church of England Primary School in Southminster, St Mary's Church of England Primary School and Ormiston Rivers Academy in Burnham-on-Crouch.

14.5.25 Primary healthcare facilities within the study area and surrounding settlements include Tillingham Medical Centre in Tillingham and William Fisher Medical Centre in North End, as well as a range of other GP surgeries, dental practices, pharmacies and community healthcare services serving local communities across the Dengie Peninsula.

14.5.26 Education and healthcare facilities are considered sensitive community receptors due to their role in supporting local wellbeing and access to services. These receptors will be identified and reviewed as part of the ES.

Business Premises

14.5.27 Business premises within the study area include agricultural enterprises, farm-based businesses, visitor accommodation, tourism-related businesses, local retail and service providers, and other commercial premises associated with nearby settlements.

14.5.28 A number of business premises are located within and around Bradwell-on-Sea, Tillingham and other nearby settlements, whilst additional businesses including farms and agricultural enterprises are distributed throughout the surrounding rural area.

14.5.29 Business premises located within or adjacent to the Energy Park and Grid Connection Corridors will be identified as part of the Environmental Statement.

Development Land and Safeguarding Designations

14.5.30 Grid Connection Corridor A runs immediately adjacent to the Dollyman's Farm strategic waste management site allocation, which is identified in the Essex and Southend-on-Sea Waste Local Plan for inert landfill waste management development. No other development land allocations have been identified within the EIA Scoping Site .

14.5.31 There are no mineral safeguarding areas, mineral consultation areas, waste safeguarding areas or transport safeguarding areas within the EIA Scoping Site.

Visitor Accommodation

14.5.32 No visitor accommodation has been identified within the EIA Scoping Site. A number of visitor accommodation receptors are located within 500m of the Site, including Rettendon Lodge Country Pub and Hotel, Frasers Guest House, Travelodge Basildon Wickford, The New Chichester Hotel, Purleigh Barns Bed and Breakfast, Holly's Diner & Crouch Motel, and Eastland Meadow Country Park.

14.5.33 The baseline assessment will be expanded at ES stage to consider the availability, capacity and occupancy of visitor accommodation within the study area and wider labour market catchment, particularly in relation to potential temporary workforce accommodation requirements during construction.

Tourism and Recreation

14.5.34 As noted in the Maldon District Local Development Plan, tourism activity within the local area is closely associated with the coastline, beaches, sailing, birdwatching and other water-based recreation.

14.5.35 Notable visitor attractions within the study area include the Dengie National Nature Reserve, the Blackwater Estuary coastal environment, the Chapel of St Peter-on-the-Wall, the RAF Bradwell Bay War Memorial, and the wider network of coastal footpaths (notably the King Charles III England Coast Path which traverses the eastern coast of the Dengie Peninsula) and other recreational routes associated with the Dengie Peninsula. These attractions support a range

of leisure, recreation and tourism activities including walking, wildlife watching and heritage tourism.

14.5.36 The nearest coastal tourism receptors are located along the Dengie coastline, including Bradwell-on-Sea and the surrounding coastal areas.

14.5.37 A more detailed review of tourism and visitor attractions within the study area will be undertaken as part of the ES.

Future Baseline

14.5.38 Population projections by local authority and single year of age (Ref 14-24) indicate that Maldon is projected to experience the highest level of population growth of all comparator geographies, increasing by 7.7% between 2022 and 2030. Over the same period, the population of Chelmsford is projected to increase by 6.2%. This exceeds the projected growth rates for Rochford (5.2%), Essex (5.7%), the East of England (5.7%) and England as a whole (5.4%). The population of Basildon is projected to increase by 2.9%.

14.5.39 There is a degree of uncertainty regarding the future baseline for existing land uses, other than where future planned uses are known through committed developments, planning permissions or Local Plan allocations. Therefore, for the purposes of this assessment, the future baseline for land use receptors, including residential properties, local businesses, farming businesses, open space, community facilities, visitor attractions and development land, is assumed to remain broadly consistent with the existing baseline conditions described above.

14.6 Potential Effects and Mitigation

14.6.1 This section sets out the potential effects of the Proposed Development on socio-economics and land use.

14.6.2 Mitigation measures relevant to socio-economics and land use are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

14.6.3 The Proposed Development may generate a range of socio-economic effects, some of which would be temporary, whilst others would be permanent. For the purposes of the ES, due consideration will be given to the effects for each phase of the Proposed Development as set out below.

Construction

14.6.4 During construction of the Proposed Development, the following adverse socio-economics and land use effects have the potential to occur:

a. Temporary effects on farming businesses resulting from land access restrictions or construction activities;
b. Temporary effects on other local businesses, visitor accommodation (including both localised potential disturbance effects and wider potential effects of temporary workforce accommodation demand) and tourism assets;
c. Temporary effects on residential receptors arising from construction activities;
d. Temporary effects on community facilities and local services;
e. Temporary effects on open space, recreational assets and PRoW;
f. Temporary effects on accessibility; and
g. Temporary effects on land use receptors associated with construction compounds, access routes and temporary land take.

14.6.5 Potential beneficial socio-economic effects during construction include:

a. Temporary employment and training opportunities; and
b. Indirect and induced economic benefits arising through supply chain expenditure.

Operation

14.6.6 During the operation of the Proposed Development the following adverse socio-economics and land use impacts have the potential to occur:

a. Effects on farming businesses and agricultural operations;
b. Effects on community facilities and local services;
c. Effects on tourism and recreation resources;
d. Effects associated with PRoW and recreational routes;
e. Changes to accessibility; and
f. Effects on residential receptors and local businesses.

14.6.7 Potential beneficial socio-economic effects during operation include:

a. Long-term employment opportunities; and
b. Operational expenditure and wider economic benefits.

Decommissioning

14.6.8 During decommissioning, potential effects would be similar to the construction phase.

Mitigation

14.6.9 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or construction methodology. Through iterative assessment, potential adverse effects on employment, businesses, farming operations, community facilities, tourism, recreation and land use receptors will be identified and opportunities to avoid, reduce or offset these effects developed. This embedded mitigation approach will be taken into account when evaluating the significance of effects.

Construction

14.6.10 Mitigation measures relevant to socio-economic and land use effects during construction are expected to include the implementation of an Outline Construction Environmental Management Plan (CEMP), Outline Construction Traffic Management Plan (CTMP), maintenance of access arrangements for land use receptors where practicable, Outline PRoW Management Plan, and stakeholder engagement, where practicable.

Operation

14.6.11 During operation, mitigation is expected to focus on maintaining access arrangements, retaining agricultural activities where feasible, and implementing landscape and biodiversity enhancement measures. Mitigation measures will therefore be set out in the Outline Operational Environmental Management Plan (OEMP), the Outline Landscape and Ecology Management Plan (LEMP) and the Outline PRoW Management Plan.

Decommissioning

14.6.12 Decommissioning effects are expected to be similar to those experienced during construction. Appropriate mitigation measures are anticipated to include implementation of an Outline Decommissioning Environmental Management Plan (DEMP), traffic and access management measures, stakeholder engagement, management of temporary effects on recreational and community assets, and reinstatement of land following decommissioning activities.

Enhancement

14.6.13 As an enhancement measure, the Applicant will also prepare an Outline Skills, Supply Chain and Employment Plan (OSSCEP) to promote local access to opportunities relating to employment, skills development, apprenticeships and supply chain activity for the Proposed Development.

14.7 Assessment Methodology

14.7.1 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on socio-economics and land use will be undertaken using the principles of the guidance and criteria set out in NPS EN-1 (Ref 14-1) , NPS EN-3 (Ref 14-2), the National Planning Policy Framework (NPPF) (Ref 14-3), and the ISEP guidance Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland (Ref 14-15). The methodology is set out below.

14.7.2 The assessment of socio-economic and land use effects will be based on quantitative analysis and comparison against relevant benchmarks where possible, supplemented by qualitative analysis and professional judgement where necessary. The assessment will consider the sensitivity of affected receptors and the magnitude of change arising from the Proposed Development. Effects will be assessed having regard to the scale, duration and reversibility of impacts, together with the ability of receptors to adapt to change and the availability of mitigation measures.

14.7.3 Potential effects of the Proposed Development on socio-economics and land use will be assessed by:

a. Considering the existing (baseline) status of socio-economics and land use within the EIA Scoping Site and surrounding study area, including population, deprivation, economic activity, employment, businesses, community facilities, tourism, recreation, farming businesses and other land use receptors;
b. Identifying potential effects of the Proposed Development on socio-economics and land use during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to reduce/offset any adverse impacts (i.e. embedded mitigation) as relevant; and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

14.7.4 The assessment will consider both beneficial and adverse effects and will include, where appropriate, consideration of direct, indirect, induced and cumulative socio-economic effects. The assessment will be informed by ongoing design development, consultation responses and the availability of additional baseline information.

Sensitivity

14.7.5 The sensitivity of socio-economic and land use receptors will be assessed having regard to their economic, social, community, recreational or land use value, together with their ability to accommodate change arising from the Proposed Development. Sensitivity will be classified as High, Medium, Low or Very Low using professional judgement informed by relevant guidance and baseline evidence.

Table 14-1: Socio-economic and Land Use Receptor Sensitivity Criteria

Sensitivity	Definition
High	Receptors possessing substantial economic, social, community, tourism, recreational or land use value and with limited ability to adapt to adverse change.
Medium	Receptors possessing recognised economic, social, community, tourism, recreational or land use value and some ability to adapt to adverse change.
Low	Receptors possessing limited economic, social, community, tourism, recreational or land use value and relatively high ability to adapt to adverse change.
Very Low	Receptors possessing very limited economic, social, community, tourism, recreational or land use value and high ability to adapt to adverse change.

Magnitude

14.7.6 The magnitude of impacts associated with the Proposed Development will be assessed having regard to the scale, geographical extent, duration and reversibility of change experienced by the receptor. Magnitude will be classified as High, Medium, Low or Very Low using professional judgement.

Table 14-2: Socio-economic and Land Use Impact Magnitude Criteria

Magnitude	Definition
High	Substantial change resulting in a permanent or long-term alteration to baseline conditions for a large number of receptors.
Medium	Noticeable change resulting in measurable effects on a moderate number of receptors.
Low	Minor change resulting in measurable effects on a small number of receptors.
Very Low	Little or no discernible change from baseline conditions.

Determining the Significance of Effects

14.7.7 The significance of socio-economics and land use effects will be determined by considering the relationship between the sensitivity of the receptor and the magnitude of change. **Table 14-3** shows how effects will be determined as Major, Moderate, Minor or Negligible. Effects assessed as Major or Moderate are considered significant. Effects assessed as Minor or Negligible are considered not significant.

Table 14-3: Significance of Socio-economic and Land Use Effects

Magnitude of Change	High Sensitivity	Medium Sensitivity	Low Sensitivity	Very Low Sensitivity
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

14.8 Limitations and Assumptions

14.8.1 The location and layout of certain elements of the Proposed Development infrastructure (including construction methodologies and mitigation), have not yet been determined. This is of particular relevance when considering potential land take and accessibility effects for farming businesses, local businesses, community facilities, tourism and recreation receptors, and other land use receptors.

14.8.2 The assessment presented within the ES will be based on the design information available at the time of assessment, and will be undertaken on a reasonable worst-case basis reflecting the Rochdale Envelope approach described in **Chapter 6: Environmental Impact Assessment Methodology**. The assessment will take account of ongoing design development and refinement, with effects assessed using the maximum anticipated extent of land take, construction activities and interaction with socio-economic and land use receptors, where appropriate.

14.8.3 Baseline information has been derived primarily from publicly available datasets and information available at the time of preparing this EIA Scoping Report. Further engagement with landowners, local authorities and other stakeholders will be undertaken if appropriate to refine the understanding of existing socio-economic conditions and land use receptors.

14.8.4 Information relating to individual farming businesses, business operations, visitor accommodation and other private assets within the study area is currently limited. The assessment presented within the ES will be refined as additional information becomes available through consultation, stakeholder engagement and ongoing project design.

14.8.5 There is uncertainty regarding future baseline conditions, including future economic circumstances, employment conditions, tourism activity and land use change. Other than where committed developments, planning permissions or adopted land allocations are known, future conditions are assumed to remain broadly consistent with the existing baseline.

14.9 Summary of Elements Scoped In and Out

14.9.1 Due to the potential for effects on socio-economics and land use receptors and resources from the Proposed Development, socio-economics and land use is scoped in to the ES. The ES chapter will be supported by relevant technical assessments, baseline studies, land use receptor mapping and outputs from other environmental topics, including agriculture and soils, traffic and transport, landscape and visual amenity, and noise and vibration where relevant. A summary of the elements scoped in and out of the socio-economics and land use ES chapter is presented in **Table 14-4** below.

Table 14-4: Elements scoped in and out of the Socio-economics and Land use assessment

Element	Scoped In / Scoped Out
Employment, skills and training opportunities	**Scoped In** - The Proposed Development has the potential to generate direct, indirect and induced employment, as well as skills and training opportunities during construction, operation (and maintenance) and decommissioning. Where appropriate, evaluation of job creation associated with the Proposed Development will include information related to the sustainability of the jobs created, including the extent to which they will help develop the skills needed for the UK's transition to Net Zero.
Local expenditure, supply chain and economic growth	**Scoped In** - Construction and operational activities may result in beneficial effects on local businesses through expenditure in the local supply chain.
Effects on farming businesses and agricultural operations	**Scoped In** - The Proposed Development may temporarily or permanently affect farming businesses and their agricultural operations, due to land take or access constraints.

Element	Scoped In / Scoped Out
Effects on residential properties, businesses, community facilities and services	**Scoped In** - Construction, operation and decommissioning activities have the potential to affect residential, business and community receptors via direct land take or via indirect changes to access or amenity.
Effects on tourism, visitor attractions and visitor accommodation	**Scoped In** - The Proposed Development may influence visitor attractions, visitor accommodation (including both localised potential disturbance effects and wider potential effects of temporary workforce accommodation demand), tourism-related businesses and the visitor experience.
Effects on open space, recreation and PRoW	**Scoped In** - The Proposed Development may affect the accessibility, use and quality of recreational resources, open space and the PRoW network.
Effects on development land	**Scoped In** - The Proposed Development may affect allocated development land (specifically the Dollyman's Farm strategic waste management site allocation) through temporary or permanent land take, access constraints or other changes that could influence the delivery of planned development.
Effects on Mineral Safeguarded Areas	**Scoped Out** - There are no Mineral Safeguarding Areas or other safeguarding designations within the EIA Scoping Site.

14.10 References

Ref 14-1 Department of Energy Security and Net Zero (DESNZ) (2025). National Policy Statement for Energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 14-2 Department for Energy Security and Net Zero (2025). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 14-3 Ministry of Housing, Communities and Local Government (MHCLG) (2026) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National_Planning_Policy_Framework.pdf Accessed: October 2026.

Ref 14-4 MHCLG (2019) Planning Practice Guidance: Planning Obligations Available at: https://www.gov.uk/guidance/planning-obligations Accessed: October 2026.

Ref 14-5 Our Vision for Essex. Reforming Essex 100-day plan https://www.essex.gov.uk/sites/default/files/2026-07/Reforming%20Essex%20100%20day%20plan%20-%20Essex%20County%20Council.pdf Accessed: October 2026.

Ref 14-6 Our Vision for Essex. Annual Plan. Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/our-vision-essex/annual-plan Accessed: October 2026.

Ref 14-7 Jobs, economy and growth. Sector Development Strategy. Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/jobs-economy-and-growth/sector-development-strategy Accessed: October 2026.

Ref 14-8 Jobs, economy and growth. Skills in Essex. Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/jobs-economy-and-growth/skills-essex Accessed: October 2026.

Ref 14-9 Jobs, economy and growth. Housing strategy 2021 to 2025. Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/jobs-economy-and-growth/housing-strategy-2021-2025 Accessed: October 2026

Ref 14-10 Jobs, economy and growth. Destination Management Plan. Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/jobs-economy-and-growth/destination-management-plan Accessed: October 2026

Ref 14-11 Basildon Borough Council (2024). Basildon Borough Draft Local Plan (2023 – 2043). Available at: https://basildonlocalplan.commonplace.is/ Accessed: October 2026

Ref 14-12 Chelmsford City Council (2020). Chelmsford Adopted Local Plan (2013 - 2036). Available at: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026

Ref 14-13 Maldon District Council (2017). Maldon District Approved Local Development Plan (2014 – 2029). Available at: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf Accessed: October 2026

Ref 14-14 Rochford District Council. Draft Rochford Local Plan Regulation 18 (2026). Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 14-15 Institute of Environmental Management and Assessment (now ISEP) (2025). Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland. Available at https://www.socialimpactassessment.com/resource/social-impact-assessment-in-environmental-impact-assessment-in-the-uk/ Accessed: October 2026

Ref 14-16 Office for National Statistics (ONS), (2012); Census 2011.

Ref 14-17 ONS, (2022); Census 2021.

Ref 14-18 Ministry of Housing, Communities and Local Government, (2025); Indices of deprivation.

Ref 14-19 ONS, (2025); Business Register and Employment Survey 2024.

Ref 14-20 ONS, (2025); Regional gross value added (balanced approach). Table 2: Gross Value Added (balanced approach) per head of population at current basic prices. https://www.ons.gov.uk/file?uri=/economy/grossvalueaddedgva/datasets/nominalregionalgrossvalueaddedbalancedperheadandincomecomponents/

current/regionalgrossvalueaddedbalancedperheadandincomecomponents.xlsx Accessed: October 2026

Ref 14-21 ONS, (2025); Claimant Count by sex and age (November 2025).

Ref 14-22 ONS (2025) Annual Population Survey (January 2024 to December 2024),(July 2024 to June 2025), (July 2025 to June 2026).

Ref 14-23 ONS (2024) Mid-Year Population Estimates

Ref 14-24 ONS (2022) Population Projections – local authority based by single year of age.

Ref 14-25 MHCLG (2025) Appraisal Guide: Third Edition, March 2025. Available at: https://www.gov.uk/government/publications/the-mhclg-appraisal-guide Accessed: October 2026

Ref 14-26 ONS, (2025); Business Register and Employment Survey 2024. Available at: Nomis - Query Tool - Business Register and Employment Survey : open access Accessed: October 2026

Ref 14-27 ONS (2022) Population Projections – local authority based by single year of age.

15. Traffic and Transport

15.1 Introduction

15.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects on Traffic and Transport during the construction, operation (and maintenance) and decommissioning phases of the Proposed Development. This chapter sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the Traffic and Transport chapter of the Environmental Statement (ES).

15.1.2 This chapter is supported by the following figures:

a. **Figure 15-1: Traffic and Transport Study Area**;
b. **Figure 15-2: Existing Walking and Cycling Network**;
c. **Figure 15-3: Existing Bus Stops and Routes**;
d. **Figure 15-4: Existing Railway Stations and Network**; and
e. **Figure 15-5: Existing Highway Network and Potential Traffic Survey Locations**.

15.1.3 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 11: Landscape and Visual**, due to potential interactions with Public Rights of Way (PRoW);
b. **Chapter 13: Noise and Vibration**, due to potential construction traffic impacts;
c. **Chapter 14: Socio-economics and Land Use**, due to potential interactions with PRoW;
d. **Section 17.1: Air Quality** of **Chapter 17: Other Environmental Topics**, due to potential construction traffic impacts; and
e. **Section 17.3: Glint and Glare** of **Chapter 17: Other Environmental Topics**, due to potential impacts on road and rail receptors as a result of solar PV modules.

15.2 Study Area

15.2.1 The EIA Scoping Site comprises extensive areas of predominantly agricultural land located north of Southend-on-Sea and east of Chelmsford in Essex. The eastern part of the EIA Scoping Site comprises the Energy Park, Connection and

Access Corridors, Grid Connection Corridors B, C and D, and Point of Connection B (at the former Bradwell Substation), and is located near Bradwell-on-Sea, east of Maldon, Essex. The western part of the EIA Scoping Site comprises Grid Connection Corridor A, which runs east-west between the Energy Park to the east and the Point of Connection A (Rayleigh GSP Substation) to the west, passing north of Southminster and South Woodham Ferrers. The Proposed Development therefore retains flexibility for two potential Points of Connection: Point of Connection A at Rayleigh GSP Substation and Point of Connection B at the Former Bradwell Substation.

15.2.2 The Traffic and Transport study area encompasses the transport, highway and PRoW networks within the vicinity of the EIA Scoping Site, as illustrated in **Figure 15-1: Traffic and Transport Study Area** and **Figure 15-2: Existing Walking and Cycling Network**. The Traffic and Transport study area has been defined using professional judgement and experience gained from other consented Solar Farm or Energy Park Development Consent Order (DCO) projects and will include receptors which may be directly or indirectly impacted by the Proposed Development.

15.2.3 The extent of the Traffic and Transport study area will be agreed with Essex County Council (ECC) in its role as the Local Highway Authority (LHA) for the Local Road Network (LRN). Consultation will also be held with National Highways (NH), which is responsible for the Strategic Road Network (SRN), and where appropriate, Network Rail which is responsible for the national rail network.

15.3 Legislation, Planning Policy Context and Guidance

15.3.1 Legislation, planning policy and guidance relating to Traffic and Transport and pertinent to the Proposed Development is listed in this section.

Legislation

15.3.2 There is no specific legislation relevant to the assessment of Traffic and Transport.

National Planning Policy

15.3.3 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (2025) (Ref 15-1);
b. NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 15-2); and
c. NPS for Electricity Networks Infrastructure (EN-5) (2025) (Ref 15-3).

15.3.4 Other relevant national planning and guidance includes the National Planning Policy Framework (NPPF) (2026) (Ref 15-4).

Local Planning Policy

15.3.5 The EIA Scoping Site lies within the administrative area of Basildon Borough Council, Chelmsford City Council, Maldon District Council, Rochford District Council and Essex County Council. The following local planning documents are of relevance to the Traffic and Transport assessment:

a. Essex County Council

i. Essex Transport Strategy: The Local Transport Plan for Essex (currently adopted LTP3, June 2011 with LTP4 emerging) (Ref 15-5).

b. Basildon Borough Council

i. Basildon District: Local Plan Saved Policies (adopted 2007) (Ref 15-6); and
ii. Basildon Borough Council Local Plan 2023-2043 Regulation 19 (not yet adopted) (Ref 15-7).

c. Chelmsford City Council

i. Chelmsford Local Plan 2013-2036 (adopted May 2020) (Ref 15-8).

d. Maldon District Council

i. Maldon District: Local Development Plan 2014-2029 (adopted July 2017) (Ref 15-9).

e. Rochford District Council

i. Rochford District: Local Development Framework – Core Strategy Adopted Version (adopted December 2011) (Ref 15-10);
ii. Rochford District: Local Development Framework – Development Management Plan (adopted 2014) (Ref 15-11); and
iii. Rochford District: Draft Local Plan Regulation 18 (February 2026, not yet adopted) (Ref 15-12).

Relevant Industry Guidance

15.3.6 Relevant industry guidance includes:

a. National Planning Practice Guidance 'Travel Plans, Transport Assessments and Statements' (2014) (Ref 15-13);
b. Institute of Sustainability and Environmental Professionals (ISEP) Guidelines for the Environmental Assessment of Traffic and Movement (2023) (Ref 15-14); and
c. Construction Logistics and Community Safety (CLOCS), Version 5, November 2024 (Ref 15-15).

15.4 Consultation

15.4.1 Following submission of this EIA Scoping Report, consultation will be undertaken with relevant statutory consultees including ECC, NH and, where relevant, Network Rail, together with other non-statutory stakeholders. Consultation will seek to agree, where possible, the scope and methodology of the Traffic and Transport chapter of the ES, and the supporting reports, including the following:

a. Traffic and Transport study area: The extent of the study area including the identification of routes and receptors on the LRN and SRN that may be affected by construction, operation and decommissioning traffic associated with the Proposed Development. Consultation will also consider the feasibility of utilising rail and / or river transport (i.e. Marine Transfer Facility – see **Figure 3-1: EIA Scoping Site and Proposed Development Components**) for the delivery of construction materials and abnormal indivisible loads, and the outcome of this review will inform the final construction logistics strategy and associated traffic forecasts presented within the ES;
b. Transport Assessment Note (TAN): A proportionate TAN is currently proposed in place of a full Transport Assessment, reflecting the anticipated scale and nature of transport impacts associated with the Proposed Development. The TAN would either be provided as a standalone document or included as an appendix to the Traffic and Transport chapter of the ES to minimise duplication across the application documents, given the ES chapter itself and supporting management plans will contain a lot of the information typically found within a TA. This approach will be reviewed with ECC and NH in order to agree the approach for the assessment.
c. Outline Construction Traffic Management Plan (Outline CTMP): An Outline CTMP will be prepared and submitted as part of the DCO application. The Outline CTMP is proposed as a standalone document which will form an appendix to the Traffic and Transport chapter of the ES. It will set out the

key traffic management, routing, mitigation and monitoring measures which will be implemented during the construction phase of the Proposed Development.

d. Travel Plan (TP): It is not currently proposed to prepare a standalone TP as part of the DCO application. Construction activities are anticipated to be temporary in nature, with a construction period of up to 48 months, while operating staffing requirements associated with the Proposed Development are expected to be very limited with insufficient trips to justify the requirement of a standalone TP. Measures to manage and encourage sustainable travel by construction personnel, including staff travel and workforce transport initiatives will instead be incorporated within the Outline CTMP.

e. Outline Public Rights of Way Management Plan (Outline PRoWMP): An Outline PRoWMP (or, as appropriate, a section of the Outline CEMP) will be prepared to support the DCO application. The document will set out the approach to managing PRoW during the construction, operation (and maintenance) and decommissioning phases (as per NPS EN-3, paragraph 2.10.37) of the Proposed Development. This would include information relating to any temporary diversions, closures, reinstatement measures and arrangements for maintaining safe public access, where practicable.

15.5 Baseline Conditions

15.5.1 This section describes the baseline environmental characteristics of the EIA Scoping Site and surrounding areas with specific reference to Traffic and Transport.

15.5.2 Where relevant, Traffic and Transport baseline conditions have been presented in a series of figures that support this chapter (as listed earlier). These figures cover the Traffic and Transport study area, the existing walking and cycling network, public transport networks and the surrounding highway network.

Sources of Information

15.5.3 The Traffic and Transport baseline conditions presented within this EIA Scoping Report have been established through a desk-based review of available information and datasets. This has included a review of publicly available highway, active travel, public transport and PRoW information, together with relevant policy, guidance and mapping data.

15.5.4 The baseline information provides an understanding of the existing transport environment within the Traffic and Transport study area and will inform the

identification and assessment of the likely significant effects of the Proposed Development.

Desk Study

15.5.5 The following sources have been used to inform the Traffic and Transport baseline presented within this EIA Scoping Report:

a. Local travel and transport network information obtained from rail and bus operators;
b. PRoW information obtained from ECC's PRoW Interactive Map (Ref 15-17);
c. Highway network hierarchy information obtained from ECC's Highways Information Map (Ref 15-18); and
d. Route planning and mapping software, including Google Maps, to identify potential construction traffic routes, define the Traffic and Transport study area (**Figure 15-1: Traffic and Transport Study Area**) and identify potential locations for traffic surveys (**Figure 15-5: Existing Highway Network and Potential Traffic Survey Locations**).

15.5.6 The following additional information sources will be used to inform the Traffic and Transport chapter of the ES and establish the baseline conditions for the assessment:

a. Personal Injury Collision (PIC) data obtained from ECC;
b. Ordnance Survey (OS) base mapping;
c. Mode share data from the 2011 Census (note 2021 Census data is not considered to be appropriate for identifying travel mode share given the context of COVID-19 when the Government's travel restrictions were in place);
d. Employment and industry data from the 2021 Census to identify the proportion of residents employed within the construction sector and residing within a defined catchment area of the DCO Site, to inform the construction worker trip distribution;
e. Traffic growth forecasts derived using the latest available National Transport Model (NTM) adjustments to National Road Traffic Forecast (NRTF) growth factors within the Trip Ends Model Program (TEMPro), utilising the latest National Trip Ends Model (NTEM) dataset, and other relevant forecasting assumptions, as agreed with the relevant highway authorities; and
f. Collision rates derived from the Department for Transport's (DfT's) reported national road safety statistics provided within Road Casualties for Great Britain.

Surveys

15.5.7 Following submission of the EIA Scoping Report and receipt of the EIA Scoping Opinion, further assessments will be undertaken to inform the Traffic and Transport baseline and support the ES assessment:

a. Traffic count and speed surveys, where required (see **Figure 15-5: Existing Highway Network and Potential Traffic Survey Locations**), at locations within the proposed study area; and
b. Site visits to observe existing conditions on the surrounding highway network, PRoW network, and active travel infrastructure network.

15.5.8 With respect to the traffic count and speed surveys, Automatic Traffic Counts (ATCs) and Manual Classified Counts (MCCs) will be undertaken to establish baseline traffic conditions on the surrounding highway network. Proposed survey locations and methodologies will be presented to ECC as an opportunity to review and comment prior to commissioning, to ensure the survey extents and programme is appropriate to inform the traffic and transport assessment.

15.5.9 In addition, peak hour traffic flows will be obtained from available sources, including historic traffic survey data held by ECC, traffic survey company databases, and Department for Transport (DfT) traffic count sites, where available.

Baseline Information

Existing Highway Network

15.5.10 A summary of the existing highway network has been provided below based on the routes anticipated to be used by traffic travelling to and from the Proposed Development. The existing highway network is also illustrated on **Figure 15-5: Existing Highway Network and Potential Traffic Survey Locations**.

15.5.11 The A12(T) forms part of the Strategic Road Network (SRN) which is managed by National Highways and is located circa 22km to the west of the Energy Park and 7km to the north west of the nearest part of Grid Connection Corridor A. The A12(T) provides connections to the LRN via junctions with the A414 and the A130, both of which may provide access to the EIA Scoping Site. The A414 is categorised by ECC as a Priority 1 (PR1) road, while the A130 forms part of the County Route Network. Together with other PR1 and Priority 2 (PR2) roads, these routes comprise the main arteries/ principal routes through Essex and generally accommodate the highest traffic volumes.

15.5.12 The following PR1 roads are anticipated to form part of the primary access network to the EIA Scoping Site, including the Energy Park, Connection and Access Corridors and the Grid Connection Corridor(s):

a. The A414 between the A12(T) to the west and the B1018 Limebrook Way to the east;
b. The B1018 Limebrook Way between the A414 to the west and the B1010 Fairbridge Road to the east;
c. The B1010 Fairbridge Road between the B1018 Limebrook Way to the north and the B1012 Lower Burnham Road to the south;
d. The A132 between the A130 to the west and the B1012 Burnham Road to the east; and
e. The B1012 between the A132 to the west and the B1021 Church Road to the east.

15.5.13 The following PR2 roads are anticipated to provide access to the Energy Park to the east of the PR1 road network:

a. The B1018 Cold Norton Road to the east of the B1010;
b. Steeple Road between the B1018 in Latchingdon and the B1021 to the south west of Bradwell-on-Sea (passing through Mayland and Steeple);
c. Foxhall Road between the B1018 and the B1021;
d. The B1021 Church Road to the north of Burnham-on-Crouch;
e. The B1021 Tillingham Road between Southminster and Tillingham;
f. The B1021 Bradwell Road between Tillingham and Bradwell-on-Sea;
g. The B1021 Waterside Road to the north of the B1021 Bradwell Road;
h. Maldon Road, South Street and High Street to the east of the B1021 Waterside Road; and
i. Trusses Road to the east of the B1021 Waterside Road.

15.5.14 The following local roads are anticipated to provide access to the Energy Park to the east of the PR2 road network:

a. Marsh Road to the east of the B1021 Church Road;
b. Station Road to the east of the B1021 North Street;
c. Hall Road to the east of the B1021 Tillingham Road;
d. Grange Road to the east of the B1021 Tillingham Road;
e. Marsh Road to the east of the B1021 Tillingham Road;
f. Weymarks Road to the east of Trusses Road; and
g. East End Road to the east of High Street.

15.5.15 It is acknowledged that due to the predominantly rural nature of the area within the vicinity of the EIA Scoping Site, some of the local roads may be subject to

restrictions (such as tight corners / bends, weight restrictions of below 7.5 tonnes, width / height restrictions and other traffic management constraints). These factors will be considered when reviewing potential routes to minimise the impact of the Proposed Development on the local highway network, sensitive areas and surrounding communities.

15.5.16 At this stage, details related to the sourcing and origin of the relevant materials for the Proposed Development (such as Solar Photovoltaic (PV) Modules and associated infrastructure components) have not been confirmed. However, it is anticipated that some materials may be imported through regional ports. The ES will consider the likely access routes for the delivery of construction materials and abnormal loads to the DCO Site via the SRN and LRN (including from the Marine Transfer Facility if used as well as via rail if viable) and will identify any associated transport effects.

15.5.17 Traffic surveys, consisting of ATCs and MCCs will be commissioned to determine the levels of existing baseline traffic on local roads which may be used as access routes to the DCO Site by construction vehicles. The potential locations of these traffic surveys are shown on **Figure 15-5: Existing Highway Network and Potential Traffic Survey Locations.** The final survey scope and locations will be reviewed and agreed with ECC and other relevant stakeholders, where appropriate.

Existing Walking Facilities

15.5.18 There is limited footway provision in the surrounding area owing to the rural location of the EIA Scoping Site.

15.5.19 PRoW within, or close to the EIA Scoping Site, are presented in **Figure 15-2: Existing Walking and Cycling Network**. Those which pass through the EIA Scoping Site are listed in **Table 15-1**, where the length represents the total length of the PRoW, rather than the length of the PRoW within the EIA Scoping Site which is often shorter.

Table 15-1: PRoW within the EIA Scoping Site Boundary

PRoW	Parish (District)	PRoW Type	Total Length (m)
300_63	Rawreth (Rochford)	Public Footpath	615m
300_59	Rawreth (Rochford)	Bridleway	716m
300_55	Rawreth (Rochford)	Bridleway	1,108m
300_72	Rawreth (Rochford)	Bridleway	618m
300_17	Rawreth (Rochford)	Bridleway	756m
300_60	Rawreth (Rochford)	Bridleway	289m
300_61	Rawreth (Rochford)	Bridleway	304m

PRoW	Parish (District)	PRoW Type	Total Length (m)
318_104	Shotgate (Basildon)	Public Footpath	1,050m
229_23	Rettendon (Chelmsford)	Public Footpath	848m
231_8	Runwell (Chelmsford)	Public Footpath	1,276m
229_26 (south of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	482m
229_26 (north of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	211m
229_24 (south of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	615m
229_24 (north of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	493m
229_27 (south of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	670m
229_27 (north of Burnham Rd)	Rettendon (Chelmsford)	Public Footpath	430m
229_20	Rettendon (Chelmsford)	Public Footpath	825m
229_13	Rettendon (Chelmsford)	Public Footpath	1,613m
298_56	South Woodham Ferrers (Chelmsford)	Public Footpath	101m
298_24	South Woodham Ferrers (Chelmsford)	Public Footpath	1,027m
298_25	South Woodham Ferrers (Chelmsford)	Bridleway	676m
261_20	Stow Maries (Maldon)	Public Footpath	753m
261_14	Stow Maries (Maldon)	Public Footpath	1,042m
261_23	Stow Maries (Maldon)	Public Footpath	316m
256_3	North Fambridge (Maldon)	Public Footpath	818m
256_2	North Fambridge (Maldon)	Public Footpath	1,621m
243_16	Cold Norton (Maldon)	Public Footpath	899m
243_23	Cold Norton (Maldon)	Public Footpath	1,360m
243_26	Cold Norton (Maldon)	Public Footpath	78m
243_25	Cold Norton (Maldon)	Public Footpath	189m
243_24	Cold Norton (Maldon)	Public Footpath	919m
250_14	Latchingdon (Maldon)	Public Footpath	1,509m
250_7	Latchingdon (Maldon)	Public Footpath	2,020m
250_10	Latchingdon (Maldon)	Public Footpath	2,091m
250_12	Latchingdon (Maldon)	Public Footpath	402m
250_11	Latchingdon (Maldon)	Public Footpath	264m
239_1	Althorne (Maldon)	Public Footpath	518m
239_2	Althorne (Maldon)	Public Footpath	883m
254_2	Mayland (Maldon)	Public Footpath	831m
254_3	Mayland (Maldon)	Public Footpath	1,717m
260_5	Steeple (Maldon)	Public Footpath	1,927m

PRoW	Parish (District)	PRoW Type	Total Length (m)
258_13	St Lawrence (Maldon)	Public Footpath	1,108m
240_14	Asheldham (Maldon)	Public Footpath	1,215m
259_3	Southminster (Maldon)	Bridleway	777m
259_8	Southminster (Maldon)	Public Footpath	330m
259_20	Southminster (Maldon)	Public Footpath	225m
242_26	Burnham-On-Crouch (Maldon)	Public Footpath	1,055m
242_18	Burnham-On-Crouch (Maldon)	Public Footpath	1,048m
242_17	Burnham-On-Crouch (Maldon)	Public Footpath	1,068m
242_22	Burnham-On-Crouch (Maldon)	Public Footpath	1,558m
242_23	Burnham-On-Crouch (Maldon)	Public Footpath	2,083m
242_24	Burnham-On-Crouch (Maldon)	Public Footpath	1,653m
242_25	Burnham-On-Crouch (Maldon)	Public Footpath	1,086m
259_21	Southminster (Maldon)	Public Footpath	2,503m
242_28	Burnham-On-Crouch (Maldon)	Public Footpath	1,197m
259_23	Southminster (Maldon)	Public Footpath	1,826m
242_20	Burnham-On-Crouch (Maldon)	Public Footpath	1,540m
259_24	Southminster (Maldon)	Public Footpath	1,254m
259_22	Southminster (Maldon)	Public Footpath	653m
244_8	Dengie (Maldon)	Public Footpath	2,700m
258_7	St Lawrence (Maldon)	Public Footpath	437m
262_4	Tillingham (Maldon)	Public Footpath	313m
262_3	Tillingham (Maldon)	Bridleway	946m
262_7	Tillingham (Maldon)	Bridleway	610m
262_4	Tillingham (Maldon)	Public Footpath	985m
262_5	Tillingham (Maldon)	Public Footpath	681m
262_8	Tillingham (Maldon)	Public Footpath	638m
262_10	Tillingham (Maldon)	Public Footpath	182m
240_11	Asheldham (Maldon)	Public Footpath	1,352m
244_4	Dengie (Maldon)	Public Footpath	525m
244_10	Dengie (Maldon)	Public Footpath	782m
244_5	Dengie (Maldon)	Public Footpath	1,113m
262_1	Tillingham (Maldon)	Public Footpath	1,019m
262_19	Tillingham (Maldon)	Public Footpath	706m
241_13	Bradwell-On-Sea (Maldon)	Public Footpath	451m

PRoW	Parish (District)	PRoW Type	Total Length (m)
241_10	Bradwell-On-Sea (Maldon)	Public Footpath	1,113m
241_11	Bradwell-On-Sea (Maldon)	Public Footpath	865m
241_8	Bradwell-On-Sea (Maldon)	Public Footpath	129m
262_17	Tillingham	Public Footpath	619m
262_33	Tillingham	Public Footpath	2,135m
241_18	Bradwell-On-Sea (Maldon)	Public Footpath	593m
241_19	Bradwell-On-Sea (Maldon)	Public Footpath	1,621m
241_24	Bradwell-On-Sea (Maldon)	Public Footpath	827m
241_16	Bradwell-On-Sea (Maldon)	Public Footpath	4,398m
262_38	Tillingham (Maldon)	Public Footpath	2,225m
262_34	Tillingham (Maldon)	Public Footpath	1,935m
262_35	Tillingham (Maldon)	Public Footpath	1,369m
262_41	Tillingham (Maldon)	Public Footpath	328m
262_31	Tillingham (Maldon)	Public Footpath	1,515m
262_22	Tillingham (Maldon)	Public Footpath	1,321m
241_3	Bradwell-On-Sea (Maldon)	Public Footpath	433m
241_1	Bradwell-On-Sea (Maldon)	Public Footpath	1,053m
241_15	Bradwell-On-Sea (Maldon)	Public Footpath	5,689m
241_5	Bradwell-On-Sea (Maldon)	Public Footpath	1,022m

15.5.20 The potential effects of the Proposed Development on PRoW users, including any temporary or permanent PRoW closures and diversions, or temporary PRoW crossing points of the Grid Connection Corridors or internal haul roads, will be considered as part of the Traffic and Transport chapter of the ES.

Existing Cycling Facilities

15.5.21 As shown on **Figure 15-2: Existing Walking and Cycling Network** and identified in **Table 15-1**, a number of Public Bridleways are located within the vicinity of the EIA Scoping Site which may be used by cyclists.

15.5.22 Beyond these routes, there are no dedicated/marked on- or off-road cycling facilities within the immediate vicinity of the EIA Scoping Site. In addition, there are also no National Cycle Network (NCN) routes located within the Traffic and Transport study area.

15.5.23 Notwithstanding the above, the local highway network comprises a series of rural roads which may be suitable/ attractive to some cyclists, particularly those which are relatively lightly trafficked. The Energy Park will therefore be accessible via bicycle from nearby settlements, including Burnham-on-Crouch, Southminster, Asheldham, Tillingham and Bradwell-on-Sea.

15.5.24 The suitability of existing cycling infrastructure and routes for travel to and from the Proposed Development will be considered as part of the Traffic and Transport chapter of the ES.

Existing Equestrian Facilities

15.5.25 As shown on **Figure 15-2: Existing Walking and Cycling Network** and summarised in **Table 15-1**, there are a number of Public Bridleways in the area which could be used by horse riders.

15.5.26 In addition, many of the local roads surrounding the EIA Scoping Site may appeal to equestrian use, especially those which are relatively lightly trafficked. As such, horse-riding activity may occur on roads surrounding the EIA Scoping Site, particularly in areas where appropriate off-road equestrian routes are unavailable or discontinuous.

15.5.27 The potential effects of the Proposed Development on equestrian users, including any changes to route amenity, safety and accessibility, will be considered as part of the Traffic and Transport chapter of the ES.

Existing Public Transport Facilities

Bus

15.5.28 Local bus services operating within the vicinity of the EIA Scoping Site are shown in **Figure 15-3: Existing Bus Stops and Routes**. The nearest bus stops to the Energy Park are located in Burnham-on-Crouch, Southminster, Tillingham and Bradwell-on-Sea. These bus stops are served by the routes shown in **Table 15-2**.

15.5.29 These bus stops provide access to a range of local and regional bus services. Together, these services provide public transport connectivity between EIA Scoping Site and surrounding settlements, including connections to local centres, residential areas and rail stations.

15.5.30 The accessibility of the EIA Scoping Site by public transport, including the suitability of existing bus services for the construction workforce, will be considered as part of the Traffic and Transport chapter of the ES.

Table 15-2: Bus Stops and Services near the Energy Park

Route No.	Bus Operator	Route Description	Approximate Weekday Frequency
31/ 331/ 332	First Bus	Burnham – Southminster – Steeple – Maldon – Danbury – Great Baddow – Chelmsford	One service per hour (in each direction)
45	Stephensons	Bradwell-on-Sea – Tillingham – Asheldham – Southminster –	Two services per day (in each direction)

Route No.	Bus Operator	Route Description	Approximate Weekday Frequency
		Burnham-on-Crouch – South Woodham Ferrers	

15.5.31 In addition to the Energy Park, there are also several other bus stops and services which will be located within close proximity to Grid Connection Corridor A to the west of the Energy Park as shown on **Figure 15-3: Existing Bus Stops and Routes**; these will be summarised within the Traffic and Transport chapter of the ES.

Rail

15.5.32 The nearest railway stations to the Energy Park are Southminster and Burnham-on-Crouch railway stations which are both located circa 1km to the west of the EIA Scoping Site Boundary. Both railway stations are situated on the Crouch Valley Line served by Greater Anglia, with Southminster railway station forming the eastern terminus. Greater Anglia services run between Southminster and London Liverpool Street (via Burnham-on-Crouch), sometimes requiring a change at Wickford. Weekday rail services to/ from Southminster railway station operate with a frequency of once every 40 minutes in each direction.

15.5.33 Additional railway stations are situated to the west of the Energy Park and nearer Grid Connection Corridor A including Althorne, North Fambridge, South Woodham Ferrers and Battlesbridge (going from east to west). These railway stations are also all located on the Crouch Valley Line and are served by the same Greater Anglia railway services as summarised above.

Future Baseline Conditions

15.5.34 Since there are no known highway schemes in the local area which may alter the local network, it has been assumed that the highway network will remain consistent between the current and future baseline scenarios.

15.5.35 The traffic flows on the surrounding highway network are expected to increase as a result of housing and employment growth. Therefore, projected background traffic growth will be applied to the traffic flows derived from the baseline traffic surveys to represent conditions during the future baseline (construction peak assessment year). The proposed approach and assumptions will be discussed and agreed with ECC prior to undertaking the assessment, to reflect anticipated changes in traffic demand independent of the Proposed Development.

15.6 Potential Effects and Mitigation

15.6.1 This section sets out the potential effects of the Proposed Development on Traffic and Transport.

15.6.2 The greatest transport impacts of the Proposed Development are likely to occur during the construction phase. This will therefore form the focus of the assessment presented in the Traffic and Transport chapter of the ES.

15.6.3 Mitigation measures relevant to Traffic and Transport are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report. These are designed to follow a mitigation hierarchy where road-based deliveries are firstly sought to be minimised as far as reasonably practicable by exploring alternatives such as marine transport and, if feasible, rail-based logistics, before other measures to control or restrict road-movements are subsequently explored, given the rural nature of the study area.

Construction

15.6.4 The construction phase of the Proposed Development is currently anticipated to start in 2030 and last up to 48 months. For the purpose of a robust assessment, construction traffic forecasts presented within the ES will be based on the shortest possible construction programme in order to generate higher monthly (and therefore daily) construction vehicle trips for the purposes of assessment. The assessment will also reflect embedded mitigation such as the usage of the Marine Transfer Facility should this be adopted to transport construction materials as part of the Proposed Development, as well as the usage of the railway if viable, to reduce construction traffic and the potential impacts on the LRN.

15.6.5 At this stage, it is anticipated that, during the peak construction period (anticipated between 2030 and 2034), there could be 750 construction staff present on the DCO Site on any given day and at least 100 HGVs (200 daily HGV movements) travelling to and from the DCO Site per day.

15.6.6 The proposed number of construction vehicle movements and construction staff during the peak of the construction phase will be reviewed as the design develops and will be confirmed within the ES.

15.6.7 Without mitigation, during construction of the Proposed Development the following adverse Traffic and Transport impacts have the potential to occur if not mitigated:

a. Increased severance and/ or delay for pedestrians / Non-Motorised Users (NMUs) due to a temporary increase in construction traffic movements (including Heavy Goods Vehicle (HGV) movements), or from a temporary alteration to route connectivity during the construction of the Proposed Development, including PRoW;
b. Reduced amenity for NMUs due to a temporary increase in or reduced separation from construction traffic movements, including HGV movements;
c. Increased fear and intimidation to NMUs due to a temporary increase in HGV movements where these are in close proximity to people;
d. Increased delay or driver stress to road users due to a temporary increase in construction traffic movements (including HGV movements) or due to temporary road closures or temporary traffic management during the construction of the Proposed Development with resultant diversions, additional congestion or disruption to journey quality;
e. Reduced road safety arising from the temporary increase in construction traffic movements (including HGV movements) on any sensitive parts of the network; and
f. Increase in hazardous / large loads including specialist loads (e.g. abnormal indivisible loads) during the construction phase of the Proposed Development, which could increase the potential for accidents / collisions.

15.6.8 The significance of these effects will be assessed within the Traffic and Transport Chapter of the ES using baseline traffic conditions, forecast construction traffic flows (including vehicle numbers and their distribution to different access points), receptor sensitivity and the assessment methodology agreed through consultation with ECC, NH and other relevant stakeholders. The assessment will take account of embedded mitigation and any additional mitigation measures proposed through the management plans including the Outline CTMP and Outline PRoWMP.

Operation

15.6.9 The operation (and maintenance) phase of the Proposed Development is anticipated to start in 2034 and the anticipated operational lifespan is 40 years. During the operation (and maintenance) phase, the Energy Park will be manned by a nominal number of staff across the Proposed Development (at this stage, assumed to be up to 20-25 permanent staff per day), predominantly undertaking routine inspections, monitoring, maintenance activities and repairs. Staff vehicles and those used for maintenance will primarily be four wheeled drive vehicles and vans, with HGVs rarely accessing the Energy Park during this phase

(and if so in low numbers, for example an occasional HGV maintenance delivery). Given the limited number of vehicle trips anticipated during the operation (and maintenance) phase, including during peak traffic periods, significant effects on the highway network are not expected. Accordingly, it is proposed that traffic-related effects arising solely from routine operational vehicle movements are scoped out of the detailed assessment. Further justification for this approach, including operational trip generation forecasts, will be provided within the Traffic and Transport chapter of the ES.

15.6.10 Notwithstanding the above, during the operation (and maintenance) of the Proposed Development the following adverse Traffic and Transport impacts have the potential to occur if not mitigated:

a. Changes to the PRoW network, including any permanent diversions, closures or route realignments, which could result in increased severance, reduced accessibility and/ or additional delay for pedestrians, cyclists, equestrians and other NMUs;
b. Changes to route amenity, connectivity or convenience for PRoW users resulting from permanent alterations to existing routes;
c. Increase in hazardous / large loads including specialist loads (e.g. abnormal indivisible loads) required for major maintenance or replacement activities during the operation (and maintenance) phase of the Proposed Development (e.g. BESS equipment and associated electrical infrastructure), which may necessitate traffic management measures and have the potential to affect highway users and road safety; and
d. Temporary traffic management associated with periodic maintenance activities where these have the potential to affect highway users, active travel users or PRoW users.

15.6.11 The assessment will take account of embedded mitigation and any additional mitigation measures identified through the design process, including measures incorporated within the Outline PRoWMP and other relevant management plans submitted as part of the DCO application.

Decommissioning

15.6.12 Following an anticipated operational lifespan of approximately 40 years, decommissioning is currently expected to commence at the earliest in 2072 and take approximately 24 months to complete.

15.6.13 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that underground cables and/ or Overhead Lines (OHL) may be left in situ.

15.6.14 There are expected to be fewer HGV, Light Goods Vehicle (LGV) and worker arrivals and departures during decommissioning than during the construction phase.

15.6.15 It is therefore considered reasonable to assume that the traffic and transport impacts of the decommissioning phase will be comparable to, or less than, those identified for the construction phase. Given the uncertainty regarding future baseline conditions, traffic demands and decommissioning methodologies at that time, the assessment of the construction phase will be adopted as a reasonable worst-case proxy for the assessment of decommissioning traffic and transport effects. This is considered to be a robust approach as traffic movements associated with decommissioning are anticipated to be no greater than those associated with construction.

Mitigation

15.6.16 Where practicable, mitigation measures will be incorporated into the design of the Proposed Development and its construction methodology. Through an iterative design and assessment process, potential impacts will be identified and opportunities for avoidance, reduction and mitigation considered at an early stage to minimise adverse effects wherever possible, in accordance with the mitigation hierarchy.

15.6.17 This approach enables potential environmental effects to be avoided or reduced through the evolution of the Proposed Development, rather than relying solely on additional mitigation measures following completion of the assessment.

15.6.18 The Traffic and Transport assessment will take account of all embedded mitigation measures when identifying and evaluating the likely significant effects of the Proposed Development. Consequently, the assessment will report the residual effects remaining after the adoption of embedded mitigation and any additional mitigation measures considered necessary.

Construction

15.6.19 Potential mitigation measures which could be implemented during the construction phase include:

a. Potential usage of the existing Marine Transfer Facility on the River Crouch, where practicable, and/ or the railway if viable, to facilitate the delivery of

construction materials and AILs, reducing HGV movements on the local highway network;

b. Restriction of HGV movements to designated routes and where appropriate, specified days of the week and times of the day;
c. Managing construction working hours to minimise / avoid construction staff travel coinciding with the network peak hours;
d. Temporary or permanent improvements to sections of the highway network to safely accommodate additional and/ or larger vehicles;
e. Positioning of suitably qualified banksmen and / or other temporary traffic management at the DCO Site access points;
f. Provision of temporary or permanent signage and/ or road markings to increase / improve driver awareness of the access points and increased construction vehicle movements;
g. Undertaking vegetation clearance at access points and junctions, where necessary, to improve and maintain appropriate visibility splays;
h. Encouraging the promotion of sustainable travel for local construction workforce, through measures such as car-sharing initiatives and limited parking at compounds, through the management of parking provision;
i. Provision of workforce shuttlebus services between construction compounds, local accommodation, key public transport hubs and potentially park and ride sites in the vicinity of the DCO Site, where appropriate;
j. Implementing a Delivery Management System (DMS) to coordinate and manage the bookings of HGV arrivals and departures;
k. Management of Abnormal Indivisible Loads (AILs), including the identification of suitable transport routes and the implementation of any required mitigation measures, such as temporary carriageway widening, vegetation clearance, relocation of street furniture and temporary road closures; and
l. Maintaining access to PRoW wherever reasonably practicable during the construction phase or providing suitable temporary diversions where closures are required.

15.6.20 The final mitigation strategy will be developed through ongoing design and consultation with ECC, NH and other relevant stakeholders. The proposed mitigation measures will be secured, where appropriate, through the Outline CTMP, Outline PRoWMP and other control documents submitted as part of the wider DCO application.

Operation

15.6.21 Potential mitigation measures which could be implemented during the operation (and maintenance) phase include:

a. In the unlikely event that major electrical equipment, such as a transformer or shunt reactor, requires replacement, occasional AIL movements may be necessary. Therefore, potential mitigation includes the management of AILs, where required, through the use of appropriate transport routes and temporary road closures to facilitate safe passage. It is expected that AIL deliveries would use the same routes as those used during construction. Nonetheless, the implementation of any additional mitigation measures such as temporary carriageway widening, vegetation clearance or relocation of street furniture would also need to be considered if necessary, based on the arrangements which were previously adopted to accommodate AILs during the construction phase;
b. Maintaining access to PRoW wherever reasonably practicable during the operational phase, or providing appropriate permanent diversions where required and secured through the relevant statutory processes; and
c. Implementing appropriate traffic management measures during periodic maintenance activities to minimise disruption to highway users, active travel users and PRoW users.

15.6.22 Given the limited number of vehicle movements anticipated during the operational phase, significant effects on the highway network are not expected. Nevertheless, any operational traffic management requirements and mitigation measures identified through the assessment will be described within the Traffic and Transport chapter of the ES and secured through the relevant management plans where appropriate.

Decommissioning

15.6.23 The decommissioning phase is anticipated to generate similar traffic and transport effects to those arising during the construction phase. Accordingly, the traffic management principles, access arrangements and mitigation measures identified for the construction phase are expected to remain broadly applicable during decommissioning.

15.6.24 The specific decommissioning methodology and any associated mitigation measures will be developed closer to the end of the operational life of the Proposed Development, taking account of the baseline conditions, relevant legislation, guidance and best practice applicable at that time.

15.7 Assessment Methodology

15.7.1 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on Traffic and Transport will be undertaken using the principles of the guidance and criteria set out in 2023 ISEP Guidelines for the Environmental Assessment of Traffic and Movement (Ref 15-14). The methodology is set out below.

15.7.2 The following criteria will be considered:

a. Severance (of communities);
b. Pedestrian Delay (incorporating delay to all non-motorised users);
c. Non-Motorised User Amenity;
d. Fear and Intimidation (on and by road users);
e. Driver Delay (for vehicle drivers and passengers);
f. Road Safety (for vehicle users and pedestrians); and
g. Hazardous/ Large Loads.

15.7.3 The following impacts will also be considered:

a. PRoW diversions and closures; and
b. Impacts on groups and locations which may be sensitive to changes in traffic conditions, as outlined in the 2023 ISEP Guidance as 'Affected Parties'.

15.7.4 Potential impacts of the Proposed Development on Traffic and Transport will be assessed by:

a. Considering the existing (baseline) status of Traffic and Transport within the EIA Scoping Site Boundary and relevant surroundings with respect to the proposed Traffic and Transport study area (see **Figure 15-1: Traffic and Transport Study Area**);
b. Identifying potential impacts of the Proposed Development on Traffic and Transport during the construction and decommissioning phases, and the operation (and maintenance) phase (where relevant) as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

15.7.5 The assessment of impacts will consider:

a. Magnitude of change to the baseline;
b. Sensitivity of the affected receptor; and
c. The scale, nature and significance of the effect.

15.7.6 In addition, the anticipated effects will be classified as short-term, medium-term or long-term, as well as permanent or temporary.

15.7.7 To determine the potential impact of the Proposed Development, the following scenarios will be considered to inform the assessment of the peak construction phase:

a. Baseline (2027) – AM, PM and Daily traffic flows; and
b. Peak Construction Year (currently anticipated to be between 2030 and 2034) With and Without Development – AM, PM and Daily traffic flows.

15.7.8 For the purposes of the EIA, the decommissioning assessment year is assumed to be 2072 (40 years from the expected earliest connection date). This year will not be assessed in the ES in terms of the highway impacts assessment or any junction assessments as it is considered too far into the future to be able to accurately forecast traffic flows or road layout/ network or junction forms. Therefore, it is proposed to adopt the assessment of the construction phase to determine the anticipated worst-case impact of the Proposed Development during its decommissioning phase.

Screening

15.7.9 The 2023 ISEP guidelines set out two rules to screen potential road links into the impact assessment:

a. Rule 1: include highway links where traffic flows will increase by 30% or more (or the number of HGVs will increase by 30% or more); and
b. Rule 2: include any other specifically sensitive areas (e.g. accident black spots, conservation areas, hospitals, links with high pedestrian flows etc.) where traffic flows will increase by 10% or more.

15.7.10 Based on this, links and junctions will not be assessed where there is expected to be a <30% increase in traffic flows as a result of the Proposed Development, unless any specifically sensitive receptors are identified.

15.7.11 Additionally, a negligible magnitude of change will be assigned where there is expected to be fewer than 30 additional vehicle trips per hour during each of the development peak hours as a result of the Proposed Development, irrespective of the proportional increase in traffic flows.

Sensitivity

15.7.12 The general criteria for defining the importance or sensitivity of receptors relating to the assessment of Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation are set out in **Table 15-3** below.

Table 15-3: Sensitivity / Value Criteria for Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation

Sensitivity/ Value	Sensitivity/ Value Criteria
High	**Road Links and Junctions**: More than two sensitive uses present (e.g. schools, play areas, care / retirement homes, hospitals, places of worship, historic buildings) and / or a primarily residential street with properties on both sides of the carriageway. **Walk/ Cycle Links including PRoW**: Heavily trafficked highway with on-road pedestrian / cycle route.
Medium	**Road Links and Junctions**: Two sensitive uses present (e.g. schools, play areas, care / retirement homes, hospitals, places of worship, historic buildings) and / or a large number of residential properties present. **Walk/ Cycle Links including PRoW**: Lightly trafficked highway with on-road pedestrian/ cycle route.
Low	**Road Links and Junctions** (no more than one of the following): a. One sensitive use present (e.g. school, play area, care / retirement home, hospital, place of worship, historic building); b. Many residential properties with direct frontage to highway link being used as a construction route; c. Pedestrians using footways, PRoW and / or crossings on highway link; and d. Cyclists using on-road designated cycle routes along highway link. **Walk/Cycle Links including PRoW**: Heavily trafficked highway with off-road pedestrian/ cycle route.
Very Low	**Road Links and Junctions**: No sensitive users or receptors along link, or no more than one of the following: a. Few residential properties with direct frontage to the highway link being used as a construction route; b. Workplaces with direct frontage to the highway link being used as a construction route; and c. Cyclists using off-road designated cycle routes along highway link. **Walk / Cycle Links including PRoW**: Pedestrian / cycle route not running alongside highway, or lightly trafficked highway with off-road pedestrian/ cycle route.

15.7.13 The general criteria for defining the importance or sensitivity of receptors for the assessment of Driver Delay are set out in **Table 15-4** below. The exact thresholds

will be defined following the completion of the traffic surveys once the characteristics of the surrounding highway network are better understood.

Table 15-4: Sensitivity/ Value Criteria for Driver Delay

Sensitivity/ Value	Sensitivity/ Value Criteria
High	**Road Links**: Not applicable (captured by assessment of road junctions where applicable). **Road Junctions**: High queuing on most or all arms of the junction during the weekday peak hours. For example, a busy roundabout or signalised junction within a built-up area.
Medium	**Road Links**: High queuing on this link, on the approach to junction(s) within the study area. **Road Junctions**: Moderate queuing on most or all arms of the junction OR high queuing on one arm of the junction during the weekday peak hours. For example, a busy roundabout or signalised junction outside of a built-up area.
Low	**Road Links**: Moderate queuing on this link, on the approach to junction(s) within the study area. **Road Junctions**: Low queuing on most or all arms of the junction OR moderate queuing on one arm of the junction during the weekday peak hours. For example, a roundabout or signalised junction outside of a built-up area or a busy priority junction within a built-up area.
Very Low	**Road Links**: Low or very low queuing on this link, on the approach to junction(s) within the study area. **Road Junctions**: Very low queuing on all arms of the junction OR low queuing on one arm of the junction during the weekday peak hours. For example, a lightly trafficked priority junction outside of a built-up area.

15.7.14 The preliminary criteria for defining the importance or sensitivity of road link and road junction receptors for the assessment of Road Safety and Hazardous/ Large Loads are set out in **Table 15-5** below. The exact thresholds will be defined following the collation of PIC data once the characteristics of the surrounding highway network are better understood.

Table 15-5: Sensitivity/ Value Criteria for Road Safety and Hazardous/ Large Loads

Sensitivity/ Value	Road Safety Criteria	Hazardous/ Large Loads Criteria
High	**Road Links and Road Junctions**: A high number of collisions in five years, or more than a few serious and / or more than one fatal collision in five years.	**Road Links and Road Junctions**: Many serious / fatal collisions (or more than one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years.

Sensitivity/ Value	Road Safety Criteria	Hazardous/ Large Loads Criteria
Medium	**Road Links and Road Junctions**: A medium number of collisions (with several serious collisions and / or one fatal collision) in five years.	**Road Links and Road Junctions**: Several serious/ fatal collisions (with up to one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years.
Low	**Road Links and Road Junctions**: A low number of collisions in five years (with up to one serious collision and no fatal collisions) in five years.	**Road Links and Road Junctions**: Few serious collisions (with no fatal collisions) involving a goods vehicle (>3.5 tonnes) in five years.
Very Low	**Road Links and Road Junctions**: A very low number of collisions (with no serious or fatal collisions) in five years.	**Road Links and Road Junctions**: No serious or fatal collisions involving a goods vehicle (>3.5 tonnes) in five years.

15.7.15 The collision rate for road links will be calculated and compared with national road safety statistics provided within Road Casualties for Great Britain (Ref 15-16). Receptors which record collision rates much higher than the national average will be manually reviewed to determine whether their sensitivity requires adjustment.

15.7.16 The general criteria for defining the importance or sensitivity of PRoW receptors for the assessment of PRoW Diversions and Closures are set out in **Table 15-6** below.

Table 15-6: Sensitivity/ Value Criteria for PRoW Diversions and Closures

Sensitivity/ Value	PRoW Diversions and Closures Criteria
High	Main route of excellent quality expected to be well used, with no alternative route(s) of equivalent quality available.
Medium	Main route of good quality, expected to be fairly well used, with alternative route(s) available OR a minor route of mixed quality, expected to be lightly used, with no alternative route(s) available.
Low	Minor route of mixed quality, expected to be lightly used, with alternative route(s) available.
Very Low	Poor quality route which appears to be inaccessible, out of use or rarely used.

Magnitude

15.7.17 As identified within the 2023 ISEP guidelines, the magnitude of impact represents the level of change from the baseline conditions and this section identifies how magnitude will be considered for each of the assessment criteria.

15.7.18 **Severance** is defined in the ISEP guidelines as the "perceived division that can occur within a community when it becomes separated by major traffic infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure". Severance can also be caused by a full closure of a highway, leading to a requirement for road users to take alternative routes to their destinations. The guidelines state that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution should be observed when applying these thresholds to very low baseline flows which are unlikely to experience severance impacts even with high percentage changes.

15.7.19 **Pedestrian Delay** (incorporating delay to all non-motorised users) concerns the impacts of changes in the volume, composition or speed of traffic on the ability of pedestrians to cross the road. The assessment of pedestrian delay will serve as a proxy for the delay that other modes of non-motorised users may experience when crossing roads.

15.7.20 **Non-Motorised User Amenity** is broadly defined as "the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/ separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in non-motorised user amenity would be where the traffic flow (or HGV component) is halved or doubled.

15.7.21 **Fear and Intimidation** occurs through a combination of traffic flow, speed, proportion of HGVs and the proximity of traffic to people. These indicators are often heightened by a perceived lack of protection or buffers from the highway or through narrow or non-existent footways. The assessment will consider each road on a case-by-case basis, however there are thresholds provided in the 2023 ISEP guidelines which are further summarised in **Table 15-8**.

15.7.22 **Driver Delay** relates to incremental increases in traffic. However, traffic delays are only likely to be significant when traffic is already at, or close to, the capacity of the system. As a further consideration, where any temporary road closures or traffic management are likely to be in place to enable the construction of the Proposed Development, any additional potential delay caused by these resultant diversion routes will be reported.

15.7.23 **Road Safety** considers PIC data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. This will be used to assess whether the additional traffic during construction of

the Proposed Development would be likely to have a detrimental effect on road safety.

15.7.24 For **Hazardous / Large Loads**, the guidance states that where the number of such movements is considered to be significant, risk analysis should be carried out to illustrate the potential for accidents. Appropriate routes for abnormal load movements should be considered, with mitigation strategies to secure safe passage. As part of the Proposed Development, there will be the requirement for abnormal loads which are categorised as Large Loads.

15.7.25 In view of the above, the impacts of Hazardous / Large Loads will be considered, in the form of a qualitative risk assessment to establish the likelihood and extent of such effects. The Outline CTMP, which will be prepared at ES stage, will include details of measures that will be employed to support the safe transport of components to and from the Proposed Development.

15.7.26 **PRoW Diversions and Closures** will be considered on the basis of the type of impact i.e. whether a temporary or permanent PRoW closure or diversion is proposed, as well as any increases in pedestrian journey length following a closure/ diversion and how long any potential disruption to an existing route would occur for. The assessment will consider indicative thresholds derived based on professional judgement and experience.

15.7.27 **Table 15-7** and **Table 15-8** summarise the criteria that will be considered to assess the magnitude of effect, along with the thresholds that will be used to determine whether effects are considered high, medium, low or very low. In accordance with ISEP guidance, a very low magnitude of change has been assigned where there is expected to be fewer than 30 additional vehicle trips per hour during each of the development peak hours as a result of the Proposed Development, irrespective of the proportional increase in traffic flows.

Table 15-7: Magnitude Criteria for Traffic and Transport

Impact	Very Low	Low	Medium	High
Severance	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of 10-39%).	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	The severity of the impact will be determined based on the thresholds identified above for severance.			
Non-Motorised User Amenity	Increase in total traffic flows of below 50%.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	No change in overall level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see **Table 15-8** below).	One step change in overall level (see **Table 15-8** below), but with <400 daily vehicle increase and / or <500 daily HGV increase.	One step change in overall level (see **Table 15-8** below), but with >400 daily vehicle increase and / or >500 daily HGV increase.	Two step changes in overall level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see **Table 15-8** below).
Driver Delay	Increase in total traffic flows of below 30%.	Increase in total traffic flows of 30-59%.	Increase in total traffic flows of 60-89%	Increase in total traffic flows of 90% and above.
Road Safety	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	All links estimated to experience increases in total traffic flows of at least 30% or increases in HGV flows of at least 10% are analysed further on a case-by-case basis.		
Hazardous/ Large Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous / large load, occurring.			

15.7.28 Additional magnitude criteria for Fear and Intimidation based on those outlined in the 2023 ISEP guidelines are provided in **Table 15-8** below.

Table 15-8: Additional Magnitude Criteria for Fear and Intimidation

Criteria	Degree of Hazard			
	Small	Moderate	Great	Extreme
A) Average Hourly Traffic Flow	<600 (0)	600-1,200 (10)	1,200-1,800 (20)	>1,800 (30)
B) Daily HGV Flow	<1,000 (0)	1,000-2,000 (10)	2,000-3,000 (20)	>3,000 (30)
C) Average Speed	<20mph (0)	20-30mph (10)	30-40mph (20)	>40mph (30)
Total Score (A+B+C)	0-20	21-40	41-70	71+

15.7.29 Magnitude of change with respect to Severance and Pedestrian Delay across PRoW receptors will be categorised as follows, based on professional judgement and experience:

a. Very Low:

i. Closures / diversions: None required, or temporary (short-term) closures are only required to install safety measures to retain PRoW access throughout construction; and / or

ii. Haul road management / crossing points: No interactions with proposed haul road / construction vehicles or management only required for a temporary (short-term or medium-term) duration. Up to one haul road crossing point required to retain PRoW access.

b. Low:

i. Closures / diversions: Temporary (medium-term) localised closures / diversions are required; and / or

ii. Haul road management / crossing points: Proposed haul road / construction vehicles or management required for a temporary (long-term) duration. Several haul road crossing points required to retain PRoW access.

c. Medium:

i. Closures / diversions: Temporary (long-term) or permanent closures / diversions are required, with a minor increase in journey length.

d. High:

i. Closures / diversions: A closure without a diversion route for more than five days, or temporary (long-term) or permanent closures / diversions are required, with a major increase in journey length.

15.7.30 The exact thresholds will be defined once the characteristics of the surrounding PRoW network are better understood. The timescales (short-term, medium-term and long-term) will also be defined when the ES is prepared.

15.7.31 Magnitude of change with respect to Non-Motorised User Amenity and Fear & Intimidation across PRoW receptors will be categorised as follows, based on professional judgement and experience:

a. Very Low: No interactions with proposed haul road / construction vehicles or management only required for an already trafficked PRoW e.g. a Byway Open to All Traffic (BOAT) for a temporary (short-term or medium-term) duration;
b. Low: Non-trafficked PRoW (e.g. public footway or bridleway) to be used by limited construction vehicles with management/ banksmen to avoid any interactions for a temporary period, although not required throughout the entire construction period
c. Medium: PRoW to interact with construction vehicles at haul road crossing points only (to be managed), otherwise to be physically separated. Trafficked PRoW (e.g. BOAT) to be used by limited construction vehicles with management/banksmen to avoid any interactions for a temporary (long-term) period (however, not required throughout the entire construction period).
d. High: PRoW to be used by construction vehicles throughout the construction period with management/ banksmen.

15.7.32 PRoW Diversions and Closures will be assessed with reference to the nature, scale and duration of any proposed changes to existing routes, considered on the basis of the type of impact i.e. whether a temporary or permanent PRoW closure or diversion is proposed, and how long any potential disruption to an existing route would therefore occur for. The assessment considers the indicative thresholds presented in **Table 15-9** further below which have been derived based on professional judgement and experience. Again, the exact thresholds will be defined once the characteristics of the surrounding PRoW network are better understood.

15.7.33 Where closures or diversions are required, the assessment will consider factors including the length of any diversion, the duration of disruption, the availability

and quality of alternative routes, changes in accessibility and connectivity, and the potential effects on walkers, cyclists, horse riders and other users of the PRoW network.

Table 15-9: Magnitude Criteria for PRoW Diversions and Closures

Impact	Description
High	A closure without a diversion route for more than five days, or temporary (long-term) or permanent closures / diversions are required, with a major increase in journey length.
Medium	Temporary (long-term) or permanent closures / diversions are required, with a minor increase in journey length.
Low	Temporary (short-term or medium-term) localised closures / diversions are only required.
Very Low	No closures / diversions required, or temporary (short-term) closures are only required to install safety measures to retain PRoW access throughout construction.

Determining the Significance of Effects

15.7.34 The significance of Traffic and Transport effects will be determined by considering the relationship between the sensitivity of the receptor and the magnitude of change. **Table 15-10** sets out how the significance of effect will be determined. Effects predicted to be 'major' or 'moderate' are considered significant whilst effects predicted to be 'minor' or 'negligible' are considered not significant.

Table 15-10: Significance of Effects Matrix (Traffic and Transport)

Sensitivity or Value of Resource/ Receptor	Magnitude of Change			
	High	Medium	Low	Very Low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Negligible
Low	**Moderate**	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

15.7.35 Duration is considered when assessing the overall significance of residual effects, noting that the ISEP Guidelines state in paragraph 1.27 that: *"The EIA Regulations also require consideration of whether the anticipated effect is short-term, medium-term or long-term and whether it is permanent or temporary".*

15.7.36 All the transport and access effects associated with the construction phase of the Proposed Development would be temporary effects.

15.8 Limitations and Assumptions

15.8.1 At this stage, the location and layout of certain elements of infrastructure have not been determined, including the confirmed Point of Connection, type of cabling infrastructure (i.e. underground cables or OHLs), construction methodologies and mitigation. This is of particular importance when considering potential impacts associated with the location of access points and construction vehicle routing to / from those access points, as well as proposed crossing points of the highway network and the PRoW network.

15.8.2 Further to the above, the proposed study area shown in **Figure 15-1: Traffic and Transport Study Area** has yet to be agreed with ECC and NH but is based on an initial appraisal of the local highway network and where the construction phase impacts are most likely to occur. The proposed study area will be updated following consultation with ECC and NH as necessary, prior to being assessed as part of the ES.

15.9 Summary of Elements Scoped In and Out

15.9.1 Due to the potential for effects on Traffic and Transport receptors and resources from the Proposed Development, Traffic and Transport is scoped in to the ES. It is also anticipated that the ES chapter will be supported by a TAN, an Outline CTMP and an Outline PRoWMP, which will be subject to agreement with ECC and NH. The proposed scope and methodology of these assessments is described in **Section 15.4**.

15.9.2 A summary of the elements scoped in and out of the Traffic and Transport ES chapter is presented in **Table 14-4** below.

Table 15-11: Elements scoped in and out of the Traffic and Transport assessment

Element	Scoped In / Scoped Out	Reasoning
Impact of the Construction phase of the Proposed Development	Scoped In	Temporary increases in traffic including HGV movements could potentially have significant impacts. In addition, a temporary change in route connections during the construction of the Proposed Development, including to PRoW could have significant impacts. Temporary road closures or temporary traffic management during the construction of the Proposed Development could also have significant impacts.
Severance (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, and / or temporary

Element	Scoped In / Scoped Out	Reasoning
		changes to route connectivity during the construction phase of the Proposed Development have the potential to give rise to significant severance effects for pedestrian, cyclists, equestrians and other NMUs.
Pedestrian Delay (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, and / or temporary changes to route connectivity during the construction phase of the Proposed Development have the potential to give rise to significant pedestrian delay effects for pedestrians and other NMUs.
Non-motorised User Amenity (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, during the construction phase of the Proposed Development have the potential to give rise to significant effects on NMU amenity.
Fear and Intimidation (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, during the construction phase of the Proposed Development have the potential to give rise to significant fear and intimidation effects for pedestrians, cyclists equestrians and other NMUs.
Driver Delay (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, and / or temporary traffic management measures, including temporary road closures, during the construction phase of the Proposed Development have the potential to give rise to significant driver delay effects.
Road Safety (Construction phase)	Scoped In	Temporary increases in traffic, including HGV movements, during the construction phase of the Proposed Development have the potential to give rise to significant road safety effects.
Hazardous/ Large Loads (Construction phase)	Scoped In	Whilst it is not expected that there will be any hazardous loads associated with the Proposed Development, Large Loads in the form of AILs will be expected during construction. A review of the AIL routing to/ from the DCO Site will be undertaken to determine the suitability of the surrounding highway network and identify any mitigation

Element	Scoped In / Scoped Out	Reasoning
		measures required to facilitate the safe transportation of these loads to the DCO Site.
PRoW Diversions and Closures (Construction phase)	Scoped In	Temporary changes to PRoW connectivity during the construction phase of the Proposed Development have the potential to give rise to significant effects on accessibility, connectivity and amenity for users of the PRoW network.
Impact of the Operation (and maintenance) phase of the Proposed Development	Scoped Out	The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be limited to occasional maintenance, inspection and servicing (replacement) activities and are not anticipated to result in significant traffic and transport effects. Therefore, this element of the operation (and maintenance phase) of the Proposed Development is proposed to be Scoped Out.
	Scoped In	The operation (and maintenance) phase of the Proposed Development may result in a permanent change in route connections during the operation of the Proposed Development, including to PRoW. In addition, there may be an increase in hazardous/ large loads including specialist loads (e.g. abnormal indivisible loads to replace BESS equipment) during the operational phase of the Proposed Development (for major maintenance or replacement activities during the operation (and maintenance) phase of the Proposed Development. Therefore, these elements of the operation (and maintenance phase) of the Proposed Development is proposed to be Scoped In.
Severance (Operation and maintenance phase)	Scoped In	Any permanent change in route connections could result in potentially significant impacts on severance.
Pedestrian Delay (Operation and maintenance phase)	Scoped In	Any permanent change in route connections could result in potentially significant impacts on pedestrian delay.
Non-motorised User Amenity (Operation	Scoped Out	The trips associated with the operation (and maintenance) phase of the Proposed

Element	Scoped In / Scoped Out	Reasoning
and maintenance phase)		Development are expected to be nominal and therefore not result in a significant impact on non-motorised user amenity.
Fear and Intimidation (Operation and maintenance phase)	Scoped Out	The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be nominal and therefore not result in a significant impact on fear and intimidation.
Driver Delay (Operation and maintenance phase)	Scoped Out	The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be nominal and therefore not result in a significant impact on driver delay.
Road Safety (Operation and maintenance phase)	Scoped Out	The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be nominal and therefore not result in a significant impact on road safety.
Hazardous/ Large Loads (Operation and maintenance phase)	Scoped In	Whilst it is not expected that there will be any hazardous loads associated with the Proposed Development, Large Loads in the form of AILs may be required during the operation (and maintenance) phase of the Proposed Development e.g. in the unlikely event that major electrical equipment, such as a transformer or shunt reactor, requires replacement. A review of the AIL routing to / from the DCO Site will be undertaken if necessary, to review the suitability of the network in the vicinity of the Proposed Development, although it is expected that AIL deliveries would use the same routes as those used during construction.
PRoW Diversions and Closures (Operation and maintenance phase)	Scoped In	Any permanent change in route connections to PRoW during the operation (and maintenance) of the Proposed Development could have significant impacts.
Impact of the Decommissioning phase of the Proposed Development	Scoped In	Future traffic flows are uncertain, and the impacts of the decommissioning phase are expected to be no greater than those during the construction phase. It can therefore be confidently concluded that the magnitude of effects will be the same or less than those already determined for the construction

Element	Scoped In / Scoped Out	Reasoning
		phase. The conclusions of effects will be presented in the ES and will state that the significance of effect will be the same or less than the construction phase, however a separate assessment for decommissioning will not be undertaken.

15.10 References

Ref 15-1 Department of Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf. Accessed: October 2026

Ref 15-2 DESNZ National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 15-3 DESNZ National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf Accessed: October 2026

Ref 15-4 Ministry of Housing, Communities and Local Government (MHCLG) (Dec 2024, updated 2026) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/6aabe97844ec1aa417346c0b/National_Planning_Policy_Framework.pdf Accessed: October 2026

Ref 15-5 Essex Transport Strategy: The Local Transport Plan for Essex (2011). Available at https://www.essexhighways.org/highway-schemes-and-developments/local-transport-plan Accessed: October 2026

Ref 15-6 Basildon District Local Plan Saved Policies (2007). Available at: https://www.basildon.gov.uk/media/598/Basildon-District-Local-Plan-Saved-Policies-September-2007/pdf/Basildon_District_Local_Plan_Saved_Policies_-_September_2007.pdf?m=1540381932580 Accessed: October 2026

Ref 15-7 Basildon Borough Council Local Plan 2023-2043 Regulation 19 (2026). Available at: https://basildon-lp-reg19.commonplace.is/en-GB/proposals/v3/regulation-19-local-plan?step=step1 Accessed: October 2026

Ref 15-8 Chelmsford Local Plan (2020). Available at: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026

Ref 15-9 Maldon District Approved Local Development Plan 2014-2029 (2017). Available at: https://www.maldon.gov.uk/downloads/file/14807/approved_maldon_district_local_development_plan_2014-2029. Accessed: October 2026

Ref 15-10 Rochford District Council Local Development Framework – Core Strategy Adopted Version (2011). Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planningpolicy_cs_adoptedstrategy.pdf Accessed: October 2026

Ref 15-11 Rochford District Council Local Development Framework – Development Management Plan (2014). Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planning_jaap_dpdadopted_0.pdf Accessed: October 2026

Ref 15-12 Rochford District Council Draft Rochford Local Plan – Regulation 18 (February 2026). Available at: https://www.rochford.gov.uk/media/3800. Accessed: October 2026

Ref 15-13 DLUHC and MHCLG (2023); 'National Planning Practice Guidance; Travel Plans, Transport Assessments and Statements'.

Ref 15-14 Institute of Sustainability and Environmental Professionals (2023); 'Environmental Assessment of Traffic and Movement'.

Ref 15-15 Construction Logistics and Community Safety (2024); 'CLOCS Standard'.

Ref 15-16 Department for Transport (DfT) (2025). Road traffic statistics.

Ref 15-17 Essex County Council (ECC) PRoW Interactive Map (2026). Available at: https://www.essexhighways.org/getting-around/public-rights-of-way/prow-interactive-map Accessed: October 2026

Ref 15-18 ECC Highways Information Map (2026). Available at: https://www.essexhighways.org/interactive-maps-and-live-travel-information/highways-information-map. Accessed: October 2026

16. Water Environment

16.1 Introduction

16.1.1 This Environmental Impact Assessment (EIA) Scoping Report chapter sets out the proposed approach to the assessment of likely significant effects on the water environment (surface waters, groundwater, hydromorphology, water resources and flood risk) during construction, operation (and maintenance), and decommissioning phases. Isolated ponds are assessed in **Chapter 10: Ecology and Biodiversity** as they are considered a specific habitat type rather than a water feature and to avoid double counting of potential effects. This chapter identifies the proposed assessment methodology, and how suitable mitigation strategies will be put forward and set out within the water environment chapter of the Environmental Statement (ES).

16.1.2 Where designated ecological sites are sensitive to changes in hydrology or water quality (i.e., they are 'water dependent') an assessment of the risks to them is considered in this chapter. However, potential impacts from contaminated land on any controlled water (surface or groundwater) is considered in **Section 17.4 Ground Conditions** of **Chapter 17: Other Environmental Topics**.

16.1.3 This chapter is supported by the following figures:

a. **Figure 16-1: Surface Water Features and their Attributes;**
b. **Figure 16-2: Bedrock Aquifers;**
c. **Figure 16-3: Groundwater Features and their Attributes;**
d. **Figure 16-4: Fluvial and Tidal Flood Risk; and**
e. **Figure 16-5: Surface Water Flood Risk.**

16.1.4 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 10: Ecology and Biodiversity** for consideration of ponds, aquatic ecology and impacts on designated nature conservation sites; and
b. **Section 17.4 Ground Conditions** of **Chapter 17: Other Environmental Topics**, particularly the assessment of contaminated land;

16.2 Study Area

16.2.1 A study area of 1 kilometre (km) from the EIA Scoping Site (including the Energy Park, Connection and Access Corridor, and Grid Connection Corridors) has been

considered in order to identify water features that could reasonably be affected by the Proposed Development. This study area is illustrated on **Figure 16-1: Surface Water Features and their Attributes**.

16.2.2 The 1km study area is based on professional judgment and is an accepted distance for a water environment and flood risk study area for Proposed Developments of this type in order to identify features that might be impacted. However, given that water quality and flood impacts may propagate downstream, the assessment also considers a wider study area where relevant, which extends as far downstream as a potential impact may influence the quality or quantity of the water body (in this case the ultimate receptor is considered to be the Blackwater Estuary to the North and the Crouch and Roach Estuary to the South). This is to ensure that all relevant attributes of potentially affected water features are identified and considered when determining the importance of that feature. Overall, professional judgement has been applied to identify the extent to which such features are considered. In this case, the final receptor would be the North Sea designated as part of the Essex Transitional Waters Water Framework Directive (WFD).

16.3 Legislation, Planning Policy Context and Guidance

16.3.1 Legislation, planning policy and guidance relating to the water environment and pertinent to the Proposed Development is listed in this section.

Legislation

16.3.2 Relevant legislation includes:

a. Environment Act 2021 (Ref 16-1);
b. Flood and Water Management Act 2010 (Ref 16-2);
c. Water Resources Act (Amendment) (England and Wales) Regulations 2009 (Ref 16-3)
d. Marine and Coastal Access Act 2009 (Ref 16-4);
e. Land Drainage Act 1991 (Ref 16-5);
f. Water Resources Act 1991 (Ref 16-6);
g. Environmental Protection Act 1990 (Ref 16-7);
h. Salmon and Freshwater Fisheries Act 1975 (Ref 16-8);
i. Water environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 16-9);
j. Environmental Damage (Prevention and Remediation) Regulations 2017 (as amended) (Ref 16-10);

k. Environmental Permitting (England and Wales) Regulations 2016, as amended 2018 (Ref 16-11);
l. Building Regulations 2010 (Ref 16-12), Document Part H: Drainage and Waste Disposal (2010);
m. Eels (England and Wales) Regulations 2009 (Ref 16-13);
n. The Control of Substances Hazardous to Health (Amendment) Regulations 2004 (Ref 16-14);
o. Control of Pollution (Oil Storage) (England) Regulations 2001 (Ref 16-15);
p. The Anti-Pollution Works Regulations 1999 (Ref 16-16);
q. The Water Framework Directive (WFD) (Standards and Classification) Regulations 2015 (Ref 16-17);
r. The Water Supply (Water Quality) (Amendment) Regulations 2018 (Ref 16-63); and
s. Bathing Water Regulations 2013 (Ref 16-64).

National Planning Policy

16.3.3 The following planning documents and policies have been considered as part of the water environment, drainage and flood risk assessment methodology, receptor selection, receptor importance and sensitivity, potential significant environmental effects, and scope for mitigation:

a. Overarching National Policy Statement (NPS) for Energy (EN-1) (2025) (Ref 16-27), specifically Section 5.16 and Section 5.8;
b. The NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 16-28) specifically, paragraph 2.10.84 to 2.10.88; and
c. The National Policy Statement for Electricity Networks (EN-5) (2025) (Ref 16-29).

16.3.4 The various NPS requires the potential project and cumulative effects on the water environment from new infrastructure developments to be assessed, including groundwater, inland surface water, transitional waters, coastal and marine waters to be considered across construction, operation and decommissioning phases. This should cover impacts on water quality, water resources, physical characteristics, and flood risk, taking into account climate change and future changes in water availability where relevant. In particular, applications should:

a. Adequately manage pollution risks.
b. Avoid locating potentially polluting activities in the most sensitive locations for groundwater (e.g. Source Protection Zone 1 or close to nationally important drinking water supplies).

c. Look to use water efficiently.
d. Incorporate Sustainable Drainage Systems (SuDS) unless there is clear evidence that this would not be appropriate.
e. Be supported by an appropriate Flood Risk Assessment where relevant.
f. Where access tracks need to be provided, permeable tracks should be used.
g. Configured or selected to avoid the need to impact on existing drainage systems and watercourses.
h. Culverting existing watercourses/drainage ditches should be avoided. However, where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist, and where necessary it will only be in place temporarily for the construction period.

National Planning Policy.

16.3.5 Other important and relevant planning policy includes the National Planning Policy Framework (NPPF) (2026) (Ref 16-30), specifically and Section 18 Managing flood risk and coastal change, and Section 19 Conserving and enhancing the natural environment.

16.3.6 Consideration will also be given to the following strategic policy:

a. UK Government Environmental Improvement Plan 2023 (Ref 16-31);
b. UK Government's Plan for Water: Our Integrated Approach to Delivery Clean and Plentiful Water 2023 (Ref 16-32);
c. UK Government's 25 Year Environment Plan (Ref 16-33);
d. The UK Government's Future Water Strategy (2011) (Ref 16-34);
e. National standards for sustainable drainage systems (SuDS) (Ref 16-35); and
f. Building Research Establishment (BRE) Digest 365: Soakaway Design and Sewers for Adoption (7th Edition, 2012) (Ref 16-36).

Local Planning Policy

16.3.7 The Proposed Development lies within the administrative areas of the Basildon Borough, Chelmsford City, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the water environment assessment:

a. Essex County Council:

i. Local Flood Risk Management Strategy (Ref 16-18)
ii. 'What are SuDS and How are they Designed?' (Ref 16-19)
iii. The Sustainable Drainage Systems Design Guide for Essex 2020: Supporting Sustainable Development (Ref 16-20)

b. Basildon Borough Council:

i. Basildon Borough Local Plan 2023-2043 Regulation 19 policy CC2: Addressing flood risk
ii. Level 1 Strategic Flood Risk Assessment (Ref 16-21)

c. Chelmsford City Council:

i. Chelmsford Local Plan 2013-2036 (Ref 16-22) policy S2: Addressing climate change and flood risk and policy DM18: Flooding/SuDS
ii. Chelmsford Local Plan Pre-Submission (Regulation 19) Document (February 2025) policy S2: Addressing climate change and flood risk and policy DM18: Flooding/SuDS
iii. Chelmsford City Council Level 1 Strategic Flood Risk Assessment (Ref 16-23)
iv. Chelmsford City Level 2 Strategic Flood Risk Assessment (Ref 16-24)

d. Maldon District Council:

i. Maldon District Approved Local Development Plan 2014-2029 (adopted July 2017) policy D5: flood risk and coastal management
ii. Maldon District Council Level 1 Strategic Flood Risk Assessment (Ref 16-25)

e. Rochford District Council:

i. Local Development Framework – Core Strategy Adopted Version (December 2011) policy ENV3: Flood risk
ii. Draft Rochford Local Plan Regulation 18 (February 2026) policy NE8: Flood risk
iii. South Essex Surface Water Management Plan (Ref 16-25)

Relevant Industry Guidance

16.3.8 The following guidance documents have been considered as part of the water environment, drainage and flood risk assessment methodology, receptor selection, receptor importance and sensitivity, potential significant environmental effects, and scope for mitigation:

a. The National Planning Policy Guidance (NPPG) (Ref 16-37) provides guidance for local planning authorities on assessing the significance of water environment effects of proposed developments; and
b. Planning Inspectorate - Advice on the Water Framework Directive (Ref 16-38); and
c. Planning Inspectorate – Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (2024) (Ref 16-39.

16.3.9 The NPPG, updated in 2024, provides guidance for local planning authorities on assessing the significance of water environment effects of projects. The NPPF advises on how to take account of and address the risks associated with flooding and coastal change in the planning process. It outlines a number of main steps to be followed which are designed to ensure that if there are better sites in terms of flood risk, or if a project cannot be made safe, it should not be permitted. These steps include: assess flood risk; avoid flood risk; and manage and mitigate flood risk. The guidance states that developers and applicants need to consider flood risk to and from the development site and it is likely to be in their own best interests to do this as early as possible. In addition, the guidance provides detail on the application of the Sequential Test and the Exception Test.

16.3.10 Other guidance includes:

a. The Environment Agency's Flood Risk Assessments Climate Change Allowances (Ref 16-40) which provides guidance on how to apply climate change allowances to Flood Risk Assessments (FRAs); and
b. CIRIA (2014) Containment systems for the prevention of pollution (C736F) (Ref 16-41);
c. CIRIA (2001) Control of water pollution from construction sites – Guidance for consultants and contractors (C532) (Ref 16-42);
d. CIRIA (2006) Control of water pollution from linear construction projects – Technical guidance (C648) (Ref 16-43);
e. CIRIA (2023) Environmental good practice on site (5th edition) (C811) (Ref 16-44); and
f. CIRIA (2016) Groundwater control: design and practice (second edition) (C750) (Ref 16-45).
g. The Environment Agency approach to groundwater protection (Ref 16-46). This includes:

    i. Regulatory Position Statement (RPS) A (Risk Based Approach);
    ii. RPS B (Protection of Water Intended for Human Consumption);
    iii. RPS G (Discharge of Liquid Effluents into the Ground); and
    iv. RPS N (Groundwater Resources and Abstraction).

h. The Environment Agency provides further guidance on groundwater abstractions and protection through the following:

    v. Environment Agency (2007) Hydrogeological impact appraisal for groundwater abstractions. Science Report – SC040020/SR2 (Ref 16-47);
    vi. Environment Agency (2007) Hydrogeological impact appraisal for dewatering abstractions. Science Report – SC040020/SR1 (Ref 16-48);

vii. Environment Agency (2017) Protect groundwater and prevent groundwater pollution (Ref 16-49);
viii. Environment Agency (2017) Groundwater protection technical guidance (Ref 16-50);

i. GOV.UK. Oil storage regulations for businesses (Ref 16-65);
j. GOV.UK. Pollution prevention for businesses (Ref 16-66);
k. National Fire Chiefs Council BESS guidance (Ref 16-67); and
l. The Water Framework Directive UK Risk assessment of groundwater dependent terrestrial ecosystems from the Technical Advisory Group (TAG) (Ref 16-51) outlines guidance in relation to habitats directly impacted by groundwater.

16.4 Consultation

16.4.1 Consultation will be undertaken with statutory parties, including the Environment Agency, Anglian Water, Essex and Suffolk Water, Natural England, the Marine Management Organisation, Local Planning Authorities (Maldon District Council, Basildon Borough Council, Chelmsford City Council, and Rochford District Council), and the Lead Local Flood Authority (LLFA) (Essex County Council). There is no Internal Drainage Board covering this area.

16.4.2 A Freedom of Information Request was sent to the National Infrastructure Team of the Environment Agency on 20th March 2026. In addition, a meeting was held with the Environment Agency on 1st July 2026 to discuss the approach to the Flood Risk Assessment and the availability of hydraulic models for the area.

16.5 Baseline Conditions

16.5.1 This section describes the baseline environmental characteristics for the Proposed Development area and surrounding areas with specific reference to the water environment.

16.5.2 Where relevant, water environment baseline conditions have been presented in a series of figures that support this chapter. See **Section 16.1.3** for the figures list.

Sources of Information

16.5.3 At this stage, the water environment baseline has been determined by a desk study of available information from the following sources:

a. Online Ordnance Survey (OS) maps viewed to identify any surface water features within 1km of the Proposed Development (Ref 16-52);

b. Online aerial photography;
c. Part 1: Anglian River Basin District River Basin Management Plan (Ref 16-53);
d. Environment Agency Catchment Data Explorer website (Ref 16-54);
e. Department for Environment, Food and Rural Affairs (DEFRA) hydrology data explorer website (Ref 16-55);
f. Environment Agency Water Quality Explorer (Ref 16-56);
g. National Soil Resources Institute Soilscapes website (Ref 16-57);
h. Multi Agency Geographical Information for the Countryside (MAGIC) map website (Ref 16-58);
i. British Geological Society (BGS) Geoindex website (Ref 16-59);
j. Meteorological Office website (Ref 16-60);
k. Environment Agency Online Interactive Maps (Ref 16-61);

    i. Environment Agency Online Flood map for planning (rivers and sea);
    ii. Environment Agency Online Risk of flooding from surface water;
    iii. Environment Agency Online Risk of flooding from reservoirs; and
    iv. Environment Agency Online Flood warning areas and risk.

16.5.4 Further review of existing geological plans, hydrogeological data and site investigation data will be carried out at later assessment stages to support the assessment of local ground and groundwater conditions. Summarised data will inform the assessment of potential effects on groundwater receptors, be recorded and provided within a FRA, and will be used to inform the Outline Surface Water Drainage Strategy (SWDS). The FRA and Outline SWDS will form a technical appendix to the ES.

16.5.5 A general walkover and hydromorphological survey of the EIA Scoping Site will also be undertaken in order to inform the assessment. As part of the Ecological Assessment the walkover survey will include a protected species scoping survey to inform the likelihood of the habitats within the Energy Park supporting protected species and other species of conservation importance.

Baseline Information

16.5.6 This section describes the baseline environmental characteristics for the Proposed Development and surrounding areas.

Topography, Land Use and Climate

16.5.7 The topography across the study area is predominantly low-lying, with relatively limited variation in elevation. The lowest elevations occur in the eastern extent of the study area around Tillingham and Southminster, particularly in proximity to the coast and associated estuarine environments. Elevations generally increase westwards towards South Woodham Ferrers, where the highest ground

within the study area reaches approximately 60m Above Ordnance Datum (AOD). In contrast, much of the eastern extent lies at elevations of approximately 20m AOD or below. The study area is intersected by a network of drainage ditches and managed watercourses associated with the estuarine environment, which contribute to local drainage characteristics, particularly within the low-lying coastal areas located along the eastern boundary of the EIA Scoping Site. The potential for estuarine / tide locked channels will be considered during the walkover survey at ES stage.

16.5.8 Land use within the study area is predominantly rural in character and comprises primarily agricultural land, including a mixture of arable farmland and improved grassland. Urban development is concentrated within the settlements of South Woodham Ferrers, Southminster and Tillingham, with smaller areas of dispersed residential and agricultural development present throughout the study area. Localised areas of construction and mineral extraction are also present within the proposed development area. Extensive coastal and estuarine habitats occur along the EIA Scoping Site, including areas of wetland associated with the River Crouch and surrounding estuarine environment. Overall, woodland cover within the study area is limited and generally restricted to small, scattered blocks.

16.5.9 The EIA Scoping Site experiences a temperate maritime climate, characterised by mild winters, warm summers and relatively low annual rainfall. The nearest representative monitoring station is Shoeburyness, located approximately 16-19km from the study area. Using Met Office climate data for the period 1991 to 2020, the study area is estimated to experience approximately 527mm of rainfall annually, with around 102 days per year recording rainfall more than 1mm (Ref 16-60). This is lower than the average rainfall experienced across much of the United Kingdom. Average maximum temperatures range from approximately 8°C in January to 22°C in July and August. The area also experiences relatively high annual sunshine totals compared with many parts of southern England.

Surface Water Features

16.5.10 Surface water features in the study area are summarised in **Table 16-1** and shown on **Figure 16-1: Surface Water Features and their Attributes**. **Table 16-1** includes an initial summary of whether there is potential for impact pathways, although this will be kept under review as the design of the Proposed Development is progressed.

16.5.11 Main Rivers are defined according to criteria set under the Water Resource Act (Ref 16-3) as usually larger rivers and streams with a potentially significant flood risk associated with them. The Environment Agency is the regulating authority for Main Rivers. All other watercourses are 'Ordinary Watercourses' managed by the

LLFA Essex County Council. The study area includes several Main Rivers as well as numerous becks, drains, and dikes, which generally flow in an easterly direction towards the North Sea.

16.5.12 In addition to the mapped Ordinary Watercourses, OS Maps indicate the presence of extensive unnamed drains and dikes that border the agricultural fields within the study area. From the desk study, there are no large notable ponds, lakes or other lentic habitats identified within the study area, other than small agricultural ponds. Isolated ponds as receptors are considered within **Chapter 10: Ecology and Biodiversity** of this EIA Scoping Report and are not considered as water features here so as to avoid double counting any potential effects in the ES.

Table 16-1: Water Features within the study area or potentially impacted by the Proposed Development

Surface Water Features	Description	Considered for Assessment
Energy Park and Connection and Access Corridors		
Raywick Redward Ditch	Flows north to south through Connection and Access Corridor D-E-1 and E-F-1 and across Energy Park Area D and E.	**Yes** – flows through the study area (Sheet 1 of 4).
Deal Hall Brook	Flows north to south across Energy Park Area E.	**Yes** – flows through the study area (Sheet 1 of 4).
West Wick Ditch	Flows north to south through Connection and Access Corridor D-E-2 and into Energy Park Area E. Ditched between 2 agricultural fields.	**Yes** – flows through the study area (Sheet 1 of 4).
Old Shrill Redward Ditch	Flows north to south from the eastern border of Energy Park Area D under Marsh Road at TQ 99540 98329 through Connection and Access Corridor D-E-3 and into Energy Park Area E. Ditched, realigned and straightened around agricultural fields.	**Yes** – flows through the study area (Sheet 1 of 4).
Pannel's Brook	Rises in Stoneyhills to the west of the Energy Park, in a suburban setting and flows east into Energy Park Area F and Connection and Access Corridor E-F-1 at TQ 96396 97198, where another tributary of Pannel's Brook joins from the south. It flows through agricultural fields then meets Goldsands Bridges Ditch at TQ 96742 97183.	**Yes** – flows through the study area (Sheet 1 of 4).
Goldsand Bridges Ditch	Flows north to south from the confluence with Pannel's Brook at TQ 96742 97183, to the north at TQ 96896 97619 through Connection and Access Corridor E-F-1.	**Yes** – flows through the study area (Sheet 1 of 4).
Howe Ditch	Joins Bradwell Brook at TQ 96742 97183, flows north from TM 02837 03626, along the eastern border of Connection and Access Corridor B-C-2. Straightened ditch alongside agricultural fields.	**Yes** – flows through the study area (Sheet 2 of 4).
Broadward Brook	Flows west to east on the southern border of Energy Park Area D, crossing The Marshes road at TQ 98352 98744.	**Yes** – flows through the study area (Sheet 1 of 4).

Surface Water Features	Description	Considered for Assessment
Asheldham Brook	Flows west to east from Asheldham across Grid Connection Corridor C, along the northern border of Energy Park Area D, through Connection and Access Corridor C-D-1, and along the southern border of Energy Park Area C to the North Sea in the east.	**Yes** – flows through the study area (Sheet 1 of 4).
Bushley Piece Ditch	Flows north to south from TM 00507 01823 to TM 00723 01116 through Energy Park Area C as a ditch through agricultural fields.	**Yes** – flows through the study area (Sheet 1 of 4).
Bradwell Brook and tributaries	Rises in Grid Connection Corridor A south of Mill End at TL 99485 05069, and flows west to east along the southern border of Energy Park Area B-West, through Connection and Access Corridor B-C-1 and B-C-2 and along the southern border of Energy Park Area B-East to TM 03017 05391 in the east.	**Yes** – flows through the study area (Sheet 2 of 4).
Glebe Ditch and tributaries	Flows west to east from TM 01844 06150 along the northern border of Energy Park Area B-East, adjacent to Connection and Access Corridor A-B-2 and A-B-3. It is joined by Bradwell Brook on the eastern border of Energy Park Area B-East and flows south meeting up with Bradwell Brook again in the south east corner of Energy Park Area B-East (TM 03017 05391).	**Yes** – flows through the study area (Sheet 2 of 4).
Weymarks Ditch	Rises in the north of Connection and Access Corridor A-B-2 (TM 01084 07710) and flows south to north along the northern edge of Energy Park Area A and the eastern edge of Connection and Access Corridor A-A-1 and Grid Connection Corridor D to TM 02440 09222.	**Yes** – flows through the study area (Sheet 2 of 4).
Grid Connection Corridor		
Tillingham Brook	Rises west of Bradwell Brook and flows west to east along Grid Connection Corridor A from TL 98085 04743 to TL 99369 05056.	**Yes** – flows through the study area (Sheet 2 of 4).
Saint Lawrence Brook and tributaries	Rises in Saint Lawrence to the east of Ramsey Island, crossed by Bradwell Road at TL 97169 04956. Flows northwards into the River Blackwater.	**Yes**- flows north of Grid Connection Corridor A but with parts of their catchment within it

Surface Water Features	Description	Considered for Assessment
		and so potential impacts cannot be ruled out at this stage (Sheet 3 of 4).
River Blackwater	North of the study area, the River Blackwater becomes the Blackwater Estuary which flows west to east to join the North Sea.	**No** – not within study area.
Fambridge Wood Brook and tributaries	Rises in the Great Canney / Cold Norton area flows north to south through Grid Connection Corridor A, crossing the B1012 at approximately TQ 84951 98772.	**Yes** – flows through the study area of Grid Connection Corridor A (Sheet 3 of 4).
Fambridge Road drainage ditches	Isolated water features which appear not to link into the surface water drainage network, to the north of Grid Connection Corridor A east of Fambridge Road (TQ 85951 99710 and TQ 85868 99304).	**No**- these are standalone features and appear to have no hydrological pathway to Grid Connection Corridor A. This will be reviewed during the walkover survey. (Sheet 3 of 4).
Latchingdon Brook and tributaries	Rises north of Grid Connection Corridor A to the west of Latchingdon at TL 87348 00660, flows south to north towards Maylandsea village. Tributary rises at TQ 88394 99401	**Yes** – Sharpes Farm Brook and Lawling Hall Ditch are located in the study area of Grid Connection Corridor A and flow into this feature (Sheet 3 of 4).
Lawling Hall Ditch	Rises north of Grid Connection Corridor A at TQ 89270 98827 near Latchingdon and flows south to north.	**Yes** – flows through the study area of Grid Connection Corridor A (Sheet 3 of 4).
Steeple Brook and its tributaries Mayland Brook and Pigeon Dock Brook	These water features rise north of Grid Connection Corridor A at the following grid references; TL 93101 02802, TL 91181 00656 and TL 92554 01591, and flow northwards.	**Yes**- flow north of Grid Connection Corridor A but with parts of their catchment within it and so potential impacts cannot be ruled out at this stage (Sheet 3 of 4).
Chichester Hall Brook	Crosses Grid Connection Corridor A at TQ 77554 92182 (Doublegate Lane) flowing east through agricultural setting before flowing towards and under the A130 road.	**Yes** – flows through the study area (Sheet 4 of 4).

Surface Water Features	Description	Considered for Assessment
North Benfleet Brook	Crosses Grid Connection Corridor A at TQ 77011 92766, flowing north east through agricultural setting through fields.	**Yes** – flows through the study area (Sheet 4 of 4)
Quart Pot Brook, and four tributaries to River Crouch east of Runwell	Flow within the west of the study area, but do not cross Grid Connection Corridor A. Quart Pot Brook flows into the River Crouch at TQ75758 94342, with the other two tributaries flowing into the River Crouch at TQ 75834 94357 and TQ76209 94257. From the south two tributaries flow into the River Crouch at TQ 76332 94134 and TQ 76479 94071.	**No** – as they are upstream of the Proposed Development and there are no hydrological pathways that might impact them (Sheet 4 of 4).
Rawreth Brook	Flowing north from the Rayleigh area to the east of Grid Connection Corridor A into the River Crouch at TQ 77527 94166. This receives water from Chichester Brook and North Benfleet Brook.	**Yes** – flows through the study area and may indirectly be impacted via effects on watercourses crossing Grid Connection Corridor A that flow into it (Sheet 4 of 4).
River Crouch and tributaries (west and north east of Battlesbridge)	Crosses Grid Connection Corridor A at TQ 77027 93981, appears straightened, realigned and reprofiled, flowing west-east. The tributaries rise west of Battlesbridge, ditch at TQ 77352 94807 perpendicular to railway line; and north east of Battlesbridge at TQ 78173 95558 flowing under A132 Burnham Road.	**Yes** – flows through the study area (Sheet 4 of 4).
Rettendon Brook	Flows west to east across Grid Connection Corridor A and then south along the western border of South Woodham Ferrers at TQ 79056 97450. Agricultural setting flowing west to east.	**Yes** – flows through the study area (Sheet 4 of 4).
Tributaries to Rettendon Brook	One flows into the Rettendon Brook on the edge of the study area at TQ 77992 97915, the other rises at TQ 77463 96319 both upstream of any influence that Grid Connection Corridor A may have on Rettendon Brook.	**No** – this is an upstream watercourse, with no hydrological link to Grid Connection Corridor A (Sheet 4 of 4).
Fenn Brook, and tributary	Crosses Grid Connection Corridor A at TQ 79790 98073, just to north west of South Woodham Ferrers. Appears realigned around agricultural fields, flowing north to south. Tributary at TQ 80382	**Yes** – flows through the study area (Sheet 4 of 4).

Surface Water Features	Description	Considered for Assessment
	98523, flowing north east to south west, rising at Edwinshall Wood (TQ 81036 98928) just west of Bushy Hill.	
Tributary to Fenn Brook	Flows north of Grid Connection Corridor A, flowing into Fenn Brook at TQ 79406 98897.	**No** – this is an upstream watercourse, with no hydrological link, to Grid Connection Corridor A (Sheet 4 of 4).
Drainage ditch	Water feature which appears not to link into the surface water drainage network, to the north of Grid Connection Corridor A. The southern end of the feature is at TQ 79929 99033. The southern end of this ditch is at approximately 22m, the EIA Scoping study area is limited to under 20m AOD.	**No** – this is an upstream watercourse, with no hydrological link, to Grid Connection Corridor A (Sheet 4 of 4).
Great Hayes Brook	Crosses Grid Connection Corridor A at TQ 83208 98287, flowing north to south, through agricultural setting. Flowing south to join Stow Creek out of study area.	**Yes** – flows through the study area (Sheet 4 of 4).
Stow Creek	Great Hayes Brook which crosses Grid Connection Corridor A as above, becomes Stow Creek as it flows south towards the River Crouch. It flows into the River Crouch at TQ 84133 96593.	**Yes** – flows through the study area, downstream of Great Hayes Brook, which crosses Grid Connection Corridor A (Sheet 4 of 4).
Stow Brook	This feature flows eastwards into Stow Creek at TQ 83942 97038. This is located south of Grid Connection Corridor A, with potential for its catchment area to be within the Grid Connection Corridor A works area.	**Yes** - this feature is likely to have catchment area within Grid Connection Corridor A and so may be impacted (Sheet 4 of 4).

Hydromorphology

16.5.13 The study area lies between the Crouch and Blackwater estuarine water bodies (Ref 16-54). The surface water features for the area are shown in **Figure 16-1: Surface Water Features and their Attributes**. The largest water body which directly interacts with the Proposed Development is the River Crouch. This is a large estuarine water body and the receiving water body of many smaller watercourses which the Proposed Development may interact with, including Rettendon Brook etc. The planforms of the River Crouch and its larger tributaries have had minimal change since the late 1800s, and due to the urbanisation adjacent to the River Crouch it is likely that these channels have been modified to retain their current planform. The most notable change in planform is of the River Crouch towards Wickford which has a straight planform when compared with late 1800s mapping. Towards the east of the study area, there are a large number of straight channels, which have likely been realigned for drainage purposes within the flat agricultural land cover.

16.5.14 The superficial geology deposits show tidal flat deposits consisting of sand, silts and clay towards the east of the study area and bordering the River Crouch. The smaller watercourses have head deposits of clay, silt, sand and gravel associated with them. The lack of alluvium deposits suggests that watercourses within the study area are typically passive systems and are unlikely to actively re-work or transport coarse sediment under current conditions.

Water Framework Directive

16.5.15 The Proposed Development is located within several Water Framework Directive (WFD) catchments and areas that drain directly to transitional and coastal (TraC) waterbodies. River and TraC water bodies have been identified using the Environment Agency Catchment Data Explorer (Ref 16-54). Many of the water bodies within the western extent of the EIA Scoping Site form part of the wider Crouch and Roach operational catchment, whereas the eastern extent of the EIA Scoping Site comprises a network of drainage channels, tidal creeks and Ordinary Watercourses that direct surface water runoff to the Blackwater and Crouch estuaries. Consequently, both river and TraC water bodies have been considered when identifying receptors for the WFD assessment. The relevant water bodies are presented in **Table 16-2**.

16.5.16 There is also one groundwater body underlying the study area, the Essex Gravels. This is discussed under ‘Hydrogeology and Groundwater’ later.

16.5.17 The reasons for not achieving good status are summarised below:

a. Crouch (downstream Wickford) Water Body - diffuse sources from transport drainage, poor livestock management and poor nutrient management; point sources from sewage discharge from the water industry; and physical modification.
b. Rettendon Brook Water Body - diffuse sources from poor livestock management and poor nutrient management; point source pollution from private sewage treatment in the urban and transport sector; and physical modification for flood protection.
c. Blackwater Water Body - physical modification and numerous unknown sources which are under investigation.
d. Crouch Water Body - diffuse sources from poor nutrient management and point source pollution from sewage discharge within the water industry.
e. Blackwater Outer Water Body - unknown and pending investigation.
f. Essex Water Body - physical modification and numerous unknown sources under investigation.
g. Essex Gravels Water Body - diffuse source pollution from poor nutrient management and poor livestock management.

Table 16-2: WFD Water Bodies potentially impacted by the Proposed Development (Cycle 3, 2022 (Ref 16-54Ref 16-54))

WFD Water Body and ID	Management Catchment	Operational Catchment	Type	Designation	Status
Blackwater Outer (GB650503200000)	Anglian TraC	Essex TraC	Coastal Water	Heavily modified	Overall Moderate
				Ecology	Moderate
				Chemical	Not assessed
				Hydromorphological	Not assessed
				Target Status	Good biological quality elements by 2027-low confidence, good chemical by 2063
Blackwater (GB520503714000)	Anglian TraC	Essex TraC	Transitional Water	Heavily Modified	Overall Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydro morphological	Not high
				Target Status	Good biological quality elements by 2027-low confidence, good chemical by 2063
Essex (GB650503520001)	Anglian TraC	Essex TraC	Coastal Water	Heavily Modified	Overall Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydro morphological	Not assessed
				Target Status	Good chemical by 2063
Crouch (GB520503704100)	Anglian TraC	Essex TraC	Transitional water	Heavily modified	Overall Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydro morphological	Not high
				Target Status	Good chemical by 2063
Rettendon Brook (GB105037028560)	Essex combined	Crouch and Roach	River	Heavily modified	Overall Moderate
				Ecology	Moderate

WFD Water Body and ID	Management Catchment	Operational Catchment	Type	Designation	Status
				Chemical	Does not require assessment
				Hydro morphological	Not high
				Target Status	Good chemical by 2063
Crouch (downstream Wickford) (GB105037028550)	Essex combined	Crouch and Roach	River	Heavily modified	Overall Moderate
				Ecology	Moderate
				Chemical	Does not require assessment
				Hydro morphological	Not high
				Target Status	Invertebrates good by 2027- low confidence, good chemical by 2063

Hydrogeology

16.5.18 A review of the study area on the Soilscapes website (Ref 16-57) shows the area is underlain by the following soil types:

a. Loamy and clayey soils of coastal flats with naturally high groundwater, situated primarily around the eastern coast and Crouch Estuary;
b. Loamy soils with naturally high groundwater, located in some areas in the east, particularly around Southminster and Tillingham;
c. Saltmarsh soils, located in some small areas around the Crouch Estuary;
d. Freely draining slightly acid loamy soils, located Burnham-on-Crouch;
e. Slightly acid loamy and clayey soils with impeded drainage, a large area located in the east and in other areas of varying sizes across the study area; and
f. Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage, underlying the majority of the Grid Connection Corridor.

16.5.19 Superficial deposits overlie much of the study area, but bedrock is also exposed in some locations. The superficial deposits identified are as follows:

a. Intertidal deposits (undifferentiated), located primarily in the east underlying areas of the Energy Park and Connection and Access Corridors;
b. Tidal flat deposits, located in the south east underlying areas of the Energy Park and Connection and Access Corridors, and situated in areas surrounding the Crouch estuary;
c. River Terrace Deposits, primarily located in relatively large south west-north east trending areas in the east of the EIA Scoping Site, including Southminster and Tillingham. Present in smaller more sporadic areas elsewhere across the study area;
d. Head, located in multiple areas of varying sizes across the study area;
e. Alluvium, located around some watercourses, including near Maylandsea and Southminster; and
f. Beach and Tidal Flat Deposits (Undifferentiated), located primarily in areas around the Crouch estuary.

16.5.20 The bedrock geology underlying the study area has been taken from the BGS Geoindex site (Ref 16-59). The vast majority of the Proposed Development area and study area is underlain by the Thames Group, the majority of which is the London Clay Formation. It is noted that this can reach a thickness of 150m in Essex and overlies Thanet Sand and the Lambeth Group, which is present at a depth of 82m below ground level (bgl) within BGS ID TQ99NE51 (Ref 16-59Ref 16-59). These in turn confine the Chalk Group, which is present at depth under the

study area but does outcrop beyond it. In some areas, more commonly in the west where the Grid Connection Corridor is located, the Claygate Member (part of the London Clay Formation) is present, which reach a thickness of 17 to 25m in Essex (Ref 16-59). A couple of small areas in the west and north of the study area are underlain by the Bagshot Formation, which is part of the Bracklesham Group and Barton Group (undifferentiated).

16.5.21 A summary of the geology and associated aquifers encountered within the study area can be found in **Table 16-3**, with the Bedrock Aquifers shown in **Figure 16-2: Bedrock Aquifers**.

Table 16-3: Aquifer Designations across the study area

Stratum	Unit	Description	Aquifer Designation*
Superficial Geology	Intertidal Deposits	Clay and silt	Unproductive Strata
	Tidal Flat Deposits	Clay and silt or sand and silt	Secondary A on eastern coast where sand and silt. Elsewhere Secondary (undifferentiated), where it is clay and silt or unproductive, especially further inland.
	River Terrace Deposits	Varying, clay and silt or sand and gravel	Secondary A
	Head	Varying, Diamicton or clay, silt, sand and gravel	Secondary (undifferentiated)
	Alluvium	Clay, silt, sand and gravel	Secondary A
	Beach and Tidal Flat Deposits	Clay, silt and sand	Secondary (undifferentiated)
Bedrock Geology	London Clay Formation (Thames Group)	Poorly laminated clay, silt and sand	Unproductive Strata
	Claygate Member (Thames Group)	Clay, silt and sand	Secondary A
	Bagshot Formation (Bracklesham Group and Barton Group)	Sand with local beds of silt and clay	Secondary A

	Lambeth Group**	Vertically and laterally variable sequences mainly of clay	Secondary A
	Thanet Formation (Montrose Group) **	Silty fine-grained sand, with sandy silt, silt or sandy, silty clay	Secondary A
	Chalk Group**	Chalk	Principal

Secondary A Aquifers*- *comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers;* ***Secondary (Undifferentiated) Aquifers**- comprise of layers with varying permeability, groundwater storage and flow characteristics;* ***Unproductive Strata****- largely unable to provide usable water supplies and is unlikely to have surface water and wetland ecosystems dependent on them.*

***Identified within borehole logs at depth*

Groundwater Levels and Flow

16.5.22 Limited information is available regarding groundwater flows across the study area. Groundwater flow within the superficial deposits is likely to be shallow, and will predominantly occur within the higher permeability deposits such as sands and gravels, with the possibility that perched water may be present within layers of sands and gravels within the lower permeability clays. The degree of flow and flow direction will be controlled by the interconnectivity of these deposits.

16.5.23 It is noted that the Thames Group is characterised by rocks with essentially no groundwater with occasional springs at base which have very hard water (Ref 16-59). The Bracklesham Group and Barton Group (undifferentiated) is characterised as a moderately productive and locally important variable multi-layered aquifer. As such, limited flow is expected across the majority of the study area where the Thames Group is present, with flow within the Bracklesham Group and Barton Group (undifferentiated) likely following fractures and layers with higher permeability. Generally, flow direction is expected to follow topography and the hydraulic gradient, such as towards watercourses.

16.5.24 There are no Environment Agency groundwater monitoring boreholes present within the study area, however several publicly available BGS borehole logs contain groundwater levels within the study area as summarised below (Ref 16-59):

a. BGS ID TQ89NW26 located at TQ 83350 97480, approximately 390m south from the Grid Connection Corridor. Recorded a groundwater level of 0.7 mbgl within drift consisting of hard clay and gravel;
b. BGS ID TL90SE31 located at TL 99310 03980, approximately 707m east from the Grid Connection Corridor. Recorded a groundwater level (potentiometric surface) of 19.8 mbgl for the underlying Chalk aquifer indicating the Chalk is confined;
c. BGS ID TQ99NE51 located at TQ 99120 98300, approximately 84m east from the Connection and Access Corridor and 460m south east from the Energy Park. Recorded a groundwater level of 26 mbgl, within the 'Lower London Tertiaries' (Thanet Sand Formation/Lambeth Group); and
d. BGS ID TQ79NE64 located at TQ 79000 96300, situated within the red line boundary for the Grid Connection Corridor. Recorded a groundwater level (potentiometric surface) of 49 mbgl within the Chalk.

16.5.25 No groundwater level data is available for the London Clay Formation, however due to its low permeability any groundwater flow present is expected to be limited and largely restricted to weathered or locally more permeable horizons.

Water Quality

16.5.26 This section sets out the baseline water quality monitoring data that is publicly available within the study area on the Environment Agency Hydrology Data Explorer website (Ref 16-55). Baseline water quality is analysed at five sites within the study area. Details of these stations are given in **Table 16-4**.

16.5.27 Water quality data for watercourses in the EIA Scoping Site will be taken from the above locations. However, the importance of water features will be determined from a holistic review of water body features and does not rely on water quality due to the principle that no controlled water may be polluted. Water quality impacts will be based on a risk assessment basis that does not require input of raw background water quality data. Water quality monitoring is also only effective when there is a clear purpose for it and may require monitoring over a long period of time to ensure reliable and robust results. Therefore, no water quality sampling is proposed to support the water environment assessment.

Water Resources, Abstractions and Discharges

16.5.28 The Proposed Development area is not within Drinking Water Protected Area or Drinking Water Safeguard Zone for surface water. The Proposed Development Area is not within a Drinking Water Safeguard Zone for groundwater.

16.5.29 The Proposed Development Area and entirety of the study area falls within the Essex abstraction licensing strategy area (Ref 16-71). It is noted that the study

area falls within an area of confined Chalk which has no water available for abstraction. However, some southern areas along the Dengie Peninsula and around Rayleigh may have shallower groundwater available for abstraction subject to local assessment.

16.5.30 There are no Source Protection Zones (SPZs) within the study area.

16.5.31 No information is available at this scoping stage regarding specific licensed or unlicenced potable (i.e. Private Water Supplies (PWS)) abstractions or consented water discharge activity permits to/from the surface water and groundwater environment. However, this will be requested from the Environment Agency and LPAs (Chelmsford City Council, Basildon Borough Council, Maldon and Rochford District Councils and Essex County Council) for inclusion at the ES stage. The presence of abstractions and discharges will be used to determine the importance of receptors to which they are associated, and reported within the ES.

16.5.32 Eastern sections of the Grid Connection Corridor, as well as some south western sections of the Connection and Access Corridor and Energy Park are within Nitrate Vulnerable Zone (NVZ) Surface Water S426 - Southminster Ditches. Nitrate Vulnerable Zones (NVZs) are areas designated as being vulnerable to nitrate pollution from agricultural sources and are intended to protect the quality of surface water and groundwater.

16.5.33 The Proposed Development is not anticipated to adversely affect the objectives of this designation. No foul wastewater discharges are proposed and, following construction, the conversion of agricultural land to solar development is expected to reduce the presence of livestock and the application of fertilisers across the EIA Scoping Site. Consequently, no significant effects on the identified NVZs are anticipated and they are not considered further within this assessment.

16.5.34 The following NVZs are also located within 1km of the Grid Connection Corridor:

a. Surface Water S428 - River Chelmer NVZ;
b. Groundwater G78 - Sandlings and Chelmsford; and
c. Surface Water S663 - Coastal Streams to Crouch Estuary NVZ.

Table 16-4: Summary of water quality monitoring stations relevant to the Proposed Development

Watercourse	Sampling Point	ID	Comment	Summary
Rettendon Brook	RETTENDON BROOK. WESTERN ARM B1012 ROAD BRIDGE	AN-CE1540	North west of South Woodham Ferrers in Grid Connection Corridor, NGR: TQ 79347 97523	Variety of parameter data available including pH, temperature, conductivity, ammonia, nitrate, alkalinity, and dissolved oxygen. 105 samples in last year.
Latchingdon Brook	LATCHINGDON BROOK. DOWNSTREAM LATCHINGDON SEWERAGE TREATMENT WORKS (STW)	AN-MW4549	NGR: TL 88399 01817	Variety of parameter data available including pH, temperature, conductivity, ammonia, nitrate, alkalinity, and dissolved oxygen. 243 samples in last year.
Asheldham Brook	RSN0529 ASHELDHAM BROOK. UPSTREAM ASHELDHAM BRIDGE	AN-RSN0529	NGR: TL 96729 01400	Variety of parameter data available including lead, pH, cypermethrin, temperature, conductivity, cadmium, ammonia, nitrate, chloride and alkalinity. 268 samples in last year.
Asheldham Brook	ASHELDHAM BROOK. BROOK FARM COTTAGES	AN-DT0310	Bridge Wick Lane	No records in last 10 years.
Goldsand Bridges Brook	GOLDSAND BRIDGES BROOK. MUSCLE BRIDGE	AN-DT0125	Marsh Road, NGR: TQ 96646 96942	Most recent sampling took place September 2023 – March 2024 with 117 records. Parameters include pH, temperature, dissolved oxygen, nitrate and ammonia.

Nature conservation sites and Protections

16.5.35 This section describes the statutory sites designated for nature conservation that are relevant to the water environment. For further information relating to ecology, refer to **Chapter 10: Ecology and Biodiversity**, and refer to **Figure 16-1: Surface Water Features and their Attributes**.

Table 16-5: Sites of Special Scientific Interest (SSSI) present within the study area

Name	Description/why designated	Distance from Proposed Development
Crouch and Roach Estuaries SSSI	Groundwater Dependent Terrestrial Ecosystems (GWDTE)	Adjacent to the Energy Park at the nearest point
Blackwater Estuary SSSI	GWDTE	250m north of Grid Connection Corridor D at the nearest point
Sandbeach Meadows SSSI	GWDTE	Enclosed by the Energy Park and Connection and Access Corridors at the nearest point
Foulness SSSI	GWDTE	650m south of the Energy Park and Marine Transfer Facility at the nearest point
Goldsands Road Pit SSSI	Designated for Thames-Medway river gravel exposures	800m west of the Energy Park at the nearest point
Dengie SSSI	Internationally protected wetland habitat consisting of mudflats and wetlands	Adjacent to the Energy Park at the nearest point

16.5.36 **Table 16-5** lists the Sites of Special Scientific Interest (SSSI) which are present within the study area.

16.5.37 Within the study area the Essex Estuaries Special Area of Conservation (SAC), and the Crouch and Roach Estuaries (Mid-Essex Coast Phase 3), Outer Thames Estuary, Foulness (Mid-Essex Coast Phase 5), Dengie (Mid-Essex Coast Phase 1) and Blackwater Estuary (Mid-Essex Coast Phase 4) Special Protection Areas (SPA) and Ramsar sites are present. Designated Shellfish Waters are also present and detailed below. All of the aforementioned protected areas are

located within the coastal water and estuaries surrounding the study area, and at the nearest points are within or 0m from the EIA Scoping Site.

16.5.38 The designated Shellfish Waters in the area include; north of the peninsula are the Osea Island (SFW_ID 11), Blackwater Shellfish water area (SFW_ID 12). East of the Peninsula is the Dengie Shellfish (SFW ID_18), and south of the Peninsula are the Crouch (SFW_ID 21) and Roach and Lower Crouch (SFW ID_20). These are attributes of the Blackwater and Crouch and Roach Estuaries and will be included within the assessment for these water environments. Based on the inclusion of standard pollution prevention mitigation, it is not anticipated that there would be any significant effects on these areas, so they are scoped out of further assessment.

16.5.39 There are no Nutrient Neutrality Catchments or designated Chalk Rivers within or in the vicinity of the study area. As such, these will be scoped out of future assessments from a water environment perspective.

Flood Risk from all Sources

16.5.40 Section 18 of the NPPF (Ref 16-30) advise on how the planning process can take account of the risks associated with flooding. The main sources of flooding that are used to steer development at the planning phase are Main Rivers and the sea. The predicted flood risk from rivers and the sea are shown on the Environment Agency's Flood Map for Planning (Ref 16-70) which outlines three zones of flood risk as follows:

a. **Flood Zone 1 'Low probability of flooding':** This zone comprises land assessed as having a less than 0.1% annual exceedance probability (AEP) of river or tidal flooding;
b. **Flood Zone 2 'medium probability of flooding'**: This zone comprises land assessed as having between a 1% and 0.1% AEP of river flooding, or between a 0.5% and 0.1% AEP of tidal flooding ;
c. **Flood Zone 3a 'high probability of flooding'**: This zone comprises land assessed as having a 1% or greater AEP of river flooding, or a 0.5% or greater AEP of tidal flooding ; and
d. **Flood Zone 3b 'functional floodplain'**: A sub-part of Flood Zone 3, this zone comprises of land having a 3.3% or greater AEP of flooding, with existing flood risk management features and structures operating effectively, or land that is designed to flood (such as flood attenuation), even if it would only flood in more extreme events (such as 0.1% AEP). This zone is not included within the EA Flood Map for Planning and is typically provided within Strategic Flood Risk Assessment (SFRA) mapping or calculated where necessary during detailed hydraulic modelling.

16.5.41 Table 3 of Annex F of the NPPF (Ref 16-30) dictates what development is suitable within each Flood Zone based upon the level of vulnerability of the development which is replicated in **Table 16-6** below. The vulnerability classifications suggest the Proposed Development is considered to be 'Essential Infrastructure'.

Table 16-6: Flood Risk Vulnerability and Flood Zone 'incompatibility'

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	~	✓	✓
Zone 3a	~	✓	✓	✓	✓
Zone 3b	~	✓	X	X	X

Key:

✓ Development is appropriate (Exception test is not required)

~ Exception test is required

XDevelopment should not be permitted

16.5.42 In accordance with Annex F Table 3 of the NPPF (Ref 16-30) (replicated in **Table 16-6** above), the construction of Essential Infrastructure is permitted in Flood Zones 1 and 2, and the Exception Test is required for Flood Zones 3a and 3b. As well as fluvial and tidal flooding, it is also necessary to consider flood risk from all other sources, including; surface water, groundwater, ordinary watercourses, artificial drainage systems and infrastructure failure, whilst taking into account future climate change.

16.5.43 The baseline flood risk from all sources for the Proposed Development is summarised in **Table 16-7** below. **Figure 16-4: Fluvial Flood Risk** shows the flood zones associated with fluvial and tidal sources while **Figure 16-5: Surface Water Flood Risk** shows the risk from surface water flooding.

Table 16-7: Flood Risk from all Sources

Flood Risk Source	Baseline Flood Risk Level	Comments
Fluvial	Low - High	As shown in Figure 16-4: Fluvial Flood Risk, a review of the Environment Agency (EA) Flood Map for Planning (Ref 16-70), indicates large areas of the EIA Scoping Site is situated within Flood Zones 2 and 3 which

Flood Risk Source	Baseline Flood Risk Level	Comments
		appears to be associated with flooding combined from rivers and the sea (both fluvial and tidal impacts). There are some areas in EIA Scoping Site which are located within Flood Zone 1. It should be noted that the EA Flood Zones do not take into account the presence of flood defences. However, when reviewing the EA's Long Term Flood Risk Map (Ref 16-61), which shows flooding from rivers and the sea taking into account flood defences, it shows that the EIA Scoping Site has a slight reduction in areas designated as Medium and High risk of flooding from a fluvial source. There are various main rivers that run through the EIA Scoping Site. There are also many interconnected ordinary watercourses that drain the fields that are connected to the main rivers. Within the EIA Scoping Site topography is relatively flat, which is assumed to lead to areas of flood risk being larger but potentially shallow. Hydraulic modelling data has been requested and provided from the EA to confirm the fluvial flood risk across the EIA Scoping Site taking into account the relevant climate change allowances. The hydraulic modelling for the Main Rivers within the EIA Scoping Site is over 10 years old; therefore, updates to the modelling will be required to fully understand current and future flood risk. This will be detailed within a site-specific FRA at the next stage of assessment.
Tidal	Low-High	According to the EA's AIMS dataset (Ref 16-71), the flood defences in the area consist of a series of natural high ground, embankments, flow control structures and pumps situated along the coast. These have varying Standards of Protection. The flood map for planning indicates that should there be a breach of the coastal flood defences, the majority of the EIA Scoping Site would be vulnerable to the flood extents associated with such an event. Product 6 hydraulic modelling data has been provided from the EA to confirm the tidal flood risk across the EIA Scoping Site taking into account the relevant climate change allowances and including the residual tidal risk should tidal defences be

Flood Risk Source	Baseline Flood Risk Level	Comments
		breached/overtopped. This will be detailed within a site-specific FRA at the next stage of assessment.
Surface Water	Low - High	From a review of the online surface water spatial planning mapping on the Flood Map for Planning (Ref 16-70), the risk of surface water flooding across the EIA Scoping Site ranges from mostly very low to some areas of high risk. Risk means that the area has a chance of flooding of greater than 3.3% each year, and medium risk means that the area has a chance of flooding of between 1% and 3.3% each year. Low risk means that the area has a chance of flooding of between 0.1% and 1% each year, and very low risk means that the area has a chance of flooding of less than 0.1% each year.
Groundwater	Low-High	Figure 2-2 of Appendix C – Groundwater Flood Zone methodology of the Maldon SFRA (Ref 16-25) indicates the majority of the EIA Scoping Site is located in areas of low groundwater emergence risk. There are some small areas of High risk (within 0.025m of the ground surface) and to the north of the EIA Scoping Site near Bradwell-on-Sea there is an area of Medium risk (within 0.025-0.5m below ground surface) and Low risk (within 0.5-5m below ground surface).
Sewer	Low	The EIA Scoping Site is located in primarily rural areas, where sewer flooding is less likely to occur due to the limited presence of sewer networks in such locations. Figure 6-5: Sewer flooding incidents within Maldon District as provided by Anglian Water within the Maldon SFRA (Ref 16-25) indicates less than 4 incidents within the EIA Scoping Site, supporting the assumption that the risk of sewer flooding is low.
Reservoirs	Low (Residual)	The closest artificial sources of flooding to the EIA Scoping Site are from reservoirs located north of Energy Park Area A when river levels are normal and Energy Park Area F when river levels are normal and also when rivers are flooding. The areas that are at risk are classed as residual as reservoir flooding is managed by the EA through statutory inspection and maintenance programmes. As such, the likelihood is controlled externally, and the project retains only a residual exposure to this risk.

16.6 Potential Effects and Mitigation

16.6.1 This section sets out the potential effects of the Proposed Development on the water environment and flood risk.

16.6.2 Mitigation measures relevant to **Chapter 16: Water Environment** are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report. This includes reference to the Environmental Permitting (England and Wales) Regulations 2016 (Ref 16-11), whereby the use of horizontal directional drilling (HDD) will take place under some watercourses at a depth of a minimum of 1.5m to 2.0m minimum below natural riverbed to apply for an exemption under these regulations. This also minimises risks to the water feature.

Construction

16.6.3 During construction of the Proposed Development the following adverse water environment impacts have the potential to occur if not mitigated:

a. Pollution of surface water or groundwater due to deposition or spillage of soils, sediments, oils, fuels, or other construction chemicals, through uncontrolled site run-off including dewatering of excavations or piling, or the risk of a 'break-out' event if using horizontal directional drilling (HDD) to install cables beneath a watercourse;
b. Temporary impacts on the hydromorphology of watercourses from opencut watercourse cable crossings or temporary vehicle access crossings as may be required, drainage outfall construction and any associated changes in drainage flow paths;
c. Potential for subsurface activities such as drilling/foundation installations to impact groundwater quality through the introduction of contaminants through accidental spills/leaks;
d. Potential for installation of subsurface infrastructure to alter the natural groundwater flow regime, redirecting or impeding flow paths;
e. Potential impacts on groundwater resources and local water supplies (licenced and unlicenced abstractions if confirmed);
f. Potential impact on baseflow to watercourses / groundwater dependent features from temporary dewatering of excavations, emplacement of sub-surface structures or changes in hydrology;
g. Temporary changes in flood risk from changes in surface water runoff (e.g. disruption of stream flows during any potential culvert construction works), and exacerbation of localised flooding, due to deposition of silt, sediment in drains, ditches or alterations of local flow paths;

h. Potential impact on flood conveyance routes if materials are stored within the floodplain;
i. Potential change in flood risk as a result of cables crossing any watercourses, depending on the crossing method; and
j. Potential impact on groundwater flood risk whilst laying underground cables.

16.6.4 At this stage any foul wastewater generated on site would be of small volumes only and would be stored in self-contained foul drainage system to a sealed cesspit or similar sealed system. These tanks would be emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage has been scoped out of further assessment. However, this will be included within the ES to demonstrate deliverability and minimisation of water needs.

16.6.5 Should the Proposed Development receive development consent, the Outline Construction Environmental Management Plan (CEMP) and Outline Decommissioning Environmental Management Plan (DEMP) would be developed into a detailed CEMP and DEMP by the appointed Contractor prior to the start of works. The outline management plans will be secured through requirements of the DCO. Examples of measures which would mitigate the potential for impacts and effects on the water environment during construction and decommissioning include:

a. Implementation of an appropriate temporary drainage system that prevents uncontrolled surface water runoff from the site, provides adequate storage space, and treatment of the runoff as required prior to discharge from the EIA Scoping Site to a watercourse or ground;
b. Fuel to be stored in accordance with good practice and legislation, in self bunded leak proof containers or stored in impermeable bunded and secure areas;
c. Waste / debris to be prevented from entering any surface water drainage or water feature;
d. Storage of topsoil / subsoil at a minimum of 20m from watercourses on flat lying land; and
e. The Contractor would produce an Emergency Response Plan to detail the response to any flood events predicted by the Environment Agency's flood warning system.

Operation and Maintenance

16.6.6 During the operation of the Proposed Development, including maintenance works and operational replacement of items such as solar panels and batteries,

the following adverse water environment impacts have the potential to occur in the absence of suitable design or other mitigation:

a. Impacts on water quality in watercourses and groundwater from run-off and the potential for accidental spillages from new permanent hardstanding and maintenance activities, assuming surface water run-off ultimately drains to a surface watercourse rather than simply to ground;
b. Potential for impact on groundwater or surface water from firewater runoff in the event of a fire in the battery storage areas or other electrical infrastructure (e.g. On-Site Substations);
c. Potential impacts on surface water hydrology runoff rates and volumes as a result of the Proposed Development. This may also have a subsequent effect on downstream aquatic habitats and water-dependent nature conservation sites. Unlike conventional impermeable development, solar PV arrays typically retain largely permeable ground conditions and are therefore generally capable of maintaining greenfield runoff rates through appropriate drainage design;
d. Potential for permanent physical impacts to watercourses from outfalls or if crossings are required for permanent access;
e. Potential alteration, impediment and redirection of the natural groundwater flow regime arising from subsurface infrastructure, foundations and structures, resulting in groundwater mounding up the hydraulic gradient and reduced groundwater levels down hydraulic gradient;
f. Migration of contaminants and pollutants along preferential pathways created by subsurface infrastructure, including foundations and cables, potentially extending into previously uncontaminated soils, geology and groundwater;
g. Potential impacts on groundwater resources and local water supplies, including potential beneficial effects from reduced irrigation demand, which may improve groundwater flow regimes, particularly during the summer. Impacts on water supply will be assessed further with more information available at ES stage;
h. Risk to groundwater quality from leaks from underground cables if fluid filled cables are used;
i. Potential impacts on the rate and volumes of surface water run-off entering local watercourses and increasing the risk of flooding. The surface water drainage for the Proposed Development will be designed to greenfield runoff rates, which is as existing. However, the edge swales used in the solar PV array areas would intercept runoff in an extreme rainfall event;

j. If the FRA confirms that the EIA Scoping Site is located in Flood Zones 2 and 3 associated with fluvial sources, there may be potential change in fluvial flood risk off site and to third parties;
k. The current arable fields are likely treated with fertiliser and pesticides. During the life of the Proposed Development the use of such chemicals would be ceased or reduced which would lead to potential beneficial impacts on the water environment; and
l. Potential impacts on groundwater resources and local water supplies from change in land use, which may include reduced irrigation demand which might lead to improvements in flow regime, especially during the summer.

16.6.7 For the water requirements of the Proposed Development during operation, it is the current position that water would be supplied by a commercial source as and when required, thus is scoped out of further assessment. However, the water supply and volume requirements will be included within the ES to demonstrate deliverability and minimisation of water usage.

16.6.8 There is a potential risk that heat generated by the buried cables could affect groundwater quality. To prevent overheating or mutual heating effects, the cables are typically spaced approximately 0.3 – 1m apart. Groundwater within the superficial deposits occurs in laterally discontinuous lenses with limited movement, meaning any thermal effects from the cables would likely remain confined to the immediate area. Further information will be provided in the ES but at this stage, and in keeping with other similar projects, it is not anticipated that this will result in a significant effect.

Decommissioning

16.6.9 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that the power cables may be left in situ beneath watercourses and there would be less excavation works required close to watercourses. There may also be some additional wastewater in pipework of above ground installations that would need to be removed, tested, and potentially treated as waste rather than discharged to a watercourse or to the ground.

16.6.10 There may be a potential risk to groundwater quality from leaks from underground cables if fluid filled should they be left in situ. There is also as a risk from deterioration of plastic and metal over extended time periods, and the release of these materials into soil and groundwater.

Mitigation

16.6.11 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

Construction

16.6.12 During the construction phase, standard pollution prevention and construction good practices would be adopted to mitigate potential impacts upon the water environment where required and reasonably practicable. Such measures would be included in an (Outline CEMP), which will be prepared as part of the DCO application. The Outline CEMP would be developed into a detailed (or construction issue) CEMP by the appointed construction Contractor prior to the start of construction. The CEMP will contain technical appendices such as a Water Management Plan and Emergency Response Plan, or will integrate the required management/control measures within the CEMP. In addition, the following mitigations may apply:

a. Good practice pollution prevention measures will be implemented during construction to protect nearby watercourses, with monitoring undertaken where necessary and proportionate to the identified pollution risks;
b. At this stage it is assumed that water required for construction would be either connected to mains water supply or otherwise potable water would be supplied from another commercial source. Water for construction could also be augmented by rainwater harvesting (e.g. for haul road dust suppression), although there may be limitations as to how much can be captured and stored for when it might be needed. No abstractions from groundwater or watercourses are proposed.
c. At this stage it is also assumed that foul drainage from temporary compounds would be connected to the public sewer or otherwise captured by a sealed cesspit or tank for offsite disposal. No discharges of foul wastewater to surface or groundwater are proposed;
d. At this stage, the use of non-intrusive techniques such as Horizontal Directional Drilling (HDD) will be considered where appropriate. for any cable crossings of the principal watercourse crossed by the Proposed Development If HDD is used, the CEMP will set out appropriate pollution

prevention and control measures, including the management of drilling fluids. Crossings of other drainage features would be risk assessed on a case-by-case basis as the assessment progresses but may include open-cut methods. Consultation with the Environment Agency and Lead Local Flood Authorities is required to agree the design of any required watercourse crossing structures;

e. Any access crossings of the principal watercourses the design of the structure would comply with design requirements to mitigate flood risk, with an agreed amount of freeboard available. This may require the construction of a clear span structure. Crossings of other drainage features would be risk assessed on a case-by case basis as the assessment progresses. Temporary access structures would apply the following hierarchy: (1) use existing; (2) use existing modified as necessary; (3) temporary clear span crossing; (4) suitably designed culvert. Consultation with the Environment Agency and LLFA is required to agree the design of any required watercourse crossing structures;
f. It would be a requirement that all watercourses affected by open-cut cable crossings or temporary access works are reinstated following construction based on a Pre-Works Riparian and Hydromorphological Survey or similar, but also taking into account any subsequent improvements that might occur in the interim period.
g. The nature of the Proposed Development means there would be limited physical disturbance of aquifers and groundwater. The need for piling or non-intrusive techniques for permanent above ground infrastructure has yet to be determined but will be confirmed in the ES. As earlier, if HDD is used the works would be controlled by measures detailed as part of the CEMP;
h. Should dewatering be required during construction works, necessary permits and approvals will be obtained prior to works commencing;
i. If the FRA identifies a risk of flooding across the Proposed Development area, construction compounds and material / plant storage will be located in areas of lowest flood risk where reasonably practicable, and have in place emergency flood response procedures; and
j. Where not disapplied by the DCO in tandem with the provision of Protective Provisions there are a number of secondary consents that may be required such as: Flood Risk Activity Permits, Water Discharge Activity Permits, Water Resource Licences, and Land Drainage Consent.

Operation

16.6.13 Operational mitigation will include design measures which will be identified at later phases of assessment and incorporated into the final Proposed Development design, this is likely to include:

a. An appropriately designed surface water collection and treatment system will be set out in the Outline SWDS. Sustainable drainage systems (SuDS) will be incorporated to attenuate runoff from the Proposed Development to a rate agreed with the Environment Agency and / or the LLFA to avoid increasing flood risk, and to minimise the risk of pollutants entering the water environment via surface water runoff. Their design and use would depend on factors, such as site-specific constraints. Appropriate measures for managing the risk of pollution should there be a fire at the BESS or On-Site Substation sites will also be proposed;
b. The Proposed Development will include design measures to ensure that the Proposed Development does not generate any adverse flood risks to adjacent areas (e.g. appropriate design of watercourse crossings);
c. Watercourses will be buffered from permanent new infrastructure by 10m from the top of the watercourse and water bodies as measured from the water's edge, as shown on digital maps, other than where crossings are required, drainage or other essential infrastructure that has to be located nearer to the watercourse;
d. At this phase it is assumed that water required for operation and maintenance would be connected to mains water supply (with agreement from the statutory undertaker, Essex and Suffolk Water (owned by Northumbrian Water)) or another commercial source. There is anticipated to be up to 20-25 employees on site during operation. Consultation with Anglian Water Services (regarding foul water) and Essex and Suffolk Water is proposed as the design develops.
e. It is also assumed that foul drainage from temporary compounds would be connected to the public sewer or captured by a sealed cesspit or tank for offsite disposal. No discharges of foul wastewater to surface or groundwater are proposed; and
f. The siting of the below Proposed Development components was considered in turn on the basis of their potential vulnerability to flood risk and their importance to the operation of the Proposed Development, to locate these components to areas of lower flood risk, where reasonably practicable:

    i. Battery Energy Storage System (BESS) Compound(s);
    ii. On-Site Substations;

iii. Power Conversion Units (PCUs), and
iv. Solar PV Arrays.

Where this is not possible, these elements will be designed accordingly with some elements potentially raised above the design flood level.

Decommissioning

16.6.14 The decommissioning phase would apply similar design and mitigation measures as the construction phase although it is anticipated that the power cables may be left in situ beneath watercourses and there would be less excavation works required close to watercourses. Standard pollution prevention and construction good practices would be adopted to mitigate potential impacts upon the water environment where required and reasonably practicable. Such measures would be included in a Outline DEMP. A detailed DEMP would be prepared and agreed with the relevant authorities at the time of Proposed Development decommissioning.

16.7 Assessment Methodology

16.7.1 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on the water environment will be undertaken using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges LA113 Road Drainage and the Water Environment (Ref 16-62). The methodology is set out below.

16.7.2 Potential impacts of the Proposed Development on the water environment will be assessed by:

a. Considering the existing (baseline) status of the water environment within the EIA Scoping Site and relevant surrounds with respect to surface water, groundwater, flood risk and drainage, following the source-pathway-receptor approach;
b. Identifying potential impacts of the Proposed Development on the water environment, drainage and flood risk during the operational and maintenance, construction and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

Source-Pathway-Receptor Approach

16.7.3 The water environment, drainage, and flood risk impact assessment will be based on a source-pathway-receptor model. For an impact on the water environment to exist the following is required:

a. An impact source (such as the release of polluting chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or the loss or damage to all or part of a water body);
b. A receptor that is sensitive to that impact (i.e. water features and the services they support); and
c. A pathway by which the two are linked.

16.7.4 The first phase in applying the Source-Pathway-Receptor model is to identify the causes or 'sources' of potential impact from a development. The impact sources will be identified through a review of the details of the Proposed Development, including the size and nature of the Proposed Development, potential construction, operation (and maintenance), and decommissioning methodologies and timescales. The next step is to undertake a review of the potential receptors, that is, the water environment receptors that have the potential to be affected. Water features including their attributes will be identified through desk study and site surveys, building on the baseline information provided in this chapter. The last phase of the model is, therefore, to determine if there is a viable exposure pathway or a 'mechanism' linking the source to the receptor. This will be undertaken in the context of local conditions relative to the water receptors within the study area, such as topography, geology, climatic conditions and the nature of the impact (e.g. the mobility of a liquid pollutant or the proximity to works that may physically impact a water body).

16.7.5 The assessment of the likely significant effects is qualitative, and will consider the construction, operation (and maintenance), and decommissioning phases, as well as cumulative effects with other developments.

16.7.6 To support the assessment of effects on the water environment some sub-topic specific assessments will be undertaken. These are described in more detail in the following sections.

Water Quality Assessment

16.7.7 Relevant data will be requested from the EA to supplement the publicly available online data sources described in **Section 16.5**. A site walkover survey will be undertaken by a hydromorphologist and a water resources specialist. This will be to observe surface water features in the study area and to make observations

about their current condition and character, the presence of existing risks and any potential pathways for construction, operation (and maintenance), and decommissioning impacts as a result of the Proposed Development. Further site surveys may be required as the Proposed Development develops.

16.7.8 The importance of water features will be determined from a holistic review of water feature attributes and does not rely on water quality. This is because water quality is very variable with data lacking or requiring a considerable amount of data to be collected over long periods of time and at costs that are not commensurate to the value gained for impact assessment purposes. Furthermore, as it is an offence in England to pollute any controlled water the level of mitigation provided to manage pollution risks from a development is independent of the importance of that feature, which is used primarily to determine the significance of the effect to inform appropriate planning decisions.

16.7.9 Therefore, and consistent with numerous other solar Proposed Development DCO applications, water quality impacts will be based on a risk assessment basis that does not require input of raw background water quality data. Water quality data for the watercourses in the area will be drawn from Environment Agency monitoring, if available, but no water quality sampling is proposed to support the water environment assessment. However, water quality monitoring is likely to be a feature of proposed mitigation measures. The scope of this can be defined at a later stage but will require data to be collected in advance of the commencement of any construction works, as well as during and potentially for a short period post-completion of construction.

16.7.10 Overall, a qualitative assessment of potential effects on surface water quality from construction, operation (and maintenance) and decommissioning of the Proposed Development will be undertaken. This will consider the risk to surface water features resulting from construction, decommissioning works or future operation and maintenance activity using the source-pathway-receptor approach. Where there is a risk of pollution, mitigation measures will be described with reference to best practice guidance (e.g. Guidance on Pollution Prevention Notes and CIRIA guidance, (Ref 16-42).

16.7.11 The appropriateness of the surface water drainage measures in terms of providing adequate treatment of diffuse pollutants will be assessed with reference to the Simple Index Assessment method described in the SuDS Manual (Ref 16-68). The Simple Index Approach follows three steps:

a. Step 1 – Determine suitable pollution hazard indices for the land use(s);

b. Step 2 – Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index (for three key types of pollutants: total suspended solids, heavy metals and hydrocarbons); and
c. Step 3 – If the discharge is to a water body protected for drinking water, consider a more precautionary approach.

16.7.12 The SuDS Manual (Ref 16-68) only provides a limited number of land use types and so those selected will be the most suitable for the components of the Proposed Development, based on professional judgement. Where more than one pollution hazard category applies to a component of the Proposed Development, the worst pollution hazard will be selected.

16.7.13 As part of the groundwater assessment, a groundwater risk analysis will be undertaken of each location where there would be a trenchless crossing. This will compare the likely depth of excavation for instance for HDD exit and entry pits or for deep foundations with available estimates of groundwater level at each location.

Hydromorphological Assessment

16.7.14 All watercourses that may be crossed either for cable installation or for permanent or temporary access will be surveyed, where possible. However, this may not be possible due to the nature of the site with a dense network of drainage channels, many of which may be ephemeral or may have access or visibility restrictions. In these cases, desk study and proxy sites may be used to determine the character of the water feature at the point of interaction with the Proposed Development.

16.7.15 Using desk study and site information, and alongside other disciplines such as ecology that may be considering the presence of mammal habitat or suitability for aquatic fauna such as fish and macroinvertebrates, all cable and access crossing locations will be qualitatively reviewed. This will be to ensure that where possible impacts are avoided (i.e. by using existing access or non-intrusive cable crossing techniques) or where open-cut or culverts may be proposed, that impacts are minimised and adequately mitigated. Where culverts are temporary but will be in place for longer than 6 months they will be considered as ‘permanent’ in terms of mitigation provision. Overall, this assessment will inform the preparation of a Watercourse Crossing Register that can be presented to stakeholders for agreement. This will take account of the NPS EN-1 (Ref 16-27) and EN-3 (Ref 16-28) Ref 16-28policy that culverting of watercourses should be avoided. Selection of crossing design will take into account the following hierarchy: existing crossing use, upgrade existing crossing use, temporary clear

span structure, the least impacting design that is reasonably practicable (e.g. arch rather than box culverts, and box culverts in preference to pipes etc).

16.7.16 The ES will include a qualitative impact assessment based on the source-pathway-receptor model described earlier and the significance of effect criteria set out later in this section. Where a degree of flexibility needs to be retained (such as if full details of how a watercourse may be crossed in a particular location) the ES will assess a reasonable worst-case scenario. However, through the development of the DCO application appropriate mitigation including consultation with regulators can be secured.

Water Framework Directive (WFD) Assessment

16.7.17 Due to the potential for impacts upon WFD water bodies, a WFD Screening and Scoping Assessment has been undertaken in advance of this EIA Scoping Report, in keeping with the Planning Inspectorate Advice on the Water Framework Directive (Ref 16-38). The assessment concluded that the risks of WFD impacts are low, and it is likely that all WFD risks can be designed out or mitigated. However, until designs affecting water bodies including appropriate mitigation measures become available, risks to WFD objectives cannot be ruled out. The WFD assessment therefore concludes, on a precautionary basis, that this screening and scoping exercise should be revisited at the ES stage. This WFD Screening and Scoping Report will be shared with the Environment Agency for discussion.

16.7.18 This assessment will be updated in order to determine the potential for any non-compliance of the Proposed Development with WFD objectives for affected water bodies, using readily available information and any site observations. A qualitative WFD Impact Assessment will need to be undertaken to demonstrate WFD compliance if water bodies and activities remain screened in. This will include a qualitative examination of the potential construction, operation (and maintenance), and decommissioning phase impacts of the Proposed Development on relevant WFD hydromorphological, biological and physio-chemical parameters. Depending on the outcomes of the assessment, more detailed investigations may be required, which will be determined in consultation with the Environment Agency.

Surface Water Drainage Strategy

16.7.19 The design of drainage systems aims to ensure that there will be no increase in flood risk as a result of the Proposed Development, for storms up to and including the 1 in 100 (1% Annual Exceedance Probability (AEP)) annual probability design flood, with an allowance for climate change.

16.7.20 An Outline SWDS will be prepared alongside the Flood Risk Assessment to ensure the risk of surface water flooding is not increased as a result of the Proposed Development including increases land take for new impermeable areas, taking into account climate change.

16.7.21 For a Proposed Development of this nature, there will be a limited amount of new impermeable areas (typically limited to associated On-Site Substation buildings, BESS Compound(s) and PCUs). Internal access tracks within the Energy Park Areas will be permeable (Type 3 material or equivalent).

16.7.22 Whilst it is recognised that Solar PV Arrays may alter runoff pathways beneath panel drip lines, the Proposed Development will retain predominately permeable ground conditions and will be designed to maintain existing greenfield runoff rates through appropriate drainage design and SuDS measures.

16.7.23 Careful consideration of the SuDS features, in keeping with local planning policy and through liaison with the LLFA (Essex County Council) and Environment Agency, will be undertaken to ensure that the SWDS adequately attenuates and treats runoff from the Proposed Development, whilst minimising flood risk to the Proposed Development and surrounding areas.

16.7.24 A water quality risk assessment of all solar infrastructure will be undertaken using the Simple Index Approach described in The SuDS Manual (Version 6) (CIRIA C753) (Ref 16-68) and also summarised above. This will inform what, if any, treatment measures are required to manage the risk from diffuse urban runoff to watercourses or ground.

Flood Risk Assessment

16.7.25 A FRA will be prepared for the Proposed Development as a technical appendix to the Water Environment chapter of the ES.

16.7.26 The FRA will include a review of the current and future flood risk to the Proposed Development from all sources (including surface water, groundwater, tidal and fluvial sources and residual flood risks), in keeping with NPPF guidance (Ref 16-31), to inform the Proposed Development design and set out any proposed mitigation requirements, taking into account future impacts of climate change.

16.7.27 The NPPF (Ref 16-30) includes solar farms as ‘Essential Infrastructure’, as categorised in Annex F, Table 2: Flood risk vulnerability classification.

16.7.28 With the exception of any above ground infrastructure (e.g. On-Site Substations, BESS) and temporary works during installation, Grid Connection Corridor(s) are not generally considered in flood risk terms. However, the approach to the Sequential and Exception Tests for the Interconnecting Areas will be clarified with the Environment Agency and Essex County Council as required.

16.7.29 The Flood Map for Planning (Ref 16-70) does not specify whether the flood risk arises from tidal or fluvial sources and instead shows a combined risk from both sources. The flood zones on the Flood Map for Planning at the EIA Scoping Site appear to be associated with tidal sources, and as a result, the fluvial flood risk to the Proposed Development is to be discussed with the EA to confirm its impact on the Proposed Development. Where required, consultation will be undertaken with, and data will be requested from the Environment Agency and Essex County Council (as LLFA) to confirm the fluvial risk from surrounding watercourses, which will be detailed within a site-specific FRA. Where required, hydraulic modelling will be undertaken to understand the risk from fluvial sources.

16.7.30 If the FRA confirms that the Proposed Development is located in Flood Zones 2 and 3 associated with fluvial sources, there may be a requirement for the construction of flood compensation or mitigation measures to ensure no detrimental effect to flooding potential within or from the affected watercourses in the catchment once the Proposed Development is operational. This will be assessed in detail as part of the FRA.

16.7.31 As the Proposed Development is classified as 'Essential Infrastructure' and the majority of the EIA Scoping Site is located in Flood Zones 2 and 3, the Exception Test is required to be undertaken as part of the FRA. For the Exception Test to be passed allowing development in Flood Zone 3, the FRA will be required to demonstrate that:

a. The project would provide wider sustainability benefits to the community that outweigh flood risk; and
b. The project will be safe for its lifetime, taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

16.7.32 This requirement will influence positioning of infrastructure within the EIA Scoping Site (in particular the BESS and On-Site Substations) and the heights of panels.

16.7.33 The EIA Scoping Site appears to benefit from coastal flood defences. However, it may still be at a residual risk from a defence breach or overtopping. This residual risk will be considered during the construction, operation (and maintenance) and decommissioning phases and maintenance, with solar PV panels and sensitive equipment being designed accordingly to remain operational.

16.7.34 As is required for nationally significant infrastructure projects, the Credible Maximum Scenario (CMS) event will be assessed within the FRA. For fluvial flood

risk this relates to the Upper End Climate change scenario for the 1% AEP event. For tidal flood risk, this relates to the H++ sea level rise assessment in line with EA guidance, and a maximum 1.9 m rise in sea level to 2100 including a 2mm per year increase for tidal surge from 2017 (noting the latest UKCP18 extreme sea levels (Ref 16-72) account for storm surge already).

16.7.35 The CMS is a sensitivity test, which does not necessarily require additional mitigation; it is an assessment of how sensitive the Development Proposal is to changes in the climate for different future scenarios. The FRA will assess the CMS to demonstrate the Proposed Development is safe or can be adapted to large-scale climate change over its lifetime.

Water Resource Assessment

16.7.36 At this stage it is assumed that water required for construction and decommissioning would be sourced from a third-party commercial source supplying the construction industry, and may be tankered in. For operation and maintenance, when there may only be a small number of staff permanently based on site, connection to the Mains water supply may be an option (with agreement from Essex and Suffolk Water) or alternatively, another commercial source as in the case for during construction. No abstractions from surface or groundwater are proposed.

16.7.37 Consultation with Essex and Suffolk Water is proposed as the design develops to determine whether they might be able to supply all phases of the Proposed Development. To support this consultation, a Water Resource Assessment will be prepared setting out the estimated average and peak water demand for each phase of the Proposed Development. This will itemise the water needs for each phase and explain any assumptions that are required at this stage. It will also consider how water use may be minimised or recycled, to reduce overall demand on supplies.

Determining the Significance of Effects

16.7.38 The significance of effects will be determined using the principles of the guidance and criteria set out in the Design Manual for Roads and Bridges (DMRB) LA113 Road Drainage and the Water Environment (Ref 16-62) adapted to take account of hydromorphology. This can be applied to all development types and represents the most robust and nationally accepted criteria for the determination of potential effects on the water environment.

16.7.39 The criteria that will be used to determine receptors importance are presented in **Table 16-8**.

16.7.40 In accordance with the phases of the methodology, there are three phases to the assessment of effects on water environment, drainage, and flood risk as follows:

a. A level of importance (low to very high) is assigned to the water resources receptor from **Table 16-8** and is based on a combination of attributes (such as water supply, biodiversity, recreation) and on receptors to flood risk based on the vulnerability of the receptor to flooding (i.e. as shown in **Table 16-8**, essential infrastructure would be very high importance, to water compatible development which would be of low importance);
b. The magnitude of potential and residual impact (classed as negligible, minor, moderate or major adverse/ beneficial) is determined based on the criteria listed in **Table 16-9** and the assessor's knowledge of the Proposed Development. Embedded or standard mitigation measures are considered in the initial assessment, but any other mitigation is not considered until the assessment of residual effects. The magnitude of change will be determined considering the likelihood of the effect occurring. The likelihood of an effect occurring is based on a scale of certain, likely or unlikely. Likelihood has been considered in the case of water resources only, as likelihood is inherently included within the flood risk assessment; and
c. A comparison of the importance of the resource and magnitude of the impact (for both potential and residual impacts) results in an assessment of the overall significance of the effect on the receptor using the matrix presented **Table 16-10**. The significance of each identified effect (both potential and residual) will be classed as very large, large, moderate, slight or neutral and either beneficial or adverse significance.

Importance

16.7.41 The criteria that will be used to determine receptors importance are presented in **Table 16-8**.

Table 16-8: Criteria for determining the importance of a receptor (adapted from LA113 (Ref 16-62)

Importance	General Criteria	Examples			
		Surface Water	Groundwater	Hydromorphology	Flood Risk
Very High	Nationally significant attribute of high importance.	Watercourse having a WFD classification as shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0m³/s. Site protected / designated under UK habitat legislation (SAC, SPA, SSSI, Water Protection Zones, Ramsar site). Species protected by UK legislation. Critical social or economic uses (e.g. public water supply and navigation).	SPZ 1. Principal aquifer providing a regionally important resource and/or supporting a site protected under UK legislation. Groundwater locally supports GWDTE. Water abstraction: >1,000m³/day.	Unmodified, near to or pristine conditions, with well-developed and diverse geomorphic forms and processes characteristic of river and lake type.	Essential Infrastructure or highly vulnerable development.
High	Locally significant attribute of high importance	Watercourse having a WFD classification as shown in a RBMP and Q95 < 1.0m³/s; Species protected under UK habitat legislation. Critical social or economic uses (e.g. water supply and navigation). Important social or economic uses	Principal aquifer providing locally important source supporting a river ecosystem; SPZ 2; Groundwater supports GWDTE; Water abstraction: 500-1,000m³/day	Conforms closely to natural, unaltered state and will often exhibit well-developed and diverse geomorphic forms and processes characteristic of river and lake type. Deviates from natural conditions due to direct and/or indirect channel, floodplain, bank modifications	More vulnerable development.

Importance	General Criteria	Examples			
		Surface Water	Groundwater	Hydromorphology	Flood Risk
		such as water supply, navigation or mineral extraction.		and/or catchment development pressures.	
Medium	Of moderate quality and rarity.	Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m³/s. May be designated as a local wildlife site and support a small/ limited population of protected species. Limited social or economic uses.	Secondary Aquifer providing water for agricultural or industrial use with limited connection to surface water SPZ 3. Water abstraction: 50-499 m³/day.	Shows signs of previous alteration and/or minor flow/ water level regulation but still retains some natural features or may be recovering towards conditions indicative of the higher category.	Less vulnerable development.
Low	Lower quality.	Watercourses not having a WFD classification shown in a RBMP and Q95 <0.001m³/s. Low aquatic fauna and flora biodiversity and no protected species. Minimal economic or social uses.	Generally Unproductive Strata. Water abstraction: <50m³/day.	Substantially modified by past land use, previous engineering works or flow/ water level regulation. Watercourses likely to possess an artificial cross-section (e.g. trapezoidal) and will probably be deficient in bedforms and bankside vegetation. Watercourses may also be realigned or channelized with hard bank protection or culverted and enclosed. May be significantly impounded or abstracted for water resources	Water compatible development.

Importance	General Criteria	Examples			
		Surface Water	Groundwater	Hydromorphology	Flood Risk
				use. Could be impacted by navigation, with associated high degree of flow regulation and bank protection, and probable strategic need for maintenance dredging. Artificial and minor drains and ditches will fall into this category.	
Negligible	The receptor is resistant to change and is of little environmental value	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Magnitude

Table 16-9: Magnitude of change criteria (adapted from DMRB LA113 (Ref 16-62)

Magnitude	Criteria
Major Adverse	Results in a loss of attribute and/or quality and integrity of the attribute.
Moderate Adverse	Results in impact on integrity of attribute, or loss of part of attribute.
Minor Adverse	Results in some measurable change in attribute's quality or vulnerability.
Negligible	Results in impact on attribute, but of insufficient magnitude to affect the use or integrity.
Minor Beneficial	Results in some beneficial impact on attribute or a reduced risk of negative impact occurring.
Moderate Beneficial	Results in moderate improvement of attribute quality.
Major Beneficial	Creation of new attribute or major improvement of attribute quality.
No change	No loss or alteration of characteristic, features of elements; no observable impact in either direction.

Determining the Significance of Effects

16.7.42 The significance of water environment effects will be determined by considering the relationship between the importance of the receptor and the magnitude of change. **Table 16-10** sets out how the significance of effect is determined.

16.7.43 The importance of the receptor (**Table 16-8**) and the magnitude of change (**Table 16-9**) are determined independently from each other and are then used to determine the overall significance of effects (**Table 16-10**). Options for mitigation will be considered and secured where possible to avoid, minimise and reduce adverse impacts, particularly where significant effects may have otherwise occurred. The residual effects of the Proposed Development with identified mitigation in place will then be reported. Effects of moderate or worse are considered significant in EIA terms (i.e. the shaded cells in **Table 16-10**).

Table 16-10: Matrix for Assessment of Significance of Effects (DMRB LA 113 (Ref 16-62))

Importance of receptor	Magnitude of change				
	Major	Moderate	Minor	Negligible	No change
Very High	Very large	Large or very large	Moderate or large	Slight	Neutral
High	Large or very large	Slight or moderate	Slight or Moderate	Slight	Neutral
Medium	Moderate or large	Moderate	Slight	Neutral or slight	Neutral
Low	Slight or moderate	Slight	Neutral or slight	Neutral or slight	Neutral
Very Low	Slight	Neutral or slight	Neutral or slight	Neutral	Neutral

16.7.44 The following significance categories will be used for both potential and residual effects:

a. Beneficial: A beneficial/ positive effect on the quality of a water resources receptor; or
b. Adverse: A detrimental/ negative effect on the quality of a water resources receptor

16.8 Limitations and Assumptions

16.8.1 The location and layout of certain elements of infrastructure (including the point of connection, construction methodologies and mitigation), have not yet been determined. This is of particular importance when considering the scoping in / scoping out of receptors. It is assumed that the protection of water environment receptors would be taken into account within the iterative design process, including the choice of crossing methodology and the use of best practice methodologies for construction.

16.8.2 The location of PWS and licensed water abstractions have not yet been obtained, and so these are not included as receptors at this time. Water activity permits (i.e. permitted discharges) are also not yet known in detail and have not been considered in the current baseline. These receptors and water feature attributes will be considered as further assessment is undertaken.

16.8.3 Product 6 hydraulic modelling data has been received from the Environment Agency to understand fluvial and tidal flood risk (including breach scenarios) within the study area. Where this is out of date, updates to the hydraulic modelling may need to be undertaken as part of the FRA. This will be discussed and agreed with the Environment Agency and Essex County Council as required.

16.8.4 Visual surveys will be undertaken of accessible water/ drainage features to inform the Outline SWDS, impact assessment and WFD assessment. However, it may not be possible to survey all significant locations (such as crossing locations) or structures due to access constraints or visibility issues (e.g. dense vegetation). Where this is the case, a survey close to the area of interest will be attempted and this data used as a proxy. In addition, some watercourses may be small, ephemeral and flow only intermittently, and these may not be identified in the field or observed when flowing.

16.8.5 Other than the site walkover survey, the FRA and Outline SWDS will be based on desktop surveys and best available site layout proposals in line with good practice. Where available, topographical data will be used to support the FRA. In the absence of topographical data, LiDAR data will be used to inform the FRA and the Outline SWDS.

16.8.6 Groundwater level data for the study area is limited. Further understanding of groundwater levels across the study area will be ascertained from information requests to the Environment Agency.

16.8.7 It is assumed that foul wastewater generated from the Proposed Development would be managed appropriately but would not be discharged to ground or a watercourse in any phase of development. Options may include connecting to the nearest available public sewer or a self-contained independent non-mains domestic storage and/or treatment system. The alternative where this is not possible, would be for a self-contained foul drainage system to a cess pit or similar. These tanks would be regularly emptied under contract with a registered recycling and waste management contractor. This will be assessed in full at ES stage

16.8.8 At this stage it is assumed that any water needed for the construction or operation of the Proposed Development would be provided by a Mains connection or from a third-party commercial source, although further assessment is proposed to ensure the Proposed Development can be delivered with water resources used as efficiently as possible. As no on-site abstraction is proposed, with water being sourced from legitimate and licenced sources, there is no impact pathway that requires assessment. However, details of the approach will be included in the ES, together with the outcome of future consultations with relevant stakeholders, as consideration of water resources is required by the NPS (Ref 16-28) and to demonstrate the deliverability of the Proposed Development.

16.9 Summary of Elements Scoped In or Out

16.9.1 Due to the potential for effects on water environment receptors and resources from the Proposed Development, the water environment is scoped into the ES. The ES chapter will be supported by a site-specific FRA, Outline SWDS, and an updated WFD Screening and Scoping Assessment, or qualitative WFD Impact Assessment if required. The scope and methodology of these assessments is described in **Section 16.7**. A summary of the elements scoped in and out of the Water Environment ES chapter is presented in **Table 14-4** below.

Table 16-11: Elements scoped in and out of the Water Environment assessment

Element	Scoped In / Scoped Out
Surface water (construction, operation and decommissioning)	**Scoped in** - potential for impacts on Main Rivers, Ordinary Watercourses, drainage ditches and other surface water receptors arising from construction activities, pollution incidents, sediment runoff, drainage alterations, watercourse crossings and changes to runoff pathways. Surface water receptors scoped into the assessment are identified in Table 16-1 and in paragraph 16.5.10. **Scoped out** - surface water receptors with no hydrological connectivity to the Proposed Development, including upstream watercourses and isolated drainage features, as identified in Table 16-1.
Water Supply and foul drainage	**Scoped out** - impacts relating to water supply and foul drainage are not anticipated to result in significant environmental effects. No abstraction from surface water or groundwater is proposed, with water expected to be sourced from mains supply or other appropriately licensed commercial suppliers. Foul wastewater generated during construction and operation would be limited in volume and managed through sealed foul drainage systems with off-site disposal by a registered waste contractor. Following construction, the conversion of agricultural land to solar development is expected to reduce the presence of livestock and the application of fertilisers across the EIA Scoping Site. Consequently, no significant effects on the identified NVZs are anticipated and they are not considered further within this assessment. Information relating to water supply and foul drainage will nevertheless be presented within the ES to demonstrate deliverability and compliance with relevant policy requirements.

Element	Scoped In / Scoped Out
Hydromorphology (construction, operation and decommissioning)	**Scoped in** - potential for impacts on the hydromorphology of watercourses arising from temporary and permanent crossings, open-cut trenching, drainage works, construction activities and associated mitigation measures. The WFD Screening and Scoping Assessment will be discussed with the Environment Agency, reviewed and updated at the ES stage as the design evolves. However, with appropriate design and mitigation, significant impacts on WFD receptors are not anticipated. **Scoped out** - trenchless watercourse crossings and water features with no hydrological connectivity to the Proposed Development, as listed in Table 16-1.
Groundwater (Construction, Operation (and Maintenance), and Decommissioning)	**Scoped in** - potential for impacts due to construction, operation (and maintenance), and decommissioning of the Proposed Development including from heat emissions from buried cables on aquifers, licenced and PWS (to be confirmed) and GWDTEs. **Scoped out** – impact on local potable water supplies and from foul drainage on the basis that these are regulated industries, that suitable sources of water not involving a new local abstraction will be used (this will be kept under review).
Flood risk, including drainage (Construction, Operation (and Maintenance), and Decommissioning)	**Scoped in** - potential for impacts on flood risk from fluvial, tidal, surface water, groundwater and reservoir sources arising from temporary and permanent changes to drainage patterns, runoff rates, floodplain storage and flood flow routes.
Nutrient neutrality assessment, including designated shellfish waters (Construction, Operation (and Maintenance), and Decommissioning)	**Scoped out** – the Proposed Development is not located within a Nutrient Neutrality catchment and therefore significant effects relating to nutrient neutrality are not anticipated.
Water Framework Directive	A WFD Screening and Scoping Assessment has been undertaken in advance of this EIA Scoping Report, in keeping with the Planning Inspectorate Advice on the Water Framework Directive. The assessment concluded that the risks of WFD impacts are low, and it is likely that all WFD risks can be designed out or mitigated. However, until designs affecting

Element	Scoped In / Scoped Out
	water bodies including appropriate mitigation measures become available, risks to WFD objectives cannot be ruled out. The WFD assessment therefore concludes, on a precautionary basis, that this screening and scoping exercise should be revisited at the ES stage.

16.10 References

Ref 16-1 HMSO (2021) Environment Act. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted Accessed: October 2026

Ref 16-2 HMSO (2010) Flood and Water Management Act 2010. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents Accessed: October 2026

Ref 16-3 HMSO (1991) Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/3104/contents Accessed: October 2026

Ref 16-4 HMSO (2009) Marine and Coastal Access Act. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents Accessed: October 2026

Ref 16-5 HMSO (1991) Land Drainage Act 1991. Available at: https://www.legislation.gov.uk/ukpga/1991/59 Accessed: October 2026

Ref 16-6 HMSO (1991) Water Resources Act 1991. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents Accessed: October 2026

Ref 16-7 HMSO (1990) Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents Accessed: October 2026

Ref 16-8 HMSO (1975) Salmon and Freshwater Fisheries Act 1975. Available at: https://www.legislation.gov.uk/ukpga/1975/51 Accessed: October 2026

Ref 16-9 HMSO (2017) Water environment (Water Framework Directive) (England and Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/407/pdfs/uksi_20170407_en.pdf Accessed: October 2026

Ref 16-10 HMSO (2015) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/810/contents Accessed: October 2026

Ref 16-11 HMSO (2016) The Environmental Permitting (England and Wales) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents Accessed: October 2026

Ref 16-12 HMSO Government (2010) The Building Regulations 2010, Approved Document H: Drainage and waste disposal. Available at https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h Accessed: October 2026

Ref 16-13 HMSO (2009) Eels (England and Wales) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/3344/body?view=plain Accessed: October 2026

Ref 16-14 HMSO (2004) The Control of Substances Hazardous to Health (Amendment) Regulations. Available at: https://www.legislation.gov.uk/uksi/2004/3386/contents Accessed: October 2026

Ref 16-15 HMSO (2001) The Control of Pollution (Oil Storage) (England) Regulations 2001. Available at: https://www.legislation.gov.uk/uksi/2001/2954/contents Accessed: October 2026

Ref 16-16 HMSO (1999) The Anti-Pollution Works Regulations. Available at: https://www.legislation.gov.uk/uksi/1999/1006/contents/made Accessed: October 2026

Ref 16-17 HMSO (2015) The Water Framework Directive (WFD) (Standards and Classification) Directions. Available at: https://www.legislation.gov.uk/uksi/2015/1623/pdfs/uksiod_20151623_en_auto.pdf Accessed: October 2026

Ref 16-18 Essex County Council. Local Flood Risk Management Strategy. Available at: https://flood.essex.gov.uk/media/czhnakg2/essex-local-flood-risk-management-strategy.pdf Accessed: October 2026

Ref 16-19 Essex County Council. 'What are SuDS are How are they Designed?' Available at: https://flood.essex.gov.uk/new-development-advice/what-are-sustainable-drainage-systems/ Accessed: October 2026

Ref 16-20 The Sustainable Drainage Systems Design Guide for Essex 2020: Supporting Sustainable Development. Available at: https://www.essexdesignguide.co.uk/suds Accessed: October 2026

Ref 16-21 Level 1 Strategic Flood Risk Assessment (2024). Available at: https://www.basildon.gov.uk/media/12162/Basildon-Borough-Level-1-SFRA-2024/pdf/Basildon_Borough_Level_1_SFRA.pdf Accessed: October 2026

Ref 16-22 Chelmsford Local Plan 2013-2036. Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 16-23 Chelmsford City Council Level 1 Strategic Flood Risk Assessment (2024). Available at: https://www.chelmsford.gov.uk/media/noukav02/cc001-chelmsford-sfra-level-1-main-report-february-2024.pdf Accessed: October 2026

Ref 16-24 Chelmsford City Level 2 Strategic Flood Risk Assessment (2024). Available at: https://www.chelmsford.gov.uk/media/znxhi41t/cc010-chelmsford-level-2-strategic-flood-risk-assessment-sfra-may-2024.pdf Accessed: October 2026

Ref 16-25 Maldon District Council Level 1 Strategic Flood Risk Assessment (2024). Available at: https://www.maldon.gov.uk/info/20045/planning_and_building_control/10202/strategic_flood_risk_assessment Accessed: October 2026

Ref 16-26 South Essex Surface Water Management Plan (2012). Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planning_surfacemanagement.pdf Accessed: October 2026

Ref 16-27 DESNZ (2025) Overarching National Policy Statement for Energy (EN-1) (online). Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 16-28 DESNZ (2025) National Policy Statement for Renewable Energy Infrastructure (EN-3) (online). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 16-29 DESNZ (2025) National Policy Statement for Electricity Networks Infrastructure (EN-5) (online). Available at: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf Accessed: October 2026

Ref 16-30 Ministry of Housing, Communities and Local Government (MHCLG) (August 2026) National Planning Policy Framework (online). Available at: https://assets.publishing.service.gov.uk/media/6aabe97844ec1aa417346c0b/National_Planning_Policy_Framework.pdf Accessed: October 2026

Ref 16-31 HM Government (2023) Environmental Improvement Plan 2023. Available at: https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf Accessed: October 2026

Ref 16-32 HM Government (2023) Government's Plan for Water: Our Integrated Approach to Delivery Clean and Plentiful Water. Available at https://www.gov.uk/government/publications/plan-for-water-our-integrated-plan-for-delivering-clean-and-plentiful-water/plan-for-water-our-integrated-plan-for-delivering-clean-and-plentiful-water Accessed: October 2026

Ref 16-33 HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment (online). Available at: https://www.gov.uk/government/publications/25-year-environment-plan Accessed: October 2026

Ref 16-34 Department for Environment, Food and Rural Affairs (2011) Future Water: The UK Government Water Strategy. Available at: https://assets.publishing.service.gov.uk/media/5a78a61c40f0b632476990fe/pb13562-future-water-080204.pdf Accessed: October 2026

Ref 16-35 DEFRA (2025) National Standards for sustainable drainage systems (SuDS). Available at: https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds Accessed: October 2026

Ref 16-36 Building Research Establishment (BRE) (2012) Digest 365: Soakaway Design and Sewers for Adoption (7th Edition). Available at https://bregroup.com/store/bookshop/soakaway-design-dg-365-2016-download Accessed: October 2026

Ref 16-37 Gov.uk (2024) Planning Practice Guidance (NPPG). Available at: https://www.gov.uk/government/collections/planning-practice-guidance Accessed: October 2026

Ref 16-38 Planning Inspectorate (2026) Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (online). Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive Accessed: October 2026

Ref 16-39 Gov.uk (2024) Nationally Significant Infrastructure Projects: Technical Advice for Scoping Solar Development. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-technical-advice-page-for-scoping-solar-development Accessed: October 2026

Ref 16-40 Gov.uk (2022) Flood Risk Assessment: climate change allowances. Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances Accessed: October 2026

Ref 16-41 CIRIA (2014) Containment Systems for the prevention of pollution (C736F). Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C736F&Category=FREEPUBS Accessed: October 2026

Ref 16-42 CIRIA (2001) Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (C532). Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C532 Accessed: October 2026

Ref 16-43 CIRIA (2006) Control of Water Pollution from Linear Construction Projects – Technical Guidance (C648). Available at: https://www.ciria.org/CIRIA/ProductExcerpts/C648.aspx Accessed: October 2026

Ref 16-44 CIRIA (2023) Environmental good practice on site (5th edition) (C811) Available at: https://www.ciria.org/ci/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=C811&Category=BOOK Accessed: October 2026

Ref 16-45 CIRIA (2016) Groundwater control: design and practice (second edition) (C750). Available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C750&Category=BOOK Accessed: October 2026

Ref 16-46 Environment Agency (2018) The Environment Agency's approach to groundwater protection. Available at: https://www.gov.uk/government/publications/groundwater-protection-position-statements Accessed: August 2026

Ref 16-47 Environment Agency (2007). Hydrogeological impact appraisal for groundwater abstractions. Science Report – SC040020/SR2. Available at: https://assets.publishing.service.gov.uk/media/5a7c4eade5274a2041cf31ec/scho0407bmah-e-e.pdf https://assets.publishing.service.gov.uk/media/5a7c4eade5274a2041cf31ec/scho0407bmah-e-e.pdf Accessed: October 2026

Ref 16-48 Gov.uk (2007) Hydrogeological impact appraisal for groundwater abstractions. Science Report – SC040020/SR2. Available at: https://www.gov.uk/government/publications/hydrogeological-impact-appraisal-for-dewatering-abstractions Accessed: October 2026

Ref 16-49 Gov.uk (2017) Protect groundwater and prevent groundwater pollution. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution Accessed: October 2026

Ref 16-50 Gov.uk (2017) Groundwater protection technical guidance. Available at: https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance Accessed: October 2026

Ref 16-51 WFDUK (2003) Guidance on the identification and risk assessment of groundwater dependent terrestrial ecosystems. Available at: https://www.wfduk.org/sites/default/files/Media/Characterisation%20of%20the%20water%20environment/Risk%20assessment%20of%20terrestrial%20ecosystems%20groundwater_Draft_210104.pdf Accessed: October 2026

Ref 16-52 Ordnance Survey maps (2026) Available at: https://gridreferencefinder.com/os.php Accessed: October 2026

Ref 16-53 Gov.uk (2018) Anglian river basin district river basin management plan. Available at: https://www.gov.uk/government/publications/anglian-river-basin-district-river-basin-management-plan Accessed: October 2026

Ref 16-54 Environment Agency Catchment Data Explorer website. Available at: https://environment.data.gov.uk/catchment-planning/ Accessed: October 2026

Ref 16-55 Department for Environment, Food and Rural Affairs (DEFRA) hydrology data explorer website. Available at: https://environment.data.gov.uk/hydrology/explore Accessed October 2026

Ref 16-56 Department for Environment, Food and Rural Affairs (DEFRA water data explorer website. Available at: https://engageenvironmentagency.uk.engagementhq.com/data-publications-water Accessed: October 2026

Ref 16-57 Cranfield Soils and Agrifood Institute (2023) Soilscapes Viewer. Available at: https://portal.landis.org.uk Accessed: October 2026

Ref 16-58 Defra (2023) Multi-Agency geographical information for the countryside (MAGIC) map. Available at: https://magic.defra.gov.uk/MagicMap.html Accessed: October 2026

Ref 16-59 British Geological Survey (2023) Geoindex viewer, Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html Accessed: October 2026]

Ref 16-60 Meteorological Office website. Available at: https://www.metoffice.gov.uk/research/climate/maps-and-data/location-specific-long-term-averages/gcrhed9b0 Accessed: October 2026

Ref 16-61 Gov.uk (2023) Flood risk mapping. Available at: https://www.gov.uk/check-long-term-flood-risk Accessed: October 2026

Ref 16-62 Design Manual for Roads and Bridges Road Drainage and the Water environment LA113. Available at: https://find-business-regulations.private-beta.service.trade.gov.uk/document/c6e94f1c97a30db41f491681c03fe1f7 Accessed: October 2026

Ref 16-63 Gov.uk (2018) The Water Supply (Water Quality) (Amendment) Regulations 2018. Available at: https://www.legislation.gov.uk/uksi/2018/706/made Accessed: October 2026

Ref 16-64 Gov.uk (2013) Bathing Water Regulations. Available at: https://www.legislation.gov.uk/uksi/2013/1675/contents Accessed: October 2026

Ref 16-65 Gov.uk (2015) Oil storage regulations for businesses. Available at: https://www.gov.uk/guidance/storing-oil-at-a-home-or-business Accessed: October 2026

Ref 16-66 Gov.uk (2016) Pollution prevention for businesses. Available at: https://www.gov.uk/guidance/pollution-prevention-for-businesses Accessed: October 2026

Ref 16-67 National Fire Chiefs Council (2025) National Fire Chiefs Council BESS guidance. Available at: https://nfcc.org.uk/our-services/building-safety/grid-scale-energy-storage-system-planning-guidance-for-fire-and-rescue-services/ Accessed: October 2026]

Ref 16-68 CIRIA (2015) The SuDS Manual C753. Available at: https://www.ciria.org/CIRIA/Books/Free_publications/C753F.aspx Accessed: October 2026

Ref 16-69 Environment Agency Asset Information and Management System (AIMS) dataset (2026). Available at: https://www.data.gov.uk/dataset/a3861a23-78a1-438d-8c36-1f9f1133c572/aims-asset-bundle Accessed: August 2026

Ref 16-70 Gov.uk Flood Map for Planning. Available at: https://flood-map-for-planning.service.gov.uk/ Accessed: October 2026

Ref 16-71 Environment Agency (2017) Essex abstraction licensing strategy. Available at: 227_10_SD01_XXXX Abstraction Licensing Strategy Accessed: October 2026

Ref 16-72 Gov.uk Climate Change Allowances (Sea level rise), available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#sea-level-allowances Accessed: October 2026

17. Other Environmental Topics

17.1 Air Quality

Introduction

17.1.1 **Section 17.1: Air Quality** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects associated with air quality during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the air quality section of the Environmental Statement (ES).

17.1.2 This chapter is supported by the following figure:

a. **Figure 17-1: Air Quality Study Area, Receptors and Monitoring Locations.**

17.1.3 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 10: Ecology and Biodiversity; and**
b. **Chapter 15: Traffic and Transport**.

Study Area

17.1.4 The study area includes features likely to be at risk from possible direct and indirect impacts that might arise from the Proposed Development. For air quality, this includes consideration of sensitive receptors within 250m of the EIA Scoping Site; within 50m of roads expected to be affected by construction phase traffic; and up to 250m from site access points. These study areas are consistent with Institute of Air Quality Management (IAQM) guidance (Ref 17.1-1). In addition, human health and sensitive ecological receptors located within 200m of any roads predicted to experience a change in traffic exceeding relevant screening criteria. Indicative human health receptors are shown in **Figure 17-1: Air Quality Study Area, Receptors and Monitoring Locations** but will be reviewed once suitable traffic data are available. Ecological receptors will be reviewed in conjunction with project ecologists once suitable traffic data are available, with the assessment scale confirmed in the ES.

Legislation, Planning Policy Context and Guidance

17.1.5 Legislation, planning policy and guidance relating to air quality and pertinent to the Proposed Development is listed in this section.

Legislation

17.1.6 Relevant legislation includes:

a. The Environmental Protection Act 1990 (Ref 17.1-2);
b. The Environment Act 1995 (Ref 17.1-3)
c. The Air Quality (England) Regulations 2000 (Ref 17.1-4)
d. the Air Quality (England) (Amendment) Regulations 2002 (Ref 17.1-5).
e. National Air Quality Legislation Originating from the European Union (EU) (Ref 17.1-6), including the Air Quality Standards Regulations 2010 (as amended in 2016) (Ref 17.1-7);
f. The Environment Act 2021 (Ref 17.1-9); and
g. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref 17.1-10).

17.1.7 Part III of the Environmental Protection Act 1990 (Ref 17.1-2) 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.

17.1.8 Although the UK is no longer a member of the EU, some types of EU legislation such as Regulations and Directives, have been retained in UK law. This legislation is now published on legislation.gov.uk as 'legislation originating from the EU' (Ref 17.1-6). The Air Quality Standards Regulations 2010 (as amended 2016) (Ref 17.1-7), including amendments, define 'Limit Value' concentrations to protect human health and 'Target values' to protect the wider environment. These air quality standards are retained through 'The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020' (Ref 17.1-8).

17.1.9 The Environment Act 1995 (Ref 17.1-3) (as amended in 2021) (Ref 17.1-9) requires the UK Government to produce a national Air Quality Strategy (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. The air quality objective values are 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.

17.1.10 The national air quality objectives of relevance to this assessment, as well as to the local air quality management regime, were defined in The Air Quality

(England) Regulations 2000 (Ref 17.1-4) and the Air Quality (England) (Amendment) Regulations 2002 (Ref 17.1-5).

17.1.11 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref 17.1-10) introduced two targets under the Environment Act 2021 (Ref 17.1-8). 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 Secretary of State 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 Proposed Development.

17.1.12 How target values should be considered in development control and local air quality control is a matter on which the Department for Environment, Food and Rural Affairs (Defra) are currently undertaking a stakeholder engagement exercise prior to bringing forward guidance for local authorities in England.

National Planning Policy

National Policy Statements

17.1.13 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Renewable Energy (EN-1) (2025) (Ref 17.1-11);
b. NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 17.1-12); and
c. NPS for Electricity Networks Infrastructure (EN-5) (2025) (Ref 17.1-13).

17.1.14 The NPSs set out the Government's energy policy infrastructure for delivery of major energy infrastructure, along with the need for new infrastructure and guidance for determining applications for Development Consent Orders (DCOs). The NPSs provide specific guidance and criteria that applicants should cover when assessing the effects of their Proposed Development, and how the Secretary of State (SoS) should consider these impacts and any mitigation measures applied.

17.1.15 NPS EN-3 and EN-5 do not contain requirements specifically relevant to air quality for the Proposed Development. Therefore, EN-1 alone will be taken into consideration in relation to the air quality assessment.

National Planning Policy Framework

17.1.16 The National Planning Policy Framework (NPPF) (2026) (Ref 17.1-14) sets out the Government's planning policies for England and how these are expected to be applied.

17.1.17 Requirements relating to air quality are discussed in Section 17: Pollution, Public Protection and Security. These requirements are set out in policies:

a. P1: Planning for clean and safe places;
b. P3: Living conditions and pollution.

17.1.18 These policies require for assessments of new developments to confirm that the development does not cause unacceptable pollution with respect to relevant air quality standards, affect vulnerable elements of the community in particular and to mitigate impacts, where required. Air quality assessments should be appropriate for their location and consider the impact on human health, living conditions and the natural environment, both in isolation and cumulatively with other development.

Local Planning Policy

17.1.19 The Proposed Development lies within the jurisdiction of the Basildon Borough Council, Chelmsford City, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the air quality assessment:

a. Essex County Council

   i. Essex County Council - there are no planning policies relevant to the air quality assessment.

b. Basildon Borough Council

   i. Basildon Borough Council (BBC) is in the process of developing a revised Local Plan (Ref 17.1-16). Chapter 13 of the consultation draft relates specifically to "Improving Air Quality and Mitigating Pollution" and includes Policy AQMP1: Mitigating Environmental Pollution which states, in relation to air quality specifically:

"An air quality assessment must be submitted as part of a planning application for major development proposals.

The air quality assessment must outline the measures to mitigate any adverse effects during construction and operation, individually or cumulatively on neighbouring uses and how proposals have considered ways to maximise benefits to local air quality. The assessment must be compliant with relevant

standards and have full regard to the Essex Air Quality Strategy 2025 or succeeding documents.

Where development proposals would be subject to air quality standards or would have unacceptable impact on air quality standards they will be refused."

ii. Until such time as the new local plan is finalised, the saved policies from the 2007 Local Plan, as identified in 2018 (Ref 17.1-17) remain in place. These do not include any policy which relates to air quality.

c. Chelmsford City Council

i. The Chelmsford City Council (CCC) revised local plan is currently undergoing examination. The plan as submitted (Ref 17.1-18) includes a number of policies which generally support sustainable transport and take air quality impacts into account. Specifically, proposed policy DM30 – Contamination and Pollution includes the requirement that:

"For developments in or adjacent to an Air Quality Management Area, or where an air quality impact assessment has been provided, permission will only be granted where the Council is satisfied that after selection of appropriate mitigation the development will not have an unacceptable impact on air quality and the health and wellbeing of people."

ii. Until such time as the new local plan is finalised, the 2020 local plan (Ref 17.1-19) remains in place. This includes the same policy (DM30) as set out above.

d. Maldon District Council

i. The Maldon District Council (MDC) Local Development Plan (Ref 17.1-20) includes policy D2: Climate Change and Environmental Impact of New Development which states:

"All development must minimise its impact on the environment by incorporating the following principles:

...

6) Minimising all forms of possible pollution including air, land, water, odour, noise and light. Any detrimental impacts and potential risks to the human and natural environment will need to be adequately addressed by appropriate avoidance, alleviation and mitigation measures;

...

9) Maintain and enhance local air quality in accordance with national objectives;

…"

e. Rochford District Council

i. Rochford District Council (RDC) is in the process of preparing a new Local Plan. The Regulation 18 consultation draft (Ref 17.1-21) includes Policy SC5: Local Environmental Impacts which states:

" 1. The Council will protect the quality of life of existing and future occupiers and manage the adverse impacts of development. In doing so, the council will:

a) ensure development adequately assess and address transport impacts affecting occupiers, neighbours and the existing transport network;

b) require sensitive developments to mitigate the impact of, and protect occupiers against, existing sources of noise and other nuisance generating activities in accordance with the Agent of Change principle; and

c) require mitigation measures where necessary.

When assessing planning applications, the Council will consider:

2. Air Quality

a) Development proposals must be designed to minimise new air pollution and reduce exposure to existing poor air quality, contributing towards the achievement of national air quality objectives.

b) Applicants will need to demonstrate that:

i) emissions from a site are minimised and will not lead to significant adverse impacts on health, the natural environment or local amenity;

ii) development will be designed to minimise the exposure of existing poor air quality areas and will not lead to exposure over current air quality targets;

iii) new development within or adjacent to any identified AQMAs will not lead to an increased in emissions.

c) Planning obligations may be used to offset the impact of a development on local air quality, either through mitigation or supporting future air quality monitoring, in consultation with the Council's Environmental Health team."

ii. Until such time as the revised local plan is adopted, the policies set out in the Core Strategy remain in place. These include Policy ENV5: Air Quality which states:

"New residential development will be restricted in Air Quality Management Areas in order to reduce public exposure to poor air quality.

In areas where poor air quality threatens to undermine public health and quality of life, the Council will seek to reduce the impact of poor air quality on receptors in that area and to address the cause of the poor air quality. Proposed development will be required to include measures to ensure it does not have an adverse impact on air quality."

National Guidance

National Planning Practice

17.1.20 There is limited national guidance specific to the assessment of air quality effects associated with solar development. However, the most recent update to the Air Quality NPPG (Ref 17.1-24) was published on the 1 November 2019 to provide more in-depth guidance to the NPPF.

17.1.21 When deciding whether air quality is relevant to a planning application the NPPG states that the following criteria may be required to be taken into consideration:

"a) the 'baseline' local air quality, including what would happen to air quality in the absence of the development;

b) whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and

c) whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."

17.1.22 On how detailed an air quality assessment needs to be, the NPPG states:

"Assessments should be proportionate to the nature and scale of the development proposed and the level of concern about air quality... Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented."

Clean Air Strategy 2019

17.1.23 In 2019, the UK government introduced the Clean Air Strategy 2019 (Ref 17.1-25), a major component of its broader 25 Year Environment Plan, and the government's primary strategy for air quality. This strategy underscored a

renewed governmental commitment to air quality improvements and also laid the groundwork for the development of more recent legislative changes.

17.1.24 In recent years, air quality management has primarily focused on nitrogen dioxide (NO_2), and its principal source in the UK i.e. road traffic. However, the Clean Air Strategy broadens the focus to other areas. This shift in emphasis is part of a longer term goal to reduce the levels of $PM_{2.5}$ in ambient air. It outlined comprehensive measures to combat air pollution, from reducing emissions across various sectors to enhancing the country's monitoring and analytics capabilities. Recognizing that air pollution is a complex problem influenced by a range of factors, including industrial activity, agriculture, and domestic heating, the strategy advocated for a holistic approach to ensure cleaner air.

Air Quality Strategy 2023

17.1.25 The Air Quality Strategy: framework for local authority delivery was revised in 2023 (Ref 17.1-26) and supersedes the Clean Air Strategy 2019 (Ref 17.1-25) in England only. The air quality strategy (Ref 17.1-26) sets out the actions that Defra expects local authorities to take in support of its 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.

17.1.26 Local authorities have a duty to address exceedances of air quality objectives in their area, including declaring Air Quality Management Areas (AQMAs) and publishing Air Quality Action Plans (AQAP) setting out the measures that they will take with the aim of achieving ongoing compliance. The AQS summarises current objectives and targets but does not define them.

Air pollution and development: advice for local authorities Guidance

17.1.27 The air pollution and development: advice for local authorities Guidance (Ref 17.1-27) was revised in December 2025 and supersedes the first published version in October 2025. The guidance is designed to guide local authorities on how to assess sector-specific planning applications that could affect air quality on a protected ecological site.

17.1.28 This advice relates to the protection of protected sites under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) (Ref 17.1-28) and the Wildlife and Countryside Act 1981 (Ref 17.1-29). Protected sites are ‘sites of special scientific interest’ (SSSIs) and ‘habitats sites’ (also called ‘European sites’).

17.1.29 The guidance sets out the key steps to follow to first screen and, if necessary, assess air quality impacts. This includes guidance which identifies that where affected roads are located more than 200m from a designated ecological site,

impacts can be considered to be not significant. Where affected roads are within 200m of the relevant site, further assessment is required.

Relevant Industry Guidance

17.1.30 Relevant industry guidance includes:

a. IAQM Land Use Planning & Development Control (2017) (Ref 17.1-31);
b. IAQM Guidance on the assessment of dust from demolition and construction (2024) (Ref 17.1-1); and
c. Defra Local Air Quality Management Technical Guidance (2025) (TG22) (Ref 17.1-32).

IAQM Land Use Planning & Development Control (2017)

17.1.31 When determining the significance of the air quality assessment results with the Proposed Development, the assessment follows the non-statutory good practice guidance published by the IAQM (Ref 17.1-31). 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.

IAQM Guidance on the assessment of dust from demolition and construction (2024)

17.1.32 Additional guidance on the assessment of dust from demolition and construction published by the IAQM (Ref 17.1-1) 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.

Defra Local Air Quality Management Technical Guidance (2025) (TG22)

17.1.33 Defra publishes technical and policy guidance documents to assist local authorities to discharge their local air quality management duties. Although not statutory guidance for EIA purposes, this assessment adopts the use of calculation methods and MS Excel based tools from this guidance as good practice methods to enable the assessment of concentrations of local air pollutants (Ref 17.1-32).

Consultation

17.1.34 Consultation as part of the EIA process will be undertaken as relevant following submission of this EIA Scoping Report with statutory parties such as Essex

County Council, Basildon Borough Council, Chelmsford City Council, Maldon District Council and Rochford District Council where required.

Baseline Conditions

17.1.35 This section describes the baseline environmental characteristics for the Proposed Development area and surrounding areas with specific reference to air quality.

Existing Pollutant Concentrations

17.1.36 MDC (Ref 17.1-33) has declared a single AQMA identified as AQMA number 1. This was declared due to exceedances of the relevant objectives for NO_2 and is located approximately 7km north of the Proposed Development. Conditions within this AQMA are not similar to those within and close to the EIA Scoping Site where there are fewer emissions sources, in particular roads with high traffic or congestion.

17.1.37 Neither Basildon Borough Council, Chelmsford City Council nor Rochford District Council currently have any declared AQMAs.

17.1.38 Maldon District Council, Basildon Borough Council, Chelmsford City Council, Rochford District Council and Castle Point District Council (CPDC), located close to the southern extent of the EIA Scoping Site, all undertake ongoing monitoring of ambient air quality at a range of locations, the majority of which are not close to the EIA Scoping Site. However, Maldon District Council's monitoring includes two locations within 1km of the EIA Scoping Site. The two sites located closest to the EIA Scoping Site, are most representative of conditions within the EIA Scoping Site (MD8 and MD11) and have consistently measured concentrations well below the annual mean NO_2 objective, indicating that air quality within and close to the EIA Scoping Site is likely to be good. These monitoring locations are illustrated on **Figure 17-1: Air Quality Study Area, Receptors and Monitoring Locations**.

17.1.39 Chelmsford City Council's monitoring includes one location (CB112) just within the EIA Scoping Site. Concentrations at this location have been below the annual mean NO_2 objective over the past 5 years. Rochford District Council does not include any monitoring within 2km of the EIA Scoping Site. BBCs monitoring includes 2 locations between 1 and 2km of the EIA Scoping Site (SR5 and TB7). Conditions at these locations are likely to be slightly worse than within the EIA Scoping Site as they are within an urban setting, however, measured concentrations have been below the annual mean NO_2 objective over the past 5 years. Results of monitoring at these locations over the past 5 years is set out in **Table 17-1**. All of these sites represent conditions at roadside or kerbside

locations which are therefore likely to be heavily influenced by road traffic emissions. There are no background monitoring sites or sites measuring particulate matter (PM_{10} or $PM_{2.5}$) within the study area.

Table 17-1: Diffusion Tube Sites and Monitored Concentrations

Site ID (LPA)	Site Name	Site Type	Distance from site	Annual Mean NO_2 Concentration ($\mu g/m^3$)				
				2021	2022	2023	2024	2025
MD8 (Maldon)	Latchingdon / Burnham Road Junction	Kerb-side	600m	26.1	32.8	24.3	22.3	22.9
MD11 (Maldon)	Latchingdon Street	Kerb-side	570m	20.3	21.3	18.4	17.9	16.8
CB112 (Chelmsford)	Burnham Rd / Greenwood Surgery	Road-side	0m	26.3	28.4	25.8	22.7	22.5
SR5 (Basildon)	95 Southend Rd Wickford	Road-side	1,200m	23.3	24.3	22.2	20.6	19.2
TB7 (Basildon)	The Broadway Wickford Lamp post 14a	Road-side	1,800m	31.1	31.6	26.0	25.7	23.3
CP32 (Castle Point)	The Smithy	Road-side	600m	18.5	15.3	13.2	15.5	14.7

17.1.40 Pollutant concentration data has also been sourced from Defra's projected background concentrations. Projected air pollutant concentration data for the relevant 1km x 1km grid squares (related to the study area) was sourced from Defra's 2021-based Background Maps for the baseline year of 2026 (Ref 17.1-34); these data are presented in **Table 17-2**. These data represent the most current data source for PM_{10} and $PM_{2.5}$. The modelled annual mean concentrations for NO_2, PM_{10} and $PM_{2.5}$ in 2026 are well below the relevant objective values for each pollutant.

Table 17-2: Background Air Pollutant Concentrations 2026

Parameter	Annual Mean NO_2 Concentration ($\mu g/m^3$)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)	Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)
Minimum	5.7	8.8	5.3
Maximum	11.5	14.5	8.6
Average	7.1	11.4	6.2

Existing Dust Climate

17.1.41 Airborne particulate matter can be generated on a local scale from vehicle movements and from the action of wind on exposed soils and surfaces. In addition to larger dust and PM_{10} particles, the long range transport of finer $PM_{2.5}$ particles dust from distant sources all contribute to airborne levels of dust and in turn the rate at which particles deposit onto surfaces. Dust deposition rates are used to quantify how fast clean surfaces become soiled and in turn the likelihood of amenity being impacted by the perception of soiling.

17.1.42 The baseline rate of soiling is dependent on climatic conditions, the tolerance of individuals to deposited dust is therefore shaped by their experience of baseline conditions.

17.1.43 Existing local sources of particulate matter include wind-blown dust from agricultural activities, exhaust emissions from energy plant and road vehicles, brake and tyre wear from road vehicles and the long-range transport of material from outside the study area.

17.1.44 The receptors within the study area are accustomed to dust deposition rate typical of a rural area where sources include road transport, domestic heating and agricultural activities that may include tiling and ploughing, harvesting, baling hay or straw, grain handling and driving on unpaved roads.

Potential Effects and Mitigation

17.1.45 This section sets out the potential effects of the Proposed Development on air quality.

17.1.46 Mitigation measures relevant to the project are included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

17.1.47 During construction of the Proposed Development the following adverse air quality impacts have the potential to occur if not mitigated:

a. Impacts of dust arising during the construction phase of the Proposed Development; and
b. Impacts of vehicle and plant emissions during the construction phase of the Proposed Development.

Potential effect of construction phase dust emissions

17.1.48 The movement and handling of soils and spoil as well as the tracking of dust and dirt along haul roads and tracks during construction activities for the Proposed Development is anticipated to lead to the generation of some short-term airborne dust. The occurrence and significance of dust generated is difficult to estimate and depends heavily upon the nature of the activity being carried out and the meteorological and ground conditions at the actual time and location of the work.

17.1.49 At present, there are no statutory English standards relating to the assessment or control of fugitive dust emissions from construction activities. The emphasis of the regulation and control of construction dust, therefore, is through the adoption of good practice when working on site to mitigate any potential impacts. It is intended that significant adverse environmental effects are avoided at the design stage and through mitigation embedded in management plans where possible, including the use of good working practices to control dust emissions at source.

17.1.50 The IAQM provides guidance for good practice and a framework of approaches for qualitative assessment of risk of dust emissions from construction and demolition activities. The guidance considers the potential for of dust emissions from activities to cause a risk to human health (associated with PM_{10}), dust soiling impacts, and ecological impacts (such as physical smothering, and chemical impacts for example from deposition of alkaline materials). The appraisal of risk is based on the scale and nature of activities and on the sensitivity and location of receptors.

17.1.51 The main air quality impacts that may arise during construction phase activities are:

a. Increased dust deposition rates, resulting in amenity impacts due to the perception of the soiling of surfaces and impacts on vegetation;
b. Visible dust plumes, which are evidence of dust emissions;
c. Elevated PM_{10} and $PM_{2.5}$ concentrations in air, that can directly impact human health;
d. An increase in concentrations of airborne particulates (PM_{10} and $PM_{2.5}$ size fractions) and oxides of nitrogen (NOx and NO_2)) due to exhaust emissions

from plant used on site (non-road mobile machinery, such as diggers and cranes); and

e. The transfer of dusty material from the site to nearby roads, termed 'trackout'.

17.1.52 The construction dust assessment method comprises four steps:

a. Step 1: Establish the sensitivity of the area through determination of the sensitivity of receptors and their distance from construction activities.
b. Step 2: The dust risk assessment step is used to determine the level of good practice control measures required for adequately manage emissions of dust.
c. Step 3: The likely magnitude of the change caused by emissions from construction activities, on air quality, vegetation and ecosystems, is determined and the need for additional site-specific mitigation measures considered with embedded management measures in use.
d. Step 4: The significance of residual effects is described.

17.1.53 The magnitude of likely impacts is described for the Proposed Development for a scenario that includes good practice control measures as embedded mitigation. If necessary, additional site-specific mitigation measures will be implemented if industry standard good practice control is not adequate to protect specific receptors.

17.1.54 In this case, there are some highly sensitive human health receptors (residential properties including farmsteads) in the area, notably in the periphery of Bradwell on Sea, Tillingham, Asheldham, Southminster, Althorne, South Woodham Ferrers and Battlesbridge but also some isolated residential properties and farms, within and up to 20m from the EIA Scoping Site in some cases. There are a number of sensitive ecological receptors within the study area, including the Dengie SSSI and Ramsar, considered of low sensitivity as a moving water body and due to the tidal wash.

17.1.55 Because of the nature of the work being undertaken (i.e. solar panels and batteries installation, with underground and/or overhead cabling to link them together and to the national electricity transmission network) and the current use of the land (predominantly agricultural), there will be insignificant amounts of demolition work which may include clearance of brush and or hedgerows and a relatively small amount of construction (i.e. for the battery storage and inverters only), earthwork and trackout. The length of construction activities will also be limited in each field.

17.1.56 Based on the above, standard good practice measures as specified in the mitigation section of this chapter should be appropriate to guarantee no significant effects from dust emissions on amenity, human health and ecology. Relevant and appropriate mitigation measures will be set out within the management plans (e.g. the Outline Construction Environmental Management Plan (Outline CEMP)) which will be submitted with the DCO Application. These management plans will be secured via a Requirement of the DCO, therefore ensuring their implementation.

17.1.57 An assessment of construction activities dust emissions is therefore scoped out.

Potential effects of non-road mobile machinery emissions

17.1.58 The impacts of plant related emissions during construction are anticipated to represent a small source of emissions relative to ambient local conditions in the vicinity of the EIA Scoping Site based on the scale of construction that will occur and the number of plant vehicles that will be required. An assessment of plant related emissions is therefore scoped out. Suitable mitigation measures for plant and motorised equipment will be recommended based on advice prescribed in the IAQM guidance (Ref 17.1-1) and incorporated into the Outline CEMP.

17.1.59 Relevant and appropriate mitigation measures will be set out within the management plans (e.g. the Outline CEMP) which will be submitted with the DCO Application. These management plans will be secured via a Requirement of the DCO, therefore ensuring their implementation. The measures in the CEMP will ensure that emissions of NO_X, PM_{10} and $PM_{2.5}$ are minimised.

Potential effects of construction phase road traffic emissions

17.1.60 Combustion emissions from vehicle traffic (including NO_2, PM_{10} and $PM_{2.5}$) have the potential to impact sensitive receptors adjacent to the roads used by construction traffic. Impacts include harm to human health at locations such as homes and farmsteads and harm to designated nature conservation sites. The total number of vehicle movements generated by the construction of the Proposed Development on each individual road is not known at this stage, however, given the scale of the Proposed Development, it is possible that it could exceed the criteria set out in the methodology section below.

17.1.61 The measures to be set out in the Outline CEMP and Outline Construction Transport Management Plan (CTMP), will ensure that emissions of NO_X, PM_{10} and $PM_{2.5}$ are minimised as far as possible.

17.1.62 On the basis of the above, the assessment of road traffic emissions is scoped in at this stage (although will be subject to further consideration as to if the relevant

criteria are exceeded once the vehicle movements are established). A methodology is included in the relevant section below based on the assumption that the number of movements is higher than the screening criteria and that a quantitative assessment will be necessary.

Operation (including maintenance)

17.1.63 During operation, negligible effects are anticipated due to the low number of vehicle movements required for maintenance activities. Due to the nature of the Proposed Development, no material emissions of local air quality pollutants are anticipated from any on-site infrastructure. NPS EN-3 (Ref 17.1-12) paragraph 2.10.153 states that:

"Once solar farms are in operation, traffic movements to and from the site are generally very light, in some instances as little as a few visits each month by a light commercial vehicle or car. Should there be a need to replace machine components, this may generate heavier commercial vehicle movements, but these are likely to be infrequent."

17.1.64 Therefore, further assessment of air quality impacts during the operation of the Proposed Development is proposed to be scoped out of the EIA.

17.1.65 In the unlikely event of a BESS fire, emissions to air may occur. However, appropriate fire prevention, detection and suppression measures would be incorporated into the design of the Proposed Development to minimise this risk, which will be set out in the Outline Battery Safety Management Plan to be submitted alongside the DCO Application.

Decommissioning

17.1.66 During decommissioning, potential impacts would be similar to the construction phase.

Potential effect of decommissioning phase dust emissions

17.1.67 Decommissioning activities are predicted to be of a similar nature and scale as would be used during the construction phase, but undertaken to a less intense programme. Decommissioning impacts are likely to be of a similar or a lower magnitude at receptors than would occur during the construction phase and even less likely to cause a significant effect if the same embedded control measures are adopted in the Outline Decommissioning Environmental Management Plan (DEMP) as are used in the Outline CEMP. Relevant and appropriate mitigation measures will be set out within the management plans (e.g. the Outline DEMP) which will be submitted with the DCO Application.

17.1.68 Further assessment of the effect of decommissioning phase dust emissions is therefore proposed to be scoped out of the EIA

Potential effect of decommissioning phase road traffic and NRMM emissions

17.1.69 The decommissioning phase is likely to generate lower 2-way annual average total daily (AADT) traffic flows on the local road network than are required for the construction phase. Similarly, NRMM utilisation as part of decommissioning is expected to be lower than during the construction phase. As per-vehicle emissions are expected to reduce over time, with government targets aimed at removing vehicle emissions entirely over the coming years, any assessment of construction phase emissions relating to road traffic and NRMM will be significantly more conservative than what will be experienced at the decommissioning phase. Any mitigation identified as being required for the construction phase would also, therefore, be adequate to ensure that impacts will not be significant in the decommissioning phase.

17.1.70 Further assessment of the effect of decommissioning phase road traffic and NRMM emissions is proposed to be scoped out of the EIA.

Mitigation

17.1.71 Where practicable, mitigation measures will be incorporated into the Proposed Development design and / or how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation / mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development. An Outline CEMP, Outline OEMP and Outline DEMP, as well as other relevant outline management plans, will be prepared and submitted with the DCO Application. These outline management plans will include measures to reduce impacts across the Proposed Development lifecycle as relevant and will be secured through Requirements in the DCO and developed, in consultation with the relevant Local Planning Authorities (LPAs) and statutory bodies, into the detailed management plans by the relevant personnel.

17.1.72 Mitigation measures relevant to air quality are included within **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

17.1.73 Implementation of mitigation including a CEMP and CTMP will ensure that construction vehicle management and good construction practice are carried out to minimise potential impacts to the environment in terms of changes to air quality and the generation of dust.

17.1.74 The IAQM (Ref 17.1-1) guidance sets out several mitigation measures for reducing dust impacts and these will be incorporated into the OutlineCEMP.

17.1.75 The Outline CEMP, Outline DEMP, and Outline CTMP will include such measures as:

a. If required, and where practicable, all roads, temporary tracks and other routes will be dampened to prevent dust leaving the site. Roads surrounding the site will be cleaned as necessary;
b. Stockpiled material, where practicable, will be enclosed, screened or dampened to eliminate dust generation;
c. Hard surfaced roads will be constructed at the earliest time that the build programme allows;
d. Avoidance of activities that generate large amounts of dust during windy conditions;
e. Ensure all vehicles switch off engines when stationary (i.e. no idling vehicles); and
f. Limitation of vehicle speeds, as the slower the vehicle speeds, the lower the dust generation.

17.1.76 Implementation of the CEMP and CTMP will ensure that air emissions are controlled and minimised and that any potential effects are negligible. Implementation of the CEMP and CTMP will also ensure that the Proposed Development's contribution to any cumulative effects will also be negligible.

Operation

17.1.77 The operational phase of the Proposed Development will not result in the introduction of any new air pollutant or dust emission sources into the area. Therefore, the impact is deemed to be imperceptible and any effects (including cumulative effects), negligible. No operational mitigation is therefore likely to be required.

Decommissioning

17.1.78 The decommissioning phase would apply similar design and mitigation measures as the construction phase noted above.

Assessment Methodology

17.1.79 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on air quality will be undertaken using the principles of the guidance and criteria set out in paragraph 17.1.30. The methodology is set out below.

17.1.80 Potential impacts of the Proposed Development on air quality will be assessed by:

a. Considering the existing (baseline) status of air quality within the EIA Scoping Site and relevant surrounds with respect to concentrations of NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) as determined following desk based study;
b. Identifying potential impacts of the Proposed Development on air quality during the construction, operational and maintenance, and decommissioning phases, as well as cumulative effects;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation and maintenance, and decommissioning to offset any adverse impacts (i.e. embedded mitigation); and
d. Reviewing any residual impacts and presenting additional mitigation measures to limit impacts.

Dust Emissions Assessment

17.1.81 The methodology for the assessment of potential impacts from dust emissions arising from activities during the construction and decommissioning phases of the Proposed Development was presented in the Potential Effects and Mitigation section above, using an approach based on the IAQM guidance (Ref 17.1-1) for assessing impacts from such activities. This approach uses details regarding the scale and location of works alongside the number and location of sensitive receptors to identify the risk magnitude. This risk magnitude is used to identify the range of mitigation measures that will be required in order to ensure that impacts are not significant. As such impacts related to construction dust can be scoped out, however an assessment to identify the appropriate mitigation will be carried out in order to inform the measures to be captured within the Outline CEMP to be submitted with the DCO Application and this will reported within an appendix to the air quality technical chapter of the ES.

Road Traffic Emissions Assessment

17.1.82 The anticipated number of vehicles during the construction phase of the Proposed Development will be considered in the context of the guidance

published by IAQM (Ref 17.1-31). The guidance sets out the criteria to establish the need for an air quality assessment relating to human health receptors for the construction phase of a development that will cause a significant change of Light Duty Vehicles (LDV) of more than 100 AADT within or adjacent to an AQMA or 500 AADT elsewhere, and / or a significant change of Heavy Duty Vehicles (HDV) of more than 25 AADT within or adjacent to an AQMA, or 100 AADT elsewhere. The screening criteria for ecological receptors is a change due to the development alone or in combination with other growth of more than 1,000 AADT or 200 HDV on a road within 200m of a sensitive ecological site as identified within the Natural England Guidance (Ref 17.1-27).

17.1.83 Should the predicted construction traffic flows be below the criteria, they would not be expected to adversely affect air quality. If this is the case, it will be proposed that the impact of construction / decommissioning traffic emissions on air quality is scoped out of the EIA.

17.1.84 As noted in paragraphs 17.1.69 and 17.1.70, decommissioning effects will be significantly smaller than those related to construction phase and therefore, decommissioning phase road traffic effects would only be assessed in detail if the assessment of construction phase impacts concludes that these would be significant.

Non-Road Mobile Machinery Emissions Assessment

17.1.85 Construction and decommissioning related plant emissions are anticipated to represent a small source of emissions relative to ambient local conditions in the vicinity of the Proposed Development based on the scale of work that would occur and the number of plant vehicles that would be required. However, suitable mitigation measures for plant and motorised equipment will be recommended based on advice prescribed in the IAQM guidance (Ref 17.1-1) and incorporated into the Outline CEMP and Outline DEMP.

Receptors

17.1.86 As noted above, receptors within 250m of the EIA Scoping Site or within 50m of roads subject to trackout will be considered in relation to construction dust impacts. Receptors considered for the construction dust assessment will include residential receptors and commercial properties sensitive to dust soiling impacts, such as car showrooms. Receptors sensitive to changes in PM_{10} will be residential receptors and other locations where sensitive human receptors are present for relevant periods of time, such as schools and hospitals.

17.1.87 Potential human health receptors to be considered in the assessment of traffic emissions impacts have been identified and are shown in **Figure 17-1: Air**

Quality Study Area, Receptors and Monitoring Locations. These are locations which are likely to be sensitive to changes in concentrations of NO_2, PM_{10} and $PM_{2.5}$ and will be reviewed once the extent of any potentially significant traffic impacts are known.

17.1.88 As noted previously, there are designated ecological sites within the area surrounding the EIA Scoping Site and their sensitivity to air quality impacts will be determined in conjunction with project ecologists. It is currently unknown whether roads close to these sites will experience potentially significant changes in traffic either alone or in combination with other relevant development growth and therefore this will be reviewed once traffic data are available.

Sensitivity

17.1.89 Sensitive receptors for air quality are generally public exposure receptors (sensitive locations where relevant exposure for the air quality criteria being assessed could occur, e.g. residential properties or schools) and ecological sites sensitive to dust deposition and nitrogen deposition.

17.1.90 The air quality objectives values have been set at concentrations that provide protection to all members of society, including more vulnerable groups such as the very young, elderly or unwell. As such the sensitivity of receptors was considered in the definition of the air quality objective values, and, therefore, no additional subdivision of human health receptors on the basis of building or location type is necessary.

Air Quality Assessment Criteria

17.1.91 The Air Quality Objectives and targets for England, for the pollutants of relevance to this assessment are displayed in **Table 17-3**.

Table 17-3: Air Quality Objectives and Targets

Pollutant	Criteria	Averaging Period	Maximum Permitted Exceedances	Standard
Nitrogen Dioxide (NO_2)	200 µg/m^3	1 hour	18 times per year (i.e. 99.79th percentile)	Objective
	40 µg/m^3	Annual	-	Objective
Particulate Matter (PM_{10})	50 µg/m^3	24 - hour	35 times per year (i.e. 90.4th percentile)	Objective
	40 µg/m^3	Annual	-	Objective

Pollutant	Criteria	Averaging Period	Maximum Permitted Exceedances	Standard
Particulate Matter ($PM_{2.5}$)	20 µg/m^3	Annual	-	Objective
	10 µg/m^3	Annual	-	Target
NO_X	30 µg/m^3	Annual	-	Target Value

17.1.92 The draft guidance (Ref 17.1-35) does not require local authorities to assess the achievement of the $PM_{2.5}$ target but does advise applicants to describe how the Proposed Development has considered alternatives and measures that minimise exposure to $PM_{2.5}$ and its precursors.

Magnitude of Change

17.1.93 A comparison of the modelled concentration at each receptor between the with and without the Proposed Development will be undertaken. This magnitude of change at each receptor is classified as:

a. Imperceptible – where the change in annual mean concentration is less than 0.2 µg/m^3 for NO_2 and PM_{10} and less than 0.1 µg/m^3 for $PM_{2.5}$;
b. Very small – where the change in annual mean concentration is more than 0.2 µg/m^3 for NO_2 and PM_{10} and more than 0.1 µg/m^3 for $PM_{2.5}$;
c. Small – where the change in annual mean concentration is more than 0.6 µg/m^3 for NO_2 and PM_{10} and more than 0.4 µg/m^3 for $PM_{2.5}$;
d. Medium – where the change in annual mean concentration is more than 2.2 µg/m^3 for NO_2 and PM_{10} and more than 1.4 µg/m^3 for $PM_{2.5}$; or
e. Large – where the change in annual mean concentration is more than 4 µg/m^3 for NO_2 and PM_{10} and more than 2.5 µg/m^3 for $PM_{2.5}$.

Determining the Significance of Effects

17.1.94 For consideration of a change in annual mean concentrations of a given magnitude, the IAQM (Ref 17.1-31) have published recommendations for describing the effects of such impacts at individual receptors, as set out in **Table 17-4** for long-term average concentrations of all modelled pollutants. Moderate and major impacts are deemed to be significant impacts, negligible and minor are deemed to be not significant.

17.1.95 The IAQM guidance includes seven explanatory notes to accompany the terminology for the effect descriptors. In particular, it is noted that the descriptors are for individual receptors only and that overall significance is determined using professional judgement. Additionally, it is noted that it is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are

close to the objective value. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the objective value, rather than being exactly equal to it.

Table 17-4 Effects Descriptors at Individual Receptors

Annual Mean Concentration at Receptor in Assessment Year	Change in Concentration Relative to Air Quality Assessment Level (AQAL)				
As % of AQAL	0%	1%	2% – 5%	6% – 10%	> 10%
≤75%	Negligible	Negligible	Negligible	Minor	Moderate
76% - 94%	Negligible	Negligible	Minor	Moderate	Moderate
95% - 102%	Negligible	Minor	Moderate	Moderate	Major
103% - 109%	Negligible	Moderate	Moderate	Major	Major
≥110%	Negligible	Moderate	Major	Major	Major

17.1.96 A change in predicted annual mean concentrations of less than 0.5% is considered to be negligible. A change (impact) that is negligible, given normal bounds of variation, would not be capable of having a direct effect on local air quality that could be considered to be significant.

17.1.97 Additionally, the IAQM guidance also includes the potential for minor to major air quality effects as a result of changes in pollutant concentrations between 2% and 5% of relevant air quality objectives. In practice, changes in concentration of this magnitude, and in particular changes at the lower end of this band are likely to be very difficult to distinguish through any post operational monitoring regime due to the number of sources of nitrogen dioxide in an urban environment and the number of potential influences on road traffic even outside of urban areas and the inter annual effects of varying meteorological conditions. Therefore, in the overall evaluation of significance the potential for significant air quality impacts within this band will be considered in this context.

17.1.98 Changes in concentration of more than 5% (the two highest bands) are considered to be of a magnitude that is far more likely to be discernible and as such carry additional weight within the overall evaluation of significance for air quality.

17.1.99 It is understood from the IAQM guidance that it is the intention of the effect descriptors to capture the potential risk associated with cumulative developments, whereby changes of 1% of a relevant air quality objective could, under the IAQM guidance, result in minor to moderate air quality effects at

individual receptors. In practice, this assessment inherently considers cumulative impacts through the use of traffic data, Defra background concentrations and predictions at other development schemes. Therefore, it is considered highly unlikely that significant air quality impacts could occur with the Proposed Development for changes in concentrations of 1%.

17.1.100 The significance of the reported likely effects is then considered for the Proposed Development in overall terms. The potential for the Proposed Development to contribute to or interfere with the successful implementation of policies and strategies for the management of local air quality are considered if relevant, but the principal focus is in determining the significance of any change to the likelihood of future achievement of the air quality objective values for NO_2, PM_{10} and $PM_{2.5}$.

17.1.101 The achievement of Local Planning Authority goals for local air quality management are directly linked to the achievement of the air quality objective values and as such this assessment focuses on the likelihood of future achievement of the air quality objective values as a result of the Proposed Development.

Limitations and Assumptions

17.1.102 The dust risk assessment would be undertaken on a whole-site basis, assuming works can be undertaken at any point within the Proposed Development Boundary. This provides a worst-case assessment, ensuring that if works are undertaken in a different location than anticipated the assessment has covered this potential.

Summary of Elements Scoped In and Out

17.1.103 Due to the potential for effects on air quality receptors and resources from the Proposed Development, air quality is scoped in to the ES. Based on the information available at this stage, and subject to the findings of the assessment, it is anticipated that likely significant effects with regards to air quality can be avoided through the implementation of design and management measures, secured through the outline management plans submitted with the DCO Application and secured through requirement of the DCO. As such, it is proposed that air quality does not require a standalone topic within the ES and will instead be addressed within its own section of **Chapter 17: Other Environmental Topics**, including an assessment of the potential impacts related to vehicle emissions due to construction traffic, and supported by the Dust Risk Assessment.

17.1.104 A summary of the elements scoped in and out of the air quality ES chapter is presented in **Table 14-4** below.

Table 17-5: Elements scoped in and out of air quality assessment

Element	Scoped In / Scoped Out
Construction Phase Dust Emissions	**Scoped out:** The impacts of dust emissions during the construction phase of the development have been considered above and, with appropriate mitigation, there is no risk of significant effects. A dust risk assessment will be carried out in order to identify the suitable level of mitigation and this will be reported, for completeness, within a technical appendix to the ES chapter.
Operation and Decommissioning Phase Dust Emissions	**Scoped out:** Dust emissions for these phases have been scoped out as they are expected to be significantly smaller than for the construction phase.
Construction Phase Road Traffic Emissions	**Scoped in:** Traffic emissions for this assessment have been scoped in as expected traffic flows are likely to be >500 AADT LDV and/or >100 AADT HDV, and therefore have the potential to have an adverse effect on air quality.
Operation Phase Road Traffic Emissions	**Scoped out:** Traffic emissions for this phase have been scoped out as road traffic trips generated for maintenance activities are expected to be markedly smaller than for the construction phase.
Decommissioning Phase Road Traffic Emissions	**Scoped out:** Traffic emissions for this phase have been scoped out as traffic is expected to be smaller than for the construction phase and per-vehicle emissions will be significantly lower.
Construction and Decommissioning Phase Non-Road Mobile Machinery Emissions (NRMM)	**Scoped out:** NRMM emissions have been scoped out as the magnitude and frequency of impacts from NRMM emissions will have very limited potential to cause adverse effects on air quality at any receptor location.

References

Ref 17.1-1 Institute of Air Quality Management (2024). Guidance on the assessment of dust from demolition and construction. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf Accessed: October 2026

Ref 17.1-2 HM Government (1990). Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents/ Accessed: October 2026

Ref 17.1-3 HM Government (1995). Environment Act 1995. Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents/ Accessed: October 2026

Ref 17.1-4 HM Government (2000). The Air Quality (England) Regulations 2000. Available at: https://www.legislation.gov.uk/wsi/2000/1940/contents/made/ Accessed: October 2026

Ref 17.1-5 HM Government (2002). The Air Quality (England) (Amendment) Regulations 2002. Available at: https://www.legislation.gov.uk/wsi/2002/3182/contents/made/ Accessed: October 2026

Ref 17.1-6 HM Government (2020). National Air Quality Legislation Originating from the European Union (EU). Available at: https://www.legislation.gov.uk/browse/eu/ Accessed: October 2026

Ref 17.1-7 HM Government (2016). The Air Quality Standards (Amendment) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1184/contents/made/ Accessed: October 2026

Ref 17.1-8 HM Government (2020). The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020. Available at: https://www.legislation.gov.uk/uksi/2020/1313/made/ Accessed: October 2026

Ref 17.1-9 HM Government (2021). Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted/ Accessed: October 2026

Ref 17.1-10 HM Government (2023). The Environmental Targets (Fine Particulate Matter). (England). Regulations. Available at: https://www.legislation.gov.uk/uksi/2023/96/contents/made/ Accessed: October 2026

Ref 17.1-11 Department for Energy Security and Net Zero (2025). Overarching National Policy Statement for energy (EN-1). Available at:

https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/ Accessed: October 2026

Ref 17.1-12 Department for Energy Security and Net Zero (2025). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025/ Accessed: October 2026

Ref 17.1-13 Department for Energy Security and Net Zero (2025). National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025/ Accessed: October 2026

Ref 17.1-14 Ministry of Housing, Communities and Local Government (2026). National Planning Policy Framework. Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026

Ref 17.1-15 Essex County Council (2022). Nationally Significant Infrastructure Projects (NSIPs) Policy. Available at: https://www.essex.gov.uk/sites/default/files/2025-01/Our%20Nationally%20Significant%20Infrastructure%20policy%20-%2030.01.25.pdf Accessed: October 2026

Ref 17.1-16 Basildon Borough Council (2026). Basildon Local Plan Reg 19. Available at: https://basildon-lp-reg19.commonplace.is/ Accessed: October 2026

Ref 17.1-17 Basildon Borough Council (2018). Basildon District Local Plan Saved Policies September 2007. Available at: https://www.basildon.gov.uk/media/598/Basildon-District-Local-Plan-Saved-Policies-September-2007/pdf/Basildon_District_Local_Plan_Saved_Policies_-_September_2007.pdf?m=1540381932580 Accessed: October 2026

Ref 17.1-18 Chelmsford City Council (2025). Chelmsford City Council Regulation 19 Local Plan. Available at: https://www.chelmsford.gov.uk/media/3pomrel4/pre-submission-regulation-19-local-plan-february-2025.pdf Accessed: October 2026

Ref 17.1-19 Chelmsford City Council (2020). Chelmsford City Council Local Plan 2020. Available at: https://www.chelmsford.gov.uk/media/fvfjkf0i/chelmsford-adopted-local-plan-may-2020-text-only.pdf Accessed: October 2026

Ref 17.1-20 Maldon District Council (2017). Maldon Local Development Plan 2014 – 2029. Available at:

https://www.maldon.gov.uk/info/7050/planning_policy/9712/approved_local_development_plan_21_july_2017 Accessed: October 2026

Ref 17.1-21 Rochford District Council (2026) Rochford Draft Local Plan Regulation 18. Available at: https://www.rochford.gov.uk/the-rochford-district-local-plan Accessed: October 2026

Ref 17.1-22 Rochford District Council (2011). Rochford Core Strategy Adopted Version. Available at: https://www.rochford.gov.uk/sites/default/files/2022-11/planningpolicy_cs_adoptedstrategy.pdf Accessed: October 2026

Ref 17.1-23 Ministry of Housing, Communities and Local Government (2023) National Planning Practice Guidance [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy/ Accessed: October 2026

Ref 17.1-24 HM Government (2019). National Planning Practice Guidance (NPPG) for Air Quality. Available at: https://www.gov.uk/guidance/air-quality--3/ Accessed: October 2026

Ref 17.1-25 HM Government (2019). Clean Air Strategy 2019. Available at: https://www.gov.uk/government/publications/clean-air-strategy-2019/ Accessed: October 2026

Ref 17.1-26 Department for Environment, Food and Rural Affairs (2023). Air Quality Strategy for England, available at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery/ Accessed: October 2026

Ref 17.1-27 Natural England (2025). Air Pollution and Development: advice for local authorities Guidance (2025). Available at: https://www.gov.uk/guidance/air-pollution-and-development-advice-for-local-authorities Accessed: October 2026

Ref 17.1-28 HM Government (2017), The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012). Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made/ Accessed: October 2026

Ref 17.1-29 HM Government (1981). The Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69/ Accessed: October 2026

Ref 17.1-30 Sedgemoor District Council (2019). Local Plan 2011 – 2032. Available at: https://somersetcc.sharepoint.com/sites/SCCPublic/Planning%20and%20Land/Forms/AllItems.aspx?id=%2Fsites%2FSCCPublic%2FPlanning%20and%20Land%2FPlanning%20Policy%2FSedgemoor%20Local%20Plan%202011%2D2032%20Adoption%20Version%2Epdf&parent=%2Fsi

tes%2FSCCPublic%2FPlanning%20and%20Land%2FPlanning%20Policy&p=true&ga=1 Accessed: October 2026

Ref 17.1-31 Institute of Air Quality Management (2017). Land-Use Planning and Development Control: Planning for Air Quality. Available at: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf Accessed: October 2026

Ref 17.1-32 Department for Environment, Food and Rural Affairs (2025), Local Air Quality Management Technical Guidance (TG22). Available at: https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/ Accessed: October 2026

Ref 17.1-33 Maldon District Council (2026). 2026 Air Quality Annual Status Report. Available at: https://www.maldon.gov.uk/downloads/file/20239/maldon_air_quality_annual_status_report_2026 Accessed: October 2026

Ref 17.1-34 Department for Environment, Food and Rural Affairs (n.d.). Modelled Background Maps 2021. Available at: https://uk-air.defra.gov.uk/data/laqm-background-home Accessed: October 2026

Ref 17.1-35 HM Government (2024). PM2.5 Targets: Interim Planning Guidance. Available at: https://uk-air.defra.gov.uk/pm25targets/planning Accessed: October 2026

17.2 Electromagnetic Fields

Introduction

17.2.1 **Section 17.2: Electromagnetic Fields** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to electromagnetic fields (EMF) during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the EMF section of the Environmental Statement (ES).

17.2.2 The Proposed Development currently includes the option for both underground electrical cabling and overhead lines (OHL) at voltages of up to and including 400 kilovolt (kV), as set out in **Chapter 3: Proposed Development**.

17.2.3 Electric fields are the result of voltages applied to electrical conductors and equipment. Fences, shrubs and building easily block electric fields. Undergrounding cabling eliminates electric fields.

17.2.4 Magnetic fields are produced by the flow of electric current. Unlike electric fields, most materials do not readily block magnetic fields, and undergrounding does not eliminate magnetic fields.

17.2.5 The intensity of both electric and magnetic fields diminishes with increasing distance from the source.

17.2.6 Exposure to EMFs can have both direct and indirect effects on human health, as well as on aquatic and terrestrial organisms, if they are persistent or of high strength.

Study Area

17.2.7 The study area comprises the EIA Scoping Site (see **Figure 1-1: Proposed Development Location Plan**) as potential effects associated with EMFs are expected to be localised around the electrical infrastructure.

Legislation, Planning Policy Context and Guidance

Legislation and Policy

17.2.8 As required by law, all cables and electrical equipment associated with the Proposed Development will meet health, safety and environmental protection requirements of UK Conformity Assessed (UKCA) and/or CE-marked products.

17.2.9 NPS Overarching National Policy Statement for Energy (EN-1) (Ref 17.2-1) considers electromagnetic and electrical noise interference at paragraph 5.5.59,

including the need to take account of statutory technical safeguarding zones associated with defence and aviation infrastructure.

17.2.10 The National Policy Statement (NPS) for Electricity Networks Infrastructure (EN-5) (December 2025) (Ref 17.2-2) considers EMFs in paragraphs 2.9.45 to 2.9.59 and 2.10.11 to 2.10.13.

17.2.11 The Control of Electromagnetic Fields at Work Regulations (Ref 17.2-3) sets out the duties of employers in relation to controlling the risks of magnetic fields to employees.

Guidance

17.2.12 The assessment of EMFs will be undertaken with reference to guidance, including the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines (Ref 17.2-4), National Grid guidance (Ref 17.2-5) and other relevant industry guidance.

17.2.13 The Government set guidelines for exposure to EMFs in the UK on advice from the Health Protection Agency (HPA), now the UK Health Security Agency (UKHSA) (Ref 17.2-6). In March 2004 the UK adopted the 1998 guidelines published by the ICNIRP and this policy was reaffirmed by a Written Ministerial Statement in October 2009. These guidelines also form the basis of a European Union Recommendation on public exposure and a Directive on occupational exposure. The ICNIRP 'reference levels' for the public are: 100 microteslas for EMFs. It goes on to say "*These are the levels above which more investigation is needed if this level of exposure is likely to occur; the permitted levels of exposure are somewhat higher, 360 microteslas and 9000 volts per metre. They apply where the time of exposure is significant. These guidelines are designed to ensure that electromagnetic fields do not interfere with nerves, but were set after examining all the evidence, including the evidence on cancer. The occupational limits are five times higher*".

17.2.14 Recent advice published by PINS 'Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development' (Ref 17.2-7) states the following: "*Where proposed cables are over 132 kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over 132 kV and a risk assessment to any human and ecological sensitive receptors within the ZoI*."

Baseline Conditions

17.2.15 Whilst the Energy Park predominantly comprises agricultural land within existing field boundaries, and therefore no significant sources of EMFs, existing OHLs, wind turbines and associated electrical infrastructure are present within the

wider EIA Scoping Site and surrounding area and represent existing sources of EMFs within the baseline environment. The location and voltage of relevant existing electrical infrastructure will be identified as part of the EMF assessment.

Potential Effects and Mitigation

Construction and Decommissioning

17.2.16 EMFs are produced by the electrical equipment on the operational site and therefore potential EMF effects during construction and decommissioning of the Proposed Development have been scoped out of the EIA.

17.2.17 The Control of Electromagnetic Fields at Work Regulations (Ref 17.2-3) sets out the duties of employers in relation to controlling the risks of magnetic fields to employees. This includes a requirement to assess employees' potential exposure to magnetic fields with reference to action levels and exposure limit values. The threshold for workers is five times greater than for members of the public. Therefore, as effects of magnetic fields on workers for the Proposed Development would be controlled and mitigated to acceptable levels for members of the public through the legislative framework, impacts on workers are not considered within the assessment.

Operation and Maintenance

17.2.18 The Proposed Development includes the following electrical infrastructure operating at voltages of up to 400 kV with the potential to generate EMFs:

a. Energy Park infrastructure (including Solar PV Modules, inverters, transformers, switchgear, BESS, On-Site Substation(s) and cabling);
b. Underground cabling and/or OHLs operating at up to 400kV within the Connection and Access Corridors and Grid Connection Corridor(s).

Potential Health and Environment Effects

17.2.19 Health and environment effects of EMF include both direct and indirect effects.

a. Direct effects occur as impacts on the central nervous system resulting in its normal functioning being affected.
b. Indirect effects occur through electric charges building up on the surface of the body producing a microshock on contact with a grounded object, or vice versa, which, depending on the field strength and other exposure factors, can range from barely perceptible to being an annoyance or even painful.

17.2.20 During operation (and maintenance), direct and indirect potential EMF effects have been identified on:

a. Local residents;
b. Users of non-residential properties; and
c. Users of Public Rights of Way.

17.2.21 The potential for significant EMF effects on the above receptors from Energy Park Infrastructure, Underground Cabling and Overhead Lines is discussed below. Refer to **Chapter 10: Ecology and Biodiversity** for an overview of the potential ecological effects of EMF.

a. Energy Park infrastructure

i. Energy Park infrastructure will be designed with appropriate screening to prevent exceedance of the ICNIRP exposure guidelines for EMFs. All Energy Park infrastructure will be housed in protective enclosures and 'CE' marked (Conformité Européene, or European Conformity marking), and/or 'UKCA' marked (UK Conformity Assessed). CE and UKCA markings indicate that a product has been assessed by the manufacturer and determined to meet the safety, health, and environmental protection requirements of the European Union and the United Kingdom, respectively. The CE or UKCA marking ensures that electrical and electronic equipment does not generate, or is not unintentionally affected by, electromagnetic disturbance.
ii. Furthermore, notable sources of radiation will be located sensitively within the Energy Park with On-Site Substations, BESS, and Power Conversion Units designed with a suitable buffer from relevant receptors. As electromagnetic radiation levels reduce with increased distance, all nearby dwellings and workplaces are expected to be situated at a safe distance from the Energy Park infrastructure.
iii. On this basis, it is proportionate that EMFs from Energy Park infrastructure are scoped out.

b. Underground Cabling

i. The Department for Energy Security and Net Zero (DESNZ) (formerly Department of Energy and Climate Change (DECC)) guidance (Ref 17.2-8) states that underground cables at voltages up to and including 132 kV are considered not capable of exceeding the ICNIRP exposure guidelines for magnetic fields (100 microteslas (see paragraph 17.2.13)) and that compliance with exposure guidelines for such equipment can be assumed unless evidence is brought to the contrary in specific cases. NGET research (Ref 17.2-5) corroborates this conclusion, stating that the maximum magnetic field directly above

132 kV buried cables for a flat formation (lower for a trefoil formation) is less than 10 microteslas.

ii. Regarding the potential EMF effects of the Proposed Development's up to 400kV cabling the National Grid document 'Undergrounding high voltage electricity transmission lines' (Ref 17.2-5) states that for a 400 kV cable buried with 0.9m soil above it, the typical magnetic field is 24 microteslas when on top of the cable, and 3 microteslas at 5m from the centreline. The maximum magnetic field known by National Grid at full load is 96 microteslas on top of the cable, 13 microteslas at 5m from the centreline, and 3.6 microteslas at 10m, which complies with the ICNIRP threshold of 100 microteslas when directly on top of the buried cabling.

iii. Taking into account this guidance and the UK limits set for safety of members of the public, the maximum reported magnetic field for up to 400kV cables buried at a minimum depth of 1.2m (with 0.9m soil above) would comply with the ICNIRP limits even if the cabling were directly under a human receptor. On this basis, it is proportionate that underground cabling operating at up to 400kV within the Connection and Access Corridors and Grid Connection Corridor(s) is scoped out of further assessment.

c. Overhead Lines

i. EMFs generated by OHLs cannot be screened to the same extent. All overhead power lines produce EMFs (both electric and magnetic fields). The strength of these fields is dependent on factors including the operating voltage, electrical load, conductor configuration, conductor height and distance from the overhead line; however, they tend to be highest directly under a line and decrease to the sides at increasing distance.

ii. Where overhead line infrastructure is proposed as part of the Proposed Development's Connection and Access Corridors or Grid Connection Corridor(s), including re-stringing, refurbishment or modification of existing towers and/or new or replacement overhead line infrastructure, the EMF assessment will consider the predicted electric and magnetic field levels and demonstrate compliance with the applicable public exposure guidelines.

iii. The EMF assessment of OHL infrastructure represents a reasonable worst-case scenario given that EMFs generated by OHLs cannot be screened and have the most widespread geographic impact of the Proposed Development infrastructure. The ES will present an EMF

assessment of the Proposed Development's OHL infrastructure, considering the voltage, height, and location of the proposed OHLs.

Potential Interference Effects

17.2.22 National Policy Statement (NPS) EN-1 paragraph 5.5.59 (Ref 17.2-1) states 'In order to avoid unacceptable adverse impacts of electromagnetic and electrical noise interference from energy development, and/or its supporting infrastructure, and associated infrastructure on defence technical assets and operations, 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 DCO applications'. The Proposed Development is within 15km of London Southend Airport which is a safeguarded civil aerodrome as listed on Annex 3 of the planning circular 'Officially safeguarded civil aerodromes' (Ref 17.2-9). London Southend Airport is located approximately 12km south west of the Proposed Development at its closest point.

17.2.23 London Southend Airport operates communications, navigation and surveillance infrastructure, including radar equipment. Given the proximity of the Proposed Development and the potential inclusion of overhead electrical infrastructure operating at voltages of up to 400kV, the potential for EMF interference with aviation infrastructure will be considered as relevant as part of the EMF assessment. If required, consultation with London Southend Airport Safeguarding Team will be undertaken during preparation of the ES to establish whether any of its technical infrastructure could be affected.

Mitigation

17.2.24 As the design develops, consideration will be given to the potential for EMF to impact on sensitive receptors. This will include undertaking calculations to determine whether EMF or EMF interference will be experienced by sensitive receptors and to what intensity. If it is likely to be a nuisance or hazard, mitigation will be proposed.

17.2.25 Embedded design measures will be incorporated into the Proposed Development where appropriate to minimise potential effects. For example, where OHL infrastructure is proposed, appropriate separation distances from sensitive receptors will be incorporated into the design, where required, and compliance with the applicable public exposure limits for electric and magnetic fields will be demonstrated through the EMF assessment.

17.2.26 A full list of mitigation measures relevant to this topic at this stage are included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this document.

Assessment Methodology

17.2.27 An EMF and EMF interference assessment will be undertaken as part of the ES which will take account of relevant legislation, policy and guidance referenced in paragraphs 17.2.8 – 17.2.14 of this EIA Scoping chapter.

17.2.28 As a worst case, the lower 'reference level' of 100 microteslas is proposed to be used in the assessment as the threshold at which potentially significant effects could occur.

17.2.29 The EMF assessment will:

a. Identify sensitive receptors within the identified zone of influence;
b. Predict EMF strengths where appropriate;
c. Demonstrate compliance with relevant exposure guidelines;
d. Identify any additional mitigation required; and
e. Consider cumulative effects with existing and proposed electricity infrastructure, where relevant.

17.2.30 As discussed in the Potential Effects and Mitigation section above, the assessment will consider the potential EMF and EMF interference effects of the OHL infrastructure which represents the worst-case scenario.

Summary of Elements Scoped In and Out

17.2.31 The findings and recommendations for EMFs and EMF interference will be confirmed and presented in the Other Environmental Topics Chapter of the ES. A summary of the elements scoped in and out of the assessment is presented in **Table 14-4**.

Table 17-6: Elements scoped in and out of the EMF and EMF Interference assessment

Element	Scoped In / Scoped Out
EMFs and EMF interference associated with construction and decommissioning works	**Scoped out**
EMF effects, associated with operation and maintenance works, on local residents; users of non-residential properties; and users of Public Rights of Way.	**Scoped in:** OHLs operating at up to 400kV within the Connection and Access Corridors and Grid Connection Corridor(s) **Scoped out:** Energy Park infrastructure and Underground cabling operating at up to 400kV within the Connection and Access Corridors and Grid Connection Corridor(s)
EMFs effects, associated with operation and maintenance works, on workers	**Scoped out**

Element	Scoped In / Scoped Out
EMF interference associated with operation and maintenance works, on safeguarded assets	**Scoped in:** London Southend Airport

References

Ref 17.2-1 Department for Energy Security and Net Zero (DESNZ) (2025). *Overarching National Policy Statement for Energy (EN-1)*. December 2025. Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage Accessed: October 2026

Ref 17.2-2 DESNZ National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 17.2-3 The Control of Electromagnetic Fields at Work Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/588/contents Accessed: October 2026

Ref 17.2-4 ICNIRP (1998) Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields. Available at: https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf Acces sed: October 2026

Ref 17.2-5 National Grid (2015) Underground High Voltage Electricity Transmission Lines. Available at: https://www.nationalgrid.com/sites/default/files/documents/39111-Undergrounding_high_voltage_electricity_transmission_lines_The_technical_issues_INT.pdf Accessed: October 2026

Ref 17.2-6 The Energy Networks Association Electric and Magnetic Fields (EMFs) (2025). Available at: https://www.energynetworks.org/assets/images/2025/250807ena-emfs-the-facts.pdf?2025-08-07-15:44 Accessed: October 2026

Ref 17.2-7 Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-technical-advice-page-for-scoping-solar-development#:~:text=Glint%20and%20Glare&text=This%20should%20be%20provided%20as,and%20visual%2C%20traffic%20and%20transport Accessed: October 2026

Ref 17.2-8 DECC (2012) Power Lines: Demonstrating Compliance with EMF public exposure guidelines. A Voluntary Code of Practice. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48308/1256-code-practice-emf-public-exp-guidelines.pdf Accessed: October 2026

Ref 17.2-9 Department for Transport (2016) Town and Country Planning (safeguarded aerodromes, technical sites and military explosives storage areas) direction 2002. Available at: https://www.gov.uk/government/publications/safeguarding-aerodromes-technical-sites-and-military-explosives-storage-areas/the-town-and-country-planning-safeguarded-aerodromes-technical-sites-and-military-explosives-storage-areas-direction-2002#annex-3-officially-safeguarded-civil-aerodromes Accessed: October 2026

17.3 Glint and Glare

17.3.1 **Section 17.3: Glint and Glare** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to glint and glare during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the glint and glare section of the Environmental Statement (ES).

17.3.2 Glint and glare is the effect of reflected sunlight causing harm or discomfort to a sensitive receptor. A glint can be defined as the momentary receipt of a bright light and a glare can be defined as the receipt of a bright light over an extended or continuous period of time.

17.3.3 Solar panels are designed to absorb as much light as possible and to not reflect it. However, glint can be produced as a reflection of the sun from the surface of a solar PV panel. This can also be described as a momentary flash.

17.3.4 Glare is significantly less intense in comparison to glint and can be described as a continuous source of bright light, relative to diffused lighting. This is not a direct reflection of the sun, but a reflection of the sky around the sun.

17.3.5 This section should be read in conjunction with **Chapter 11: Landscape and Visual** of this EIA Scoping Report.

Study Area

17.3.6 Glint and glare impacts disperse further and become less significant at greater distances, therefore a 1km study area from the Energy Park will be used initially for ground-based receptors. Should there be any significant effects identified at the edge of the 1km study area, then the study area will be increased, and any significant effects will be assessed.

17.3.7 Study areas to identify aviation assets vary depending on the safeguarding criteria of that asset. All aerodromes within 30km will be identified, however generally the detailed assessments are only required within 10km for licensed and military aerodromes, and within 5km for small aerodromes, noting that there is no set buffer distance within which aviation effects must be modelled. In practice, concerns are most often raised for developments within 10km of a licensed aerodrome, where requests for modelling at ranges of 10-20km of a licensed aerodrome are less common.

17.3.8 The greater the distance a receptor is from a solar farm, the less chance it has of being affected by glint and glare due to scattering of the reflected beam and

atmospheric attenuation, in addition to obstructions from ground sources, such as any intervening vegetation or buildings. This is based on best practice and previous experience of completing Glint and Glare Assessments across the UK and Ireland, including previous Nationally Significant Infrastructure Project (NSIP) schemes which have been granted a Development Consent Order (DCO) including: Longfield Solar Farm, Tillbridge Solar, Gate Burton Energy Park, Fenwick Solar Farm, East Yorkshire Solar Farm. An assessment range of 5km for unlicensed general aviation aerodromes and 10km for licenced aerodromes is therefore considered appropriate based on past project experience and professional judgement. This is the typical assessment range, whereby aerodromes outside of this range would only be considered for assessment upon request from the relevant aerodrome.

Legislation, Planning Policy Context and Guidance

17.3.9 Legislation, planning policy and guidance relating to glint and glare and pertinent to the Proposed Development is listed in this section.

Legislation

17.3.10 There is limited legislation specific to the assessment of glint and glare effects associated with solar development. However, the following legislation is relevant to the assessment:

a. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (Ref 17.3-1), which establish the requirements for the assessment and reporting of likely significant environmental effects associated with nationally significant infrastructure projects.
b. Planning Act 2008 (Ref 17.3-1) – establishes the Nationally Significant Infrastructure Project (NSIP) / Development Consent Order (DCO) regime and the requirement to consider environmental effects through examination and decision-making.
c. Environmental Protection Act 1990 (Ref 17.3-3) – establishes statutory nuisance controls; often cited where lighting / reflection effects could cause nuisance. The Environmental Protection Act statutory nuisance duty (as amended re artificial light) is commonly quoted in light / glare reporting.
d. Highways Act 1980 (Ref 17.3-4) – relevant where glint/glare could affect the safe operation of the highway (e.g., at junctions, crossings, approach roads);
e. Road Traffic Act 1988 (Ref 17.3-5) underpins road safety responsibilities; glare that contributes to hazardous driving conditions is typically treated as a safety risk for assessment/mitigation;

f. Civil Aviation Act 1982 (Ref 17.3-6) – part of the legislative framework supporting aviation safety and safeguarding; relevant if glint and glare could affect pilots / aerodrome operations and therefore requires safeguarding consultation and assessment.

g. Air Navigation Order 2016 (Ref 17.3-7) – provides rules relevant to safe air navigation; glint / glare can be treated as a potential hazard near aerodromes / flight paths, driving assessment and mitigation.

National Planning Policy and Guidance

17.3.11 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. NPS EN-3: Renewable Energy Infrastructure (2025) (Ref 17.3-8)**:**

i. paragraphs 2.10.94–2.10.98 set out the approach to identifying and assessing potential glint and glare effects from solar development. Applicants should identify potentially affected receptors and determine whether a glint and glare assessment is required. Where quantitative assessment is necessary, consideration should be given to the geometric possibility of reflections affecting receptors and the potential impact and impairment having regard to the angle, duration and intensity of reflections. The assessment should be proportionate to the specific project design and should account for tracking panels, where proposed, and the potential combined reflective properties of panels, frames and supports.

ii. NPS EN-3, paragraphs 2.10.126–2.10.128 – identifies potential mitigation measures for glint and glare effects, including anti-glare/anti-reflective coatings, screening between reflecting panels and potentially affected receptors, and adjustments to panel azimuth alignment or elevation tilt angle.

iii. NPS EN-3, paragraphs 2.10.150–2.10.151 – requires consideration of potential glint and glare effects on nearby residential receptors, motorists, users of public rights of way and aviation infrastructure, including aircraft departure and arrival flight paths. It also states that, unless significant impairment can be demonstrated, the Secretary of State is unlikely to give more than limited weight to claims of aviation interference arising from glint and glare.

b. Overarching NPS for Energy (EN-1) (December 2025) (Ref 17.3-9) - paragraph 5.5.57 states that "*Lighting must also be designed in such a way*

as to ensure that there is no glare or dazzle to pilots and/or ATC, aerodrome ground lighting is not obscured and that any lighting does not diminish the effectiveness of aeronautical ground lighting and cannot be confused with aeronautical lighting. Lighting may also need to be compatible with night vision devices for military low flying purposes."

c. Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 17.3-10) – states that "*Following the mapping of potentially sensitive receptors, the scoping request should consider the geometric possibility for a glint and glare impact to occur. Where the potential for such an impact is identified, a glint and glare assessment should be undertaken*". It goes on to further state that the glint and glare assessment "*should be provided as a technical assessment to be included as an appendix to the Environmental Statement*".

d. Planning Practice Guidance: Renewable and Low Carbon Energy (Ref 17.3-11) – identifies glint and glare as a particular planning consideration for large-scale ground-mounted solar development, including potential effects on the landscape, neighbouring uses and aircraft safety, and notes the potential for additional effects where solar arrays track the daily movement of the sun.

e. Planning Guidance for the Development of Large Scale Ground Mounted Solar PV Systems (Ref 17.3-12) – states that "*Solar PV panels are designed to absorb, not reflect, irradiation. However, the sensitivities associated with glint and glare, and the landscape/ visual impact and the potential impact on aircraft safety, should be a consideration. In some instances, it may be necessary to seek a glint and glare assessment as part of a planning application. This may be particularly important if 'tracking' panels are proposed as these may cause differential diurnal and/or seasonal impacts*".

Local Planning Policy

17.3.12 The Proposed Development lies within the jurisdiction of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the glint and glare assessment:

a. Maldon District Council

   i. Maldon District Local Development Plan 2014–2029 (2017), Policy D4: Renewable and Low Carbon Energy Generation (Ref 17.3-13); and

b. Chelmsford City Council

i. Chelmsford Local Plan 2013–2036 (2020), Policy DM19: Renewable and Low Carbon Energy (Ref 17.3-14); and
ii. Chelmsford Local Plan 2013–2036 (2020), Policy DM29: Protecting Living and Working Environments (Ref 17.3-14).

Relevant Industry Guidance

a. CAST Aerodrome Safeguarding Advice Note 5: Renewable Energy Developments (February 2024) (Ref 17.3-15).
b. Civil Aviation Authority (CAA) – CAP738: Safeguarding of Aerodromes 3rd Edition (Ref 17.3-20).
c. US Federal Aviation Administration (FAA) Policy (Ref 17.3-16).
d. FAA Policy: Review of Solar Energy Systems Projects on Federally - Obligated Airports (Ref 17.3-17).

Consultation

17.3.13 Consultation will be undertaken following submission of this EIA Scoping Report with relevant statutory consultees and infrastructure operators, as appropriate. Consultation responses will be used to inform the scope and methodology of the glint and glare assessment undertaken and reported within the ES.

Baseline Conditions

17.3.14 This section describes the baseline environmental characteristics for the Proposed Development and surrounding areas with specific reference to glint and glare.

17.3.15 Potential receptors identified for the glint and glare assessment are listed below and fall in line with those outlined within the NPS EN-3 (Ref 17.3-8):

a. Residential properties within 1km of the Energy Park;
b. Roads within 1km of the Energy Park (including but not limited to B1012, B1021, Keelings Road, Bridgewick Road, Maldon Road, South Street, High Street, Trusses Road, Marsh Road, The Marshes, Hall Road, Station Road, Grange Road, Weymarks Road and East End Road);
c. Tillingham Airfield airstrip (GB-0433) (approximately 2km north west of the Energy Park at its closest point) and West Newlands Farm Airstrip (approximately 5km north west of the Energy Park); and
d. Railway users of the Crouch Valley Line (immediately west of the Energy Park, providing rail services between Wickford and Southminster, where it terminates).

17.3.16 Public Rights of Way (PRoWs) do not require assessment due to there being negligible to no adverse safety effects of glint and glare from solar farm

developments. Pedestrians and cyclists can mitigate or negate glint and glare impacts through a variety of means such as looking away, wearing sunglasses, or shielding their eyes with the brim of a hat or their hands. This approach has been acceptable on a number of consented DCOs such as Longfield Solar Farm, Tillbridge Solar, Gate Burton Energy Park and Fenwick Solar Farm in addition to other projects.

17.3.17 There are a number of bridleways within 1km of the Energy Park, however the British Horse Society (BHS) has released advice on solar farms near routes used by equestrians (August 2025) (Ref 17.3-19). This advice states: *"Panels are designed to absorb and not reflect light for efficiency (reflected light is wasted energy) and although the amount of reflection varies with the materials, the incidence of 'glint and glare' is negligible compared with glass or water and will not be uniform throughout a period of sunlight*". It further states in relation to glint and glare and its effects on horses: *"Increasingly, proposals for solar farms include comment on the impact of 'glint and glare'. The Society has no evidence of 'glint and glare' from solar panels and no evidence of horses reacting to it or of it being detrimental to the health and wellbeing of horses."*

Potential Effects and Mitigation

17.3.18 This section sets out the potential effects of glint and glare as a result of the Proposed Development.

17.3.19 Mitigation measures relevant to glint and glare are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction and Decommissioning

17.3.20 Construction and decommissioning activities would be undertaken in accordance with a Construction Environmental Management Plan (CEMP) and a Decommissioning Environmental Management Plan (DEMP) respectively. An Outline CEMP and Outline DEMP will be prepared as part of the DCO Application and will include information on how reflective surfaces are to be treated during the construction and decommissioning phases with a view toward their final placement across the Energy Park. These outline management plans would be developed into a detailed CEMP and a detailed DEMP, secured via Requirement of the DCO, prior to Proposed Development construction and decommissioning respectively.

17.3.21 It is expected that avoidance of the effects of glint and glare would be considered as part of the construction and decommissioning planning. Furthermore, the scale of the Energy Park is such that the full area would not be occupied for the

duration of construction and decommissioning activities and the movement of reflective surfaces would be temporarily localised to smaller areas on a rolling basis until the works are complete. There is therefore no value in modelling construction effects due to the potential effect being either the same or less than the potential glint and glare effect of Year 1 of operation. This is when all panels will be installed, and planting has not yet matured. Similarly, potential decommissioning effects would be less than operation due to the number of panels gradually reducing, and planting being fully matured by this point in time.

17.3.22 Based on the nature of the activities, the distances to receptors and the implementation of the detailed CEMP and detailed DEMP, construction and decommissioning glint and glare effects are proposed to be scoped out of the assessment.

Operation

17.3.23 Operational effects are considered to be consistent and would last for the duration of the Proposed Development's operation. The interaction of solar PV panels with sensitive locations, for example vehicular junctions or pedestrian crossings on roads, or viewpoints along rail lines or roads, is primarily influenced by their siting, as solar PV panels require orientation towards the sun path, and the choice of materials, where more reflective or specular surfaces create a higher chance of creating distraction through the discomfort or disability glare. Mitigation measures applicable to the Proposed Development's operation will be included in an Outline Operational Environmental Management Plan (OEMP) prepared as part of the DCO Application. The Outline OEMP will form the basis of the detailed OEMP which will be secured as a Requirement of the DCO.

17.3.24 The setback mounting of the solar PV panels within the Energy Park from its boundaries combined with the distance to potential receptors and angling of the panels from the horizontal could help to limit how and where potential occurrences of glare could be created by the Proposed Development.

17.3.25 Furthermore, the dark colour, anti-reflective coating or finish on the panel glass and matt material finish of the solar PV panels is designed to absorb light and minimise potential occurrences of reflected light, reducing the likelihood that glare conditions could be created from the panels themselves.

17.3.26 Based on the expected design, screening and distance to sensitive receptors, significant glint and glare effects are not considered likely. Nevertheless, as the design develops, consideration will be given to the potential for solar reflections to impact on sensitive receptors. This will include undertaking calculations to determine whether the solar PV panels will be visible from sensitive locations and if a solar reflection could occur, and whether it is likely to be a significant

nuisance or hazard. The calculations will be made using specialised software. If glint and glare is likely to be a nuisance or hazard, mitigation will be proposed.

17.3.27 Existing topography, vegetation and infrastructure has the potential to screen glint and glare effects from ground-based receptors such as residential properties, road users, rail users and Air Traffic Control Towers (ATCTs).

17.3.28 Common mitigation strategies to reduce impacts from glint and glare for ground-based receptors are:

a. Provision of screening (in the form of enhancement to existing hedgerows/trees or new planting);
b. Refinement of the Proposed Development layout and design, which may include adjustments to the azimuth orientation and/or tilt angle of Solar PV Panels; and
c. Implementing areas of fixed panels instead of single-axis tracking panels Both technologies will be assessed within the DCO application to retain design flexibility, with technology selection refined at detailed design stage where necessary. However, it may be appropriate to implement fixed or tracker panels in specific areas.

17.3.29 The most commonly applied mitigation for ground-based receptors is the introduction of perimeter or strategic landscaping screening to interrupt lines of sight to visible Solar PV Arrays. Where appropriately designed and established, such screening can reduce or remove potential glint and glare effects.

17.3.30 The specific areas of the Proposed Development requiring potential landscape mitigation screening, where applicable, will be identified through the Glint and Glare assessment submitted with the DCO and embedded within the landscaping proposals set out in the Landscape Mitigation Plan (or similar) within the Outline Landscape and Ecological Management Plan (LEMP) submitted with the DCO Application. Where screening is not practicable or sufficient on its own, further refinements to site layout and/or panel configuration will be considered at detailed design stage.

17.3.31 Glint and glare effects from solar panels are generally of lower intensity than direct solar irradiance; however, under certain geometric conditions they may give rise to temporary visual effects for aviation receptors (including aircraft on approach).

17.3.32 The assessment will therefore consider the potential for glint and glare to result in distraction or nuisance to pilots, having regard to receptor location, flight paths, and duration of effects.

17.3.33 Where modelling identifies potentially significant effects, design mitigation measures (such as panel orientation, layout refinement, or screening) will be considered to ensure effects are reduced to an acceptable level in consultation with relevant aviation stakeholders.

Assessment Methodology

17.3.34 As discussed in **Chapter 3: Proposed Development** of this EIA Scoping Report, the current options being considered at the EIA Scoping stage are fixed south facing solar PV panels, and single axis tracker panels. The type of Solar PV mounting structure taken forward may be refined as the Proposed Development design progresses. The glint and glare assessment include detailed geometric analysis, and secondary modelling utilising the Sandia methodology being completed for aviation receptors. This will assess impacts from each Solar PV mounting structure presented in the ES.

17.3.35 The assessment methodology, findings, and recommendations for glint and glare will be incorporated into the Proposed Development design (e.g. embedded within the landscaping proposals set out in the Landscape Mitigation Plan (or similar) within the Outline LEMP submitted with the DCO Application) and presented as a technical appendix to the ES. Any mitigation planting or fencing recommended by the modelling will be incorporated into the Proposed Development design, secured by the Landscape Mitigation Plan prepared as part of the Outline LEMP, and assessed by the other technical chapters in the ES.

17.3.36 It is considered that this will negate the need for a specific glint and glare chapter in the ES, however the Glint and Glare Assessment report (to be appended to the ES) will be summarised within the Other Environmental Topics chapter of the ES and will inform other technical assessments, including Landscape and Visual, which will be presented in the Landscape and Visual chapter of the ES, as appropriate.

17.3.37 A desk-based assessment will be undertaken at the ES stage, to identify when and where glint and glare may be visible at receptors within the study area of the Proposed Development, throughout the day and the year.

Sun Position and Reflection Model

Sun Data Model

17.3.38 The calculations in the solar position calculator are based on equations from Astronomical Algorithms. The sunrise and sunset results are theoretically accurate to within a minute for locations between +/- 72° latitude, and within 10 minutes outside of those latitudes. However, due to variations in atmospheric

composition, temperature, pressure and conditions, observed values may vary from calculations.

Solar Reflection Model

17.3.39 The position of the sun is calculated at one-minute intervals of a typical year.

17.3.40 In order to determine if a solar reflection will reach a receptor, the following variables are required:

a. Sun position;
b. Observer location; and
c. Tilt, orientation, and extent of the solar panels in the solar array.

17.3.41 The model assumes that the azimuth and horizontal angle of the sun is the same across the Proposed Development. This is considered acceptable due to the distance of the sun from the Proposed Development and the miniscule differences in location of the sun over the Proposed Development.

17.3.42 The solar reflection in the model is considered to be specular as a worst-case scenario. In practice, the light from the sun will not be fully reflected as solar panels are designed to absorb light rather than reflect it. The Glint and Glare Assessment Report submitted as part of the ES will outline the reflective properties of solar glass and compare it to other reflective surfaces.

17.3.43 Most modern solar panels have a slight surface texture which should have a small effect on diffusing the solar radiation further, as well as utilising black, polycrystalline panels which are known for their lower reflectance. Although, this has not been modelled to conform with the worst-case scenario assessment.

17.3.44 The panel reflectivity will be modelled to assume an anti-reflective coating (ARC), which is the industry standard for Solar Panels and further reduces the reflective properties of the Solar PV Panels.

Determination of Ocular Impact

17.3.45 The software used for this assessment is based on the Sandia Laboratories Solar Glare Hazard Analysis Tool (SGHAT). This tool is specifically mentioned in the FAA guidance as the software that should be used in this type of assessment. Again, this is following the current best practice available in the absence of UK-specific glint and glare assessment methodology.

17.3.46 The impact (Ref 17.3-16) of viewed glare can be classified into three levels based on the retinal irradiance and subtended source angle: low potential for after-image (green), potential for after-image (yellow), and potential for permanent eye damage (red).

17.3.47 Green glare can be ignored when looking at ground based and some aviation receptors. Green glare does not cause temporary flash blindness and happens at an instant with very slight disturbance. As per FAA guidelines, mitigation is only required for green glare when affecting an Air Traffic Control Tower, but not for when affecting pilots. Therefore, it can be assumed that green glare is acceptable for ground-based receptors.

17.3.48 The modelling software outputs a hazard plot for each receptor predicted to be impacted by glare from the Solar PV Array. The hazard plot shows that the irradiance of the Sun is approximately three orders of magnitude greater than the reflected irradiance, i.e., the power density of solar reflections from photovoltaic panels are approximately 0.1% that of viewing the Sun. Due to the disparity in irradiance, whenever the Sun is observed in the same frame as solar reflections from a Solar PV Array, the Sun will be the main source of glare impacts upon the observer. In such a case, the impact is deemed to be Low as a worst-case scenario.

Relevant Parameters of the Scheme

17.3.49 The photovoltaic panels will be either Fixed South Facing (FSF) arrays or Single Axis Tracker (SAT). The FSF arrays will be oriented in a southwards direction to maximise solar gain and will remain in a fixed position throughout the day and during the year (i.e. they will not rotate to track the movement of the sun). The SAT Panels will be orientated in an east-west arrangement and rotate to track the movement of the sun.

17.3.50 The maximum height of the FSF panels will be 4m above ground level and have a tilt angle between 10 and 45 degrees. SAT panels will be a maximum of 4.5m above ground level and continuously track the sunlight throughout the day up to an angle of +/- 60 degrees from the horizontal. The maximum above ground height and points at the top of the solar panels will be used to determine the potential for glint and glare generation, as this represents a worst-case scenario.

Identification of Receptors

Ground Based Receptors

17.3.51 Glint is most likely to impact upon a ground-based receptor close to dusk and dawn, when the sun is at its lowest in the sky. Therefore, any effect would likely occur early in the day or late in the day, reflected to the west at dawn and east at dusk.

17.3.52 A 1km study area from the panels is deemed appropriate for the assessment of ground-based receptors as outlined in the study area section above.

17.3.53 In accordance with industry standard practice, an observer height of 2m will be utilised for residential receptors, as this is a typical height for a ground-floor window. Upper floor windows will be taken into account in the visibility assessment for glint and glare. With regards to road users, a receptor height of 1.5m will be employed as this is typical of eye level. Horse rider eye level has been assumed to be 2.5m above ground level for bridleway receptors.

17.3.54 An assessment will be undertaken to determine zones where solar reflections will never be directed near ground level.

17.3.55 Where there are several residential receptors within close proximity, a representative dwelling or dwellings will be chosen for full assessment as the impacts will not vary to any significant degree. Where small groups of receptors are evident, the receptors on either end of the group will be analysed in detail with the worst-case impacts attributed to all receptors within the group.

Aviation

17.3.56 Glint is only considered to be an issue with regards to aviation safety when the solar farm lies within close proximity to a runway, particularly when the aircraft is descending to land. This is outlined within the FAA guidance as being the key aviation receptors to assess and is considered best practice in the absence of UK guidance.

17.3.57 The Proposed Development is within a safeguarded zone of an aerodrome, therefore a full geometric study (which would determine if there is potential for glint and glare at key locations, most likely on the descent to land) is required.

17.3.58 Buffer zones to identify aviation assets vary depending on the safeguarding criteria of that asset. As outlined in the Study Area section above, all aerodromes within 30km will be identified, however, generally the detailed assessments are only required within 10km for licensed and military aerodromes and 5km for small aerodromes.

Magnitude of Impact

Static Receptors (Residential Receptors)

17.3.59 Although there is no specific guidance set out to identify the magnitude of impact from solar reflections, the following criteria have been set out for the purposes of this report and have been accepted for assessing numerous solar farms across the UK and Ireland:

a. **High** - Solar reflections impacts of over 30 hours per year or over 30 minutes per day;

b. **Medium** - Solar reflections impacts between 20 and 30 hours per year or between 20 minutes and 30 minutes per day;
c. **Low** - Solar reflections impacts up to 20 hours per year or up to 20 minutes per day; and
d. **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

Moving Receptors (Road and Rail)

17.3.60 No specific guidance is available to identify the magnitude of impact from solar reflections on moving receptors except in aviation, however, it is thought that a similar approach should be applied to moving receptors as aviation, based on the ocular impact and the potential for after-image.

17.3.61 The FAA guidance states that for a solar development to obtain FAA approval or to receive no objection, the following criteria must be met:

a. No potential for glare (glint) or "low potential for after-image" along the final approach path for any existing or future runway landing thresholds (including planned or interim phases).

17.3.62 The following criteria have been set out for the purposes of this report:

a. **High** - Solar reflections impacts consisting of any amount of yellow glare;
b. **Low** - Solar reflections impacts consisting of any amount of only green glare; and
c. **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

17.3.63 The FAA produced an evaluation of glare as a hazard and concluded in their report (Ref 17.3-18) that:

"The more forward the glare is and the longer the glare duration, the greater the impairment to the pilots' ability to see their instruments and to fly the aircraft. These results taken together suggest that any sources of glare at an airport may be potentially mitigated if the angle of the glare is greater than 25 deg from the direction that the pilot is looking in. We therefore recommend that the design of any solar installation at an airport consider the approach of pilots and ensure that any solar installation that is developed is placed such that they will not have to face glare that is straight ahead of them or within 25 deg of straight ahead during final approach."

17.3.64 It is reasonable to assume that although this report is assessing pilots' vision impairment, it can also be applied to drivers of other road and rail vehicles. Therefore, the driver's field of view will also be analysed where required and if the

glare is out with 25 degrees either side of their line of sight then any impacts will reduce to None. There are more mitigation options available for road and rail users than aviation receptors, and therefore the use of FAA guidance in assessing these receptors is a worst-case scenario.

Moving Receptors (Aviation)

17.3.65 Each final approach path which has the potential to receive glint is assessed using the SGHAT model. The model assumes an approach bearing on the runway centreline, a 3-degree glide path with the origin 50 ft (15.24m) above the runway threshold.

17.3.66 The computer model considers the pilots field of view. The azimuthal field of view (AFOV) or horizontal field of view (HFOV) as it is sometimes referred, refers to the extents of the pilot's horizontal field of view measured in degrees left and right from directly in front of the cockpit. The vertical field of view (VFOV) refers to the extents of the pilot's vertical field of view measured in degrees from directly in front of the cockpit. The HFOV is modelled at 50 degrees left and right from the front of the cockpit whilst the VFOV is modelled at 30 degrees.

17.3.67 The FAA guidance states that there should be no potential for glare or 'low potential for after-image' at any existing or future planned runway landing thresholds for the Proposed Development to be acceptable. Given the FAA guidance and commentary on impacts, the following criteria have been set out for the purposes of this report:

a. **High** - Solar reflections impacts consisting of any amount of yellow glare;
b. **Low** - Solar reflections impacts consisting of any amount of only green glare;
c. **None** - Effects not geometrically possible or no visibility of reflective surfaces likely due to high levels of intervening screening.

17.3.68 Mitigation measures relevant to this topic at this stage are also included in the **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Limitations and Assumptions

17.3.69 The detailed layout and design of the Proposed Development has not yet been determined. This is of particular importance when considering potential glint and glare effects, which are influenced by the location, orientation, tilt angle and mounting arrangement of the solar PV panels.

17.3.70 The assessment will therefore be based on the reasonable worst-case design parameters available at the time of assessment. Where necessary, conservative assumptions will be applied in relation to receptor visibility and screening.

17.3.71 With regards to the glint and glare modelling it is assumed that:

a. The model does not consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, vegetation, hills, buildings, etc (that is, it calculates a "bare-earth" scenario);
b. The model does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the Solar PV Array, and support structures may impact actual glare results;
c. Due to variations in atmospheric composition, temperature, pressure and conditions, observed values may vary slightly from calculated positions;
d. The model does not account for the effects of diffraction; however, buffers are applied as a factor of safety; and
e. The model assumes clear skies at all times and does not account for meteorological effects such as cloud cover, fog, or any other weather event which may screen the sun.

17.3.72 Due to these assumptions and limitations, the model overestimates the number of minutes of glint and glare which are possible at each receptor and presents the worst-case scenario. Where glint and glare are predicted, a visibility assessment is carried out to determine a more accurate, real-world prediction of the impacts.

Summary of Elements Scoped in and Out

Table 17-7: Summary of Glint and Glare Assessment Scope

Element	Construction	Operation	Decommissioning
Residential Receptors within 1km of Proposed Development	**Scoped out**	**Scoped In**	**Scoped out**
Road Receptors within 1km of Proposed Development	**Scoped out**	**Scoped In**	**Scoped out**
Rail Receptors within 1km of Proposed Development	**Scoped out**	**Scoped In**	**Scoped out**

Element	Construction	Operation	Decommissioning
Aviation Receptors within respective safeguarding zones	**Scoped out**	**Scoped In**	**Scoped out**
PRoW Receptors	**Scoped out**		

References

Ref 17.3-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 17.3-2 The Planning Act (2008). Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

Ref 17.3-3 HM Government (1990). Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents Accessed: October 2026

Ref 17.3-4 Highways Act (1980). Available at: https://www.legislation.gov.uk/ukpga/1980/66/contents Accessed: October 2026

Ref 17.3-5 Road Traffic Act (1988). Available at: https://www.legislation.gov.uk/ukpga/1988/52/contents Accessed: October 2026

Ref 17.3-6 Civil Aviation Act (1982). Available at: https://www.legislation.gov.uk/ukpga/1982/16/contents Accessed: October 2026

Ref 17.3-7 Air Navigation Order (2016). Available at: https://www.legislation.gov.uk/uksi/2016/765/contents Accessed: October 2026

Ref 17.3-8 Department of Energy Security and Net Zero (DESNZ) National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 17.3-9 Department for Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 17.3-10 Planning Inspectorate (2026) Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-technical-advice-page-for-scoping-solar-development Accessed: October 2026

Ref 17.3-11 Department for Levelling Up, Housing and Communities (2023). Planning Practice Guidance: Renewable and Low Carbon Energy. Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy Accessed: October 2026

Ref 17.3-12 BRE (2013) Planning Guidance for the Development of Large Scale Ground Mounted Solar PV Systems. Available at: https://www.bre.co.uk/filelibrary/pdf/other_pdfs/KN5524_Planning_Guidance_reduced.pdf Accessed: October 2026

Ref 17.3-13 Maldon District Local Development Plan 2014–2029 (2017). Available at: https://www.maldon.gov.uk/homepage/7031/emerging_local_plan

Ref 17.3-14 Chelmsford Local Plan 2013–2036 (2020), Policy DM19: Renewable and Low Carbon Energy. Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 17.3-15 Combined Aerodrome Safeguarding Team (CAST) (2024). Aerodrome Safeguarding Advice Note 5: Renewable Energy Developments. February 2024. Supported by the UK Civil Aviation Authority (CAA). Available at: https://www.caa.co.uk/media/f51mg4hs/cast-advice-note-5-renewable-energy-developments-renewable-energy-apr-24.pdf Accessed: October 2026

Ref 17.3-16 FAA (2010), Technical Guidance for Evaluating Selected Solar Technologies on Airports. Available at https://www.faa.gov/sites/faa.gov/files/airports/environmental/FAA-Airport-Solar-Guide-2018.pdf Accessed: October 2026

Ref 17.3-17 FAA (2013), Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports. Available at https://www.federalregister.gov/documents/2013/10/23/2013-24729/interim-policy-faa-review-of-solar-energy-system-projects-on-federally-obligated-airports Accessed: October 2026

Ref 17.3-18 Federal Aviation Administration, Evaluation of Glare as a Hazard for General Aviation Pilots on Final Approach (2015) [Accessed July 2026], Available at https://libraryonline.erau.edu/online-full-text/faa-aviation-medicine-reports/AM15-12.pdf Accessed: October 2026

Ref 17.3-19 British Horse Society (BHS) (2025). Advice on Solar Farms. Available at: https://www.bhs.org.uk/media/5f0llz3t/solar-0825.pdf Accessed: October 2026

Ref 17.3-20 Civil Aviation Authority (CAA) – CAP738: Safeguarding of Aerodromes 3rd Edition

17.4 Ground Conditions

Introduction

17.4.1 **Section 17.4: Ground Conditions** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to ground conditions during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the ground conditions section of the Environmental Statement (ES).

17.4.2 This chapter is supported by Figure 17.4-1: Ground Conditions Study Areas.

17.4.3 The ground conditions topic focuses on geological designated sites, mineral resources (including Mineral Safeguarding Areas (MSA)/Mineral Consultation Areas (MCA)), and receptors sensitive to land contamination. There are interrelationships between the potential effects on ground conditions and other environmental topics. Therefore, this chapter should be read in conjunction with the following chapters:

a. Groundwater, surface water and ecological receptors are discussed within this chapter as they will be assessed as potential receptors to any land contamination. However, groundwater and surface water as strategic resources and / or discharge points, hydrogeological response to dewatering, and flooding are considered in **Chapter 16: Water Environment**. Ecological receptors are considered in more detail in **Chapter 10: Ecology and Biodiversity**;
b. Pollution related impacts from construction, operation and maintenance, and decommissioning of the Proposed Development are considered in **Chapter 16: Water Environment**;
c. Air pollution related impacts from increased dust during construction are also covered in **Section 17.1 Air Quality** of **Chapter 17: Other Environmental Topics**;
d. Excavated materials and waste management are also covered in **Chapter 12: Materials and Waste**; and
e. Soils and agricultural land are covered in **Chapter 7: Agriculture and Soils**.

Study Area

17.4.4 For the purposes of determining the local baseline conditions with respect to ground conditions, a study area extending 250m from the EIA Scoping Site

Boundary will be adopted for geology, land contamination and mineral resources. A hydrogeological study area extending 1km from the EIA Scoping Site Boundary will be adopted for sensitive groundwater receptors.

17.4.5 This study area is appropriate to assess the local geological and hydrogeological setting, and any influence that potential land contamination may have within the Proposed Development or local sensitive receptors.

17.4.6 The study area boundaries for ground conditions are presented in **Figure 17.4-1: Ground Conditions Study Areas**.

Legislation, Planning Policy Context and Guidance

17.4.7 Legislation, planning policy and guidance relating to ground conditions and pertinent to the Proposed Development is listed in this section.

Legislation

17.4.8 Relevant legislation includes:

a. Environmental Protection Act 1990 (Ref 17.4-1);
b. Water Act 2003 (Ref 17.4-2);
c. Water Resources Act 1991 (Ref 17.4-3);
d. Building Act 1984 (Ref 17.4-4);
e. Environment Act 1995 (Ref 17.4-5);
f. Environment Act 2021 (Ref 17.4-6);
g. Climate Change Act 2008 (Ref 17.4-7);
h. Planning Act 2008 (Ref 17.4-8);
i. Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations 2017 (Ref 17.4-9);
j. Environmental Permitting (England and Wales) Regulations 2016 (Ref 17.4-10);
k. Waste (England and Wales) Regulations 2011 (Ref 17.4-11);
l. Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (Ref 17.4-12);
m. Contaminated Land (England) Regulations 2006 (Ref 17.4-13);
n. Building (Amendment) Regulations 2016 (Ref 17.4-14);
o. Anti-Pollution Works Regulations 1999 (Ref 17.4-15); and
p. Construction (Design and Management) Regulations 2015 (Ref 17.4-16).

National Planning Policy

17.4.9 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment

methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (Adopted 2025) (Ref 17.4-17):

   i. Paragraph 5.11.4 states that the development of land will directly affect soil resources through land contamination and indirect impacts may arise from changes in the water regime, organic matter, soil biodiversity and soil process.
   ii. Paragraph 5.11.5 states that the Applicant should consider risks in accordance with the contaminated land statutory guidance.
   iii. Paragraph 5.11.14 states that "*Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination…*" with consideration to the sustainable reuse of soils in line with good practice guidance.
   iv. Paragraph 5.11.17 states that "*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.*"
   v. Paragraph 5.11.18 sets out that for developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination, and where contamination is present, applicants should consider opportunities for remediation where possible.

b. NPS for Renewable Energy Infrastructure (EN-3) (adopted 2025) (Ref 17.4-18):

   i. Paragraph 2.10.21 encourages the use of brownfield and contaminated land for solar PV development and states that applicants should utilise such land where possible.

17.4.10 Other relevant national planning policy includes:

a. National Planning Policy Framework (NPPF) (Ref 17.4-20) - Chapter 19 (Conserving and Enhancing the Natural Environment) is relevant to the Proposed Development. Chapter 16 (Promoting healthy communities) and Chapter 17 (Pollution, public protection and security) is also relevant to contamination;

   i. Policy P2: Ground Conditions provides planning policy in relation to ground conditions, specifically that sites should be suitable for their proposed use taking into account:

"*a. Ground conditions, including any risks arising from land instability or contamination (whether due to natural hazards or current and former activities such as mining or fuel storage); and*
b. The extent to which any such risks can be mitigated, and the potential impacts on the natural environment arising from remediation."

Local Planning Policy

17.4.11 The Proposed Development lies within the jurisdiction of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the ground conditions assessment:

a. Essex County Council

   i. Essex Minerals Local Plan, Adopted July 2024 (Ref 17.4-22); and
   ii. Essex and Southend-On-Sea Waste Local Plan, Adopted July 2017 (Ref 17.4-23).

b. Basildon Borough Council

   i. Basildon District, Local Plan Saved Policies, September 2007 (Ref 17.4-24); and
   ii. Basildon Borough Local Plan 2023 – 2043 Regulation 18.3[1] (Ref 17.4-25).

c. Chelmsford City Council

   i. Chelmsford Local Plan, Adopted 27 May 2020 (Ref 17.4-26); and
   ii. Chelmsford Local Plan, Local Development Scheme 2013 to 2036. October 2025, (Ref 17.4-27).

d. Maldon District Council

   i. Maldon District Council Local Development Scheme 2023 - 2027, February 2025 (Ref 17.4-29); and
   ii. Maldon District Council Approved Local Development Plan 2014 – 2029, July 2017 (Ref 17.4-30).

e. Rochford District Council

   i. Draft Rochford Local Plan, Regulation 18, February 2026, (Ref 17.4-32).

[1] The Basildon Borough Local Plan 2023 – 2043 is currently a Draft Local Plan under Regulation 18

Other Relevant Planning Policy

17.4.12 A number of planning documents were identified on the Local Planning Authorities websites. These documents are relevant to the ground conditions assessment and support the local development plans however do not carry the same level of significance as the primary sources listed above and are supplementary to the assessment. These documents are as follows:

a. Planning Practice Guidance. Paragraph 013 ID: 5-013-20150327 – 'Renewable and low carbon energy: What are the particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms' (Ref 17.4-21);
b. Chelmsford Local Plan, Solar Farm Development Supplementary Planning Document, November 2021 (Ref 17.4-28);
c. Maldon District Council Supplementary Planning Document (SPD): Renewable and Low Carbon Technologies SPD, May 2018 (Ref 17.4-31); and
d. Rochford District Council, Local Development Scheme (LDS) 2025-2028, Undated (Ref 17.4-33).

Relevant Industry Guidance

17.4.13 Relevant industry guidance includes:

a. HM Government, Part 2A Contaminated Land Statutory Guidance, 2012 (Ref 17.4-35);
b. Environment Agency's online guidance for the management of land contamination 'Land contamination: risk management (LCRM) (Ref 17.4-36);
c. British Standard (BS) 10175:2026, Investigation of potentially contaminated sites – Code of Practice (Ref 17.4-37);
d. BS 8576 (2013), Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs) (Ref 17.4-38);
e. BS 8485:2015+A1:2019, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (Ref 17.4-39);
f. Construction Industry Research and Information Association (CIRIA) C665, assessing risks posed by hazardous ground gases to buildings, 2007 (Ref 17.4-40);
g. CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice (Ref 17.4-41); and
h. CIRIA C811 5th Edition 'Environmental Good Practice On Site' 2023 (Ref 17.4-42).

i. Contaminated Land: Applications in Real Environments (CL:AIRE), Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (2025) (Ref 17.4-43);
j. Building Research Establishment (BRE) series 'Concrete in Aggressive Ground' (2005) (Ref 17.4-44); and
k. CL:AIRE, Updated Framework for Assessing the Sustainability of Soil and Groundwater Remediation (2025) (Ref 17.4-45)

Consultation

17.4.14 Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with statutory parties including the relevant local councils, the Environment Agency and local geological groups where relevant. This will be to obtain further information on:

a. Potential land contamination sites across the Proposed Development and within the study area; and
b. Information on geological sites (if present) and mineral safeguarding and consultation areas.

Baseline Conditions

17.4.15 This section describes the baseline environmental characteristics for the EIA Scoping Site Boundary and surrounding areas with specific reference to the ground conditions.

Sources of Information

17.4.16 The ground conditions baseline condition has been determined by a desk study review of available information as referenced accordingly throughout this section.

Geology

17.4.17 The British Geological Survey (BGS) online geological mapping tools including the BGS Geology of Britain Viewer (Ref 17.4-52), BGS 1:50,000 Sheet 241, Solid and Drift *Chelmsford* (1975) (Ref 17.4-57), BGS 1:50,000 Combined Sheets 224 and 242 Colchester and Brightlingsea, Solid and Drift (2010) (Ref 17.4-69), BGS 1:50,000 Combined Sheets 258 and 259 Southend and Foulness, Sold and Drift (1976), 1,10:000/1:10,560 mapping for Solid and Drift (all dated 2012) Sheets TM00SW (Ref 17.4-58), TM00NW (Ref 17.4-59), TM00NE (Ref 17.4-60), TM00SE (Ref 17.4-61), TL90NE (Ref 17.4-62), TL90SE (Ref 17.4-63), TQ99NE (Ref 17.4-64), TR09NW (Ref 17.4-65) and TR09NE (Ref 17.4-66), as well as BGS memoirs for Chelmsford (1985) (Ref 17.4-55) and Southend & Foulness (1986) (Ref 17.4-54) indicate the geological setting of the EIA Scoping Site Boundary.

Made Ground

17.4.18 The BGS mapping indicates that Made Ground as Infilled Ground (Artificial deposits) and Worked Ground is present at the following location across the EIA Scoping Site Boundary, summarised as follows:

a. Worked Ground (Void) at a lake to the north of Tillingham Road, to the west of Tillingham, approximately 45m west of the Energy Park.

17.4.19 Made Ground is also anticipated in areas of former and current developments and in areas of former ground workings and embankments, including the sea wall to the south east, and as part of infilling activities.

17.4.20 A more detailed review of any Made Ground within the EIA Scoping Site Boundary and study area will be undertaken as part of the proposed Preliminary Risk Assessment (PRA) to be submitted alongside the ES, through review of historical maps, available site investigation records, and following obtaining a detailed environmental assessment report (i.e. Groundsure Report).

Superficial Deposits

17.4.21 A number of superficial deposits are recorded to underlie the EIA Scoping Site Boundary and study area. These deposits are noted to not be laterally continuous and may be interbedded or overlying in some areas. Superficial deposits are not present within some areas of the EIA Scoping Site Boundary, particularly in the west. The deposits identified reflect the low lying coastal plain and estuary setting of the EIA Scoping Site Boundary. These are anticipated as follows:

a. Intertidal Deposits (undifferentiated) – clay and silt;
b. Intertidal Deposits (undifferentiated) – shell sediment (shell);
c. Tidal Flat Deposits – clay and silt;
d. Tidal Flat Deposits – sand and silt;
e. Beach and Tidal Flat Deposits (undifferentiated) – shell sediment (shells);
f. Storm Beach Deposits – sand and gravel;
g. River Terrace Deposits – sand and gravel;
h. Head – diamicton;
i. Head – clay, silt, sand and gravel;
j. Head – clay and silt; and
k. Alluvium – clay, silt, sand and gravel.

17.4.22 A more detailed review of the superficial deposits underlying the EIA Scoping Site Boundary and study area will be undertaken as part of the PRA, which will also define the need for any future ground investigation that may be required to support design development.

Bedrock Geology

17.4.23 The bedrock geology within the EIA Scoping Site Boundary and study area is mapped by the BGS to comprise the London Clay Formation (clay silt and sand).

17.4.24 An area to the west of Southminster town and South Woodham Ferrers town is mapped to comprise the Claygate Member (clay, silt and sand), with the top of the formation noted to be the same as the top of the London Clay Formation. In the immediate surrounding area of the EIA Scoping Site Boundary, north of South Woodham Ferrers town, the Bagshot Formation overlies the Claygate Member. The Claygate Member is distinguished from the Bagshot Formation as it comprises finer sands without crossbedding.

17.4.25 A more detailed review of the bedrock geology beneath the EIA Scoping Site Boundary and study area will be undertaken as part of the PRA, which will also define the need for any future ground investigation that may be required to support design development.

Mining

17.4.26 According to the Mining Remediation Authority (Ref 17.4-51) the EIA Scoping Site Boundary and study area is not located within a Coal Mining Reporting Area or a Development High Risk Area. No metal mines are recorded within the area.

Geological Sites

17.4.27 According to the National Data Library (Ref 17.4-53) and Department for Environment, Food and Rural Affairs (DEFRA) Multi-Agency Geographic Information for the Countryside (MAGIC) mapping (Ref 17.4-47), a geological Site of Special Scientific Interest (SSSI) was identified adjacent to the EIA Scoping Site Boundary as follows:

a. Dengie SSSI occupies most of the eastern coast and is adjacent to the EIA Scoping Site Boundary in the northern and southern extents. Dengie SSSI is of mixed interest, also being a Geological Conservation Review (GCR) site for its saltmarsh morphology.

17.4.28 Local Geological Sites (LGS) (Ref 17.4-68) have been identified within or in proximity to the EIA Scoping Site Boundary:

a. Bradwell Chenier Ridges (part of Dengie SSSI) (north-eastern extent) – exact location and spatial extent cannot be confirmed on the available mapping; and
b. Bushy Hill (within the western area of the EIA Scoping Site Boundary, north of South Woodham Ferrers).

17.4.29 Geological sites will be reviewed in relation to the Proposed Development during the PRA and through consultation with the relevant Statutory Consultees following submission of this EIA Scoping Report.

Mineral Resources

17.4.30 According to the Essex Minerals Local Plan (Ref 17.4-22), the EIA Scoping Site Boundary may be located within aggregates, silica sand, brick clay, brick earth and chalk resource areas. There are no safeguarded mineral sites within the EIA Scoping Site Boundary as per the Essex Minerals Local Plan Policies Map (Ref 17.4-71).

17.4.31 Grid Connection Corridor A also runs immediately adjacent to the Dollymans Farm strategic site allocation for inert landfill waste management development, as set out in Section 7 of the Essex and Southend-on-Sea Waste Local Plan (Strategic Waste Management Allocations) (Ref 17.4-22).

17.4.32 Additional details can be found within **Chapter 12: Materials and Waste**.

Hydrogeology

17.4.33 The BGS/Environment Agency Aquifer Designation dataset (Ref 17.4-47) was reviewed to identify the underlying aquifers within the EIA Scoping Site Boundary.

17.4.34 The aquifer designations within the EIA Scoping Site Boundary and study area are summarised within **Table 17-8**. The definitions of the aquifer designations can be found within the Environment Agency's Guidance "*Protect groundwater and prevent pollution*" (2025) document (Ref 17.4-67).

Table 17-8: Summary of Aquifer Designations

Geological Unit	Strata	Aquifer Designation
Superficial Deposits	Intertidal Deposits (undifferentiated) – clay and silt	Unproductive Strata
	Intertidal Deposits (undifferentiated) – shell sediment (shell)	Unproductive Strata
	Tidal Flat Deposits – clay and silt	Secondary (Undifferentiated)
	Tidal Flat Deposits – sand and silt	Secondary A
	Beach and Tidal Flat Deposits (undifferentiated) – shell sediment (shells)	Secondary A
	Storm Beach Deposits – sand and gravel	Secondary A

Geological Unit	Strata	Aquifer Designation
	River Terrace Deposits – sand and gravel	Secondary A
	Head – diamicton	Secondary (Undifferentiated)
	Head – clay, silt, sand and gravel	Secondary (Undifferentiated)
	Head – clay and silt	Secondary (Undifferentiated)
	Alluvium – clay, silt, sand and gravel.	Secondary A
Bedrock Geology	London Clay Formation	Unproductive Strata
	Claygate Member – clay, silt and sand	Secondary A
	Bagshot Formation	Secondary A

Hydrology

17.4.35 A number of surface water features are located within and in the vicinity of the EIA Scoping Site Boundary. Further details are included within **Chapter 16: Water Environment** and are summarised as follows:

17.4.36 There are six Water Framework Directive (WFD) water bodies located on and within the vicinity of the EIA Scoping Site Boundary, these are:

a. Blackwater Outer (ID: GB650503200000);
b. Blackwater (ID: GB520503714000;
c. Essex (ID: GB650503520001);
d. Crouch (ID: GB520503704100);
e. Rettendon Brook (ID: GB105037028560); and
f. Crouch (d/s Wickford) (ID: GB105037028550).

17.4.37 Minor rivers and drainage ditches have also been identified on and within the vicinity of the EIA Scoping Site Boundary; these are detailed within **Chapter 16: Water Environment**. These drainage features are important receptors for surface water quality and will be considered in the assessment of land contamination.

Current Land Uses

17.4.38 The EIA Scoping Site Boundary and study area is predominantly located within agricultural land comprising cultivated fields and drainage rhynes. The main residential areas include Bradwell-on-Sea, Tillingham, Asheldham, Southminster, Burnham on Crouch, Steeple, Mayland, Althorne, Latchingdon,

North Fambridge, South Woodham Ferrers, Runwell and Rayleigh. A number of farms and dispersed residential properties are present throughout the area. Commercial developments are located within the vicinity of the EIA Scoping Site Boundary, including the Downhall Beach Estate and associated Bradwell Power Plant.

Landfills

17.4.39 Data obtained from the Department for Environment, Food and Rural Affairs (DEFRA) (Ref 17.4-49) has identified historical landfills within 250m of the EIA Scoping Site Boundary, all distances are approximate. There is one historic landfill site located within the EIA Scoping Site Boundary. This is Dengie Sea Wall historic landfill site (Site reference: MAL017) which is situated within the south-eastern extent of the Energy Park. Creekview Road (1500/0600) for G and B Finch Limited is located 200m south of the Grid Connection Corridor A, the last input date is listed as 1987 for household waste.

17.4.40 There are no authorised landfill sites within the EIA Scoping Site Boundary. An authorised landfill as identified by data from DEFRA (Ref 17.4-48) is located 120m south-east at Asheldham Quarry (EA/EPR/EB3105GQ) (G and B Finch Limited) for inert waste issued in 2019. An authorised landfill is located adjacent to the south east of the EIA Scoping Site Boundary at Dollymans Farm for Sewells Reservoir Construction Limited (EA/EPR/HB3907KS).

17.4.41 Given their distance and the time since infilling, the preliminary review suggests that risk of ground gas migration or leachate impacts is expected to be low, subject to confirmation through the PRA.

Unexploded Ordnance

17.4.42 An Unexploded Ordnance (UXO) risk assessment will be presented as part of the PRA, to establish whether a credible UXO risk exists and to confirm the nature of any UXO risk and the need for further investigation.

Potential Effects and Mitigation

17.4.43 This section sets out the potential effects of the Proposed Development on the ground conditions.

Construction and Decommissioning

17.4.44 Potential impacts during the construction and decommissioning phases of the Proposed Development include, but are not limited to:

a. Disturbance of geological features of interest (if present);
b. Encountering unexpected contamination during excavation;

c. Human exposure through direct contact/inhalation/dermal uptake of contaminants potentially present in soil and groundwater;
d. Creation of preferential pathways and mobilisation of contamination;
e. Contamination of natural soils, driving of contamination into an aquifer during piling, contamination of groundwater with concrete, paste or grout;
f. Pollution and degradation of water quality of any underlying aquifer;
g. Run-off and infiltration of contaminants from excavated material stockpiles;
h. Contamination of drainage and sewerage network and/or groundwater;
i. Spread of nuisance dusts and soils to the wider environment and local roads;
j. Disturbance of Made Ground including potential soils and groundwater affected by historical industrial use; and
k. Beneficial impact of remediation undertaken to address any unacceptable risk to people and environment.

17.4.45 At this stage, based upon an initial, high-level review of publicly available data, there is considered to be a low likelihood of significant effects relating to the geological baseline and the predominantly agricultural nature of the EIA Scoping Site. The likelihood of effects associated with historical contamination is considered to be higher in the areas of historical / active landfill site and in areas with historical development. This will be subject to confirmation following completion of a PRA.

17.4.46 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that the power cables may be left in situ.

Operation

17.4.47 During the operation of the Proposed Development, it is considered that activities will be limited to the routine maintenance of the development, and no significant disturbance of soils or geological resources is anticipated.

17.4.48 There is potential for localised ground contamination to occur associated with spillages or leaks of oils, greases, fuels or lubricants as part of the maintenance of the Proposed Development.

17.4.49 On the basis of the current understanding of the Proposed Development, significant effects on soils and geological resources during the operation and maintenance phase are not anticipated.

Mitigation

17.4.50 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or how it shall be constructed. Through iterative

assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

17.4.51 Mitigation measures relevant to ground conditions are included within **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

17.4.52 Based upon the PRA, a number of environmental design and management measures will be employed as standard best practice to minimise impacts to both human health and controlled waters during the construction phase of the Proposed Development, including those listed in **Table 17-9** below. Where applicable, these measures will be incorporated into the Outline Construction Environmental Management Plan (CEMP) which will be prepared as part of the DCO Application.

Table 17-9: Environmental Design and Management Measures that could be included in the Outline CEMP

Environmental Design and Management Measures
Regulatory/Guidance Work will be carried out in accordance with Construction (Design and Management) Regulations 2015 (Ref 17.4-16) details of these measures will be presented within the Health and Safety Plan (H&SP), and the OCEMP. The CEMP will be prepared prior to commencement of works, setting out the management, monitoring, auditing and training procedures, and the mitigation measures that will be put in place during enabling works and construction, to maintain compliance with the applicable regulations. In order to reduce the likelihood of contamination and protect human health and controlled waters from effects related to ground conditions, the OCEMP will include mitigation measures such as those presented here. Pollution response measures will be set out within the Outline CEMP. The Outline CEMP will outline key pollution mitigation measures including a Control of Substances Hazardous to Health (COSHH)/fuel inventory and key contacts to be notified in the event of a significant pollution incident, which may subsequently lead to the contamination of controlled waters. Any fuel and COSHH chemicals will be stored in accordance with current Environment Agency guidance and recognised good practice. Tanks and dispensing pumps will be locked when not in use to prevent unauthorised access. Information regarding spill prevention and disposal of COSHH

Environmental Design and Management Measures
items will be provided as part of the standard site induction presentations and during regular toolbox talks and the works progress. Where piling or other penetrative ground improvement methods are proposed, piling will be carried out in accordance with CL:AIRE Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (Ref 17.4-43) and ground investigations will inform the Foundation/Piling Risk Assessment which will define the appropriate piling methods and foundation design to mitigate risk. Specification of concrete used in foundations and building structures will be selected based on the results of the chemical composition of the site soil and groundwater. Guidance is provided by the BRE series 'Concrete in Aggressive Ground' (Ref 17.4-44).
Waste Waste materials will be disposed of by the contractor(s) to appropriate recycling facilities or appropriately licensed landfills in line with the Site Waste Management Plan (SWMP) which will form part of the CEMP. The appropriate landfill for the disposal of any contaminated soil off-site will depend on the waste classification determined from the chemical analysis and if required, Waste Acceptance Criteria (WAC) testing. Where required and possible excavated material will be reused; Waste effluent will be tested for appropriate physical and chemical parameters and, where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor(s);
Construction Related Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, include the siting of storage area away from surface water drains, on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns will be protected from vandalism and kept locked up when not in use. Details of appropriate storage and handling measures will be presented within the Outline CEMP; Vehicles will be well maintained to prevent accidental pollution from leaks. Static machinery and plant will include drip trays beneath oil tanks / engines / gearboxes / hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator; A spillage Emergency Response Plan (ERP) will be produced (and could form part of the Outline CEMP), which site staff will be required to have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material; During the enabling and construction stage of work, the contractor(s) will employ dust suppression measures when necessary to prevent the potential mobilisation of contaminated dust particles and their migration off-site; Stockpiles and material handling areas will be kept as clean as practicable to avoid nuisance from dust. Dusty materials will be dampened down using water sprays or covered in dry weather;

Environmental Design and Management Measures
The length of time materials are stockpiled on-site before being removed for re-use, recycling or disposal is to be kept to a minimum and stockpiles are to be covered with tarpaulins prior to disposal; Dust-generating activities will be managed to minimise dust emissions and nuisance at sensitive receptors, as far as reasonably practicable; Complaints about dust will be investigated at the earliest opportunity and appropriate action taken to control the source or remedy the impact as appropriate. Access roads will be regularly cleaned and damped down with water; All vehicles entering and leaving the EIA Scoping Site Boundary during the construction period will pass through a wheel washing facility. Vehicles used to transport materials and aggregates will be enclosed or covered in a tarpaulin. Vehicle movements will be kept to a minimum and vehicle speeds within the EIA Scoping Site Boundary will be limited; Appropriate use of personal protective equipment (PPE) and implementation and adherence to Health & Safety Protocols, Plans and Procedures (such as CIRIA C811 5th Edition 'Environmental Good Practice On Site' (Ref 17.4-42). Construction workers will remain vigilant of ground conditions at all times and will report to the Principal Contractor any suspect areas of potential contamination; Potentially contaminated Made Ground will be quantified prior to removal from excavations; and Advice will be sought by an environmental specialist should materials suspected of being contaminated be uncovered.

Operation and Maintenance

17.4.53 A detailed Operational Environmental Management Plan (OEMP) will be prepared following the granting of the DCO to manage environmental effects during the operation (and maintenance) phase of the Proposed Development. An Outline OEMP will be submitted as part of the DCO Application and will set out the overarching environmental management principles to be implemented during operation and maintenance and secured by a requirement in the DCO that the Detailed OEMP will be substantially in accordance with the Outline OEMP. This will include a spillage ERP, which maintenance personnel will be required to understand and follow. Appropriate on-site spill response measures, including booms, bunding and absorbent materials, will be provided to enable the prompt containment of any accidental spills or leaks

Decommissioning

17.4.54 An Outline Decommissioning Environmental Management Plan (DEMP) will be prepared as part of the DCO Application and will set out the overarching environmental management principles to be implemented during the decommissioning of the Proposed Development, and secured by a requirement

in the DCO that the detailed DEMP will be substantially in accordance with the Outline DEMP. Where the detailed decommissioning methodology is not known at this stage, it is anticipated that the activities and associated environmental effects will be broadly comparable to those during construction. Accordingly, the assessment assumes that similar environmental design and management measures will be implemented. A detailed DEMP will be prepared and agreed with the relevant authorities prior to the commencement of decommissioning works.

Assessment Methodology

17.4.55 The assessment of potential effects as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on the ground conditions will be undertaken using the principles of the guidance and criteria set out in Environment Agency's LCRM Guidance (Ref 17.4-36). The methodology is set out below.

17.4.56 A PRA will be undertaken covering land within the EIA Scoping Site Boundary. The Environment Agency's LCRM Guidance (Ref 17.4-36) identifies that the first step, known as Stage 1, Tier 1, in evaluating land contamination risks is a PRA. The objective of the PRA is to identify and evaluate potential land quality risks and development constraints associated with the Proposed Development and to construct an initial conceptual site model (iCSM) that can be used to inform future decision making and the design of future ground investigation and/or mitigation, should it be required.

17.4.57 A PRA report will be prepared, covering land within the EIA Scoping Site Boundary. The PRA report will be included as a technical appendix to the ES. The PRA will include the following:

a. Details of land within the EIA Scoping Site Boundary and surrounding area including development history, geology, hydrogeology, hydrology, soil and groundwater quality and environmental setting;
b. Details of geological designated sites (if present);
c. Details of any available site investigation reports for land within the EIA Scoping Site Boundary, none are currently known to be available;
d. Details from a targeted site inspection documenting:

    i. The existing layout, current operations and condition of land within the EIA Scoping Site Boundary, the property boundaries and immediately surrounding land;

ii. The visual inspection of any potential indicators of any land contamination, for example spillages, disturbed ground, or historical development; and
iii. The visual inspection of any geohazards or ground conditions constraints.

e. An iCSM and an evaluation of potential contamination linkages and risk; and
f. Conclusions and recommendations based on the findings.

Limitations and Assumptions

17.4.58 The location and layout of certain elements of infrastructure (including the point of connection, construction methodologies and mitigation), have not yet been finalised. This is of particular importance when considering impacts associated with ground conditions.

17.4.59 The baseline conditions presented are based on a high-level review of publicly available information and will be refined through the PRA.

17.4.60 No site inspection of the EIA Scoping Site Boundary has been undertaken at this stage.

17.4.61 No historical ground investigation reports or BGS borehole logs have been reviewed as part of the baseline assessment.

17.4.62 Historical mapping has not been reviewed as part of the baseline assessment.

17.4.63 A detailed desk-based PRA, including a review of historical mapping, third party environmental datasets and relevant consultation responses will be undertaken to support the ES.

Summary of Elements Scoped In and Out

17.4.64 Based on the information available at this stage, and subject to the findings of the PRA, it is anticipated that likely significant effects on ground conditions can be avoided through the implementation of standard environmental design and management measures secured through the Outline CEMP, Outline OEMP and Outline DEMP.

17.4.65 It is therefore proposed that ground conditions do not require a standalone topic within the ES and will instead be addressed within **Chapter 17: Other Environmental Topics**, supported by the PRA as a technical appendix. This will include consideration of the aspects listed in **Table 17-10**.

Table 17-10 Ground Conditions aspects for consideration in the ES

Element	Scoped In / Scoped Out
Soil and groundwater contamination (including related to any landfill) on human health, surface water, groundwater and ecological receptors	**Scoped In**
Mineral Safeguarded Areas / Minerals Consultation Areas	**Scoped In**
Geologically designated sites	**Scoped In**
UXO risk to human health receptors	**Scoped In**

References

Ref 17.4-1 HM Government (1990), Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents Accessed: October 2026

Ref 17.4-2 HM Government (2003), Water Act 2003. Available at: https://www.legislation.gov.uk/ukpga/2003/37/contents Accessed: October 2026

Ref 17.4-3 HM Government (1991), Water Resources Act 1991. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents Accessed: October 2026

Ref 17.4-4 HM Government (2016), Building Act 1984. Available at: https://www.legislation.gov.uk/ukpga/1984/55/contents Accessed: October 2026

Ref 17.4-5 HM Government (1995), Environment Act 1995. Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents Accessed: October 2026

Ref 17.4-6 HM Government (2021), Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents Accessed: October 2026

Ref 17.4-7 HM Government (2008), Climate Change Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents Accessed: October 2026

Ref 17.4-8 HM Government (2008), Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

Ref 17.4-9 HM Government (2017), Water Environment (WFD) (England and Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents Accessed: October 2026

Ref 17.4-10 HM Government (2016), Environmental Permitting (England and Wales) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents Accessed: October 2026

Ref 17.4-11 HM Government (2011), Waste (England and Wales) Regulations 2011. Available at: https://www.legislation.gov.uk/uksi/2011/988/contents Accessed: October 2026

Ref 17.4-12 HM Government (2016), Hazardous Waste (England and Wales) (Amendment) Regulations 2016. Available at:

https://www.legislation.gov.uk/uksi/2016/336/contents Accessed: October 2026

Ref 17.4-13 HM Government (2006), Contaminated Land (England) Regulations 2006. Available at: https://www.legislation.gov.uk/uksi/2006/1380/contents Accessed: October 2026

Ref 17.4-14 HM Government (2016), Building (Amendment) Regulations 2016. Available at: https://www.legislation.gov.uk/uksi/2016/490 Accessed: October 2026

Ref 17.4-15 HM Government (1999), Anti-Pollution Works Regulations 1999. Available at: https://www.legislation.gov.uk/uksi/1999/1006/contents/made Accessed : October 2026

Ref 17.4-16 HM Government (2015), Construction (Design and Management) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/51/contents Accessed: October 2026

Ref 17.4-17 HM Government (2025), Overarching National Policy Statement for Energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 17.4-18 HM Government (2025), National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025 Accessed: October 2026

Ref 17.4-19 HM Government (2025), National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 17.4-20 Ministry of Housing, Communities and Local Government (2026), National Planning Policy Framework (NPPF). Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026

Ref 17.4-21 Ministry of Housing, Communities and Local Government (2015), updated 2023) Planning Practice Guidance, Paragraph 013 ID: 5-013-20150327 – '*Renewable and low carbon energy: What are the particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms'* Available at:

https://www.gov.uk/guidance/renewable-and-low-carbon-energy Accessed: October 2026

Ref 17.4-22 Essex County Council (2014), Essex Minerals Local Plan. Available at: https://www.essex.gov.uk/planning-land-and-recycling/planning-and-development/minerals-and-waste-planning-policy/existing Accessed: October 2026

Ref 17.4-23 Essex County Council (2017), Waste Essex Waste Local Plan. Available at: https://www.essex.gov.uk/planning-land-and-recycling/planning-and-development/minerals-and-waste-planning-policy/waste-local Accessed: October 2026

Ref 17.4-24 Basildon Borough Council (2017) Local Plan Saved Policies. Available at: https://www.basildon.gov.uk/adoptedplan Accessed: October 2026

Ref 17.4-25 Basildon Borough Council (2025), Basildon Draft Local Plan 2023-2042, Regulation 18.3, November 2025. Available at: https://basildonlocalplan25.commonplace.is/en-GB/proposals/v3/document-library?step=step1 Accessed: October 2026

Ref 17.4-26 Chelmsford City Council (2020), Chelmsford Local Plan, Adopted 27 May 2020, Our Planning Strategy 2013 to 2036. Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 17.4-27 Chelmsford City Council (2025), Chelmsford Local Plan Local Development Scheme 2025-2028. Available at: https://www.chelmsford.gov.uk/media/a4ubaaae/sd018-local-development-scheme-2023-2028-november-2023.pdf Accessed: October 2026

Ref 17.4-28 Chelmsford City Council (2021), Chelmsford Local Plan Solar Farm Development Supplementary Planning Document. Available at: https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/supplementary-planning-documents-and-planning-advice-notes/?utm_source=copilot.com Accessed: October 2026

Ref 17.4-29 Maldon District Council (February 2025), Local Development Scheme 2023-2027. Available at: https://www.maldon.gov.uk/downloads/file/19866/local_development_scheme_-_february_2025?utm_source=copilot.com Accessed: October 2026

Ref 17.4-30 Maldon District Council (July 2017). Approved Replacement Local Development Plan 2014 – 2029. Available at: https://www.maldon.gov.uk/info/7050/planning_policy/9310/adopted_replacement_local_plan Accessed: October 2026

Ref 17.4-31 Maldon District Council. Maldon District Local Development Plan. Supplementary Planning Document. Renewable and Low Carbon Technologies. Available at: https://www.maldon.gov.uk/downloads/file/16037/renewable_and_low_carbon_technologies_spd Accessed: October 2026

Ref 17.4-32 Rochford District Council (February 2026), Draft Rochford Local Plan Regulation 18. Available at: https://www.rochford.gov.uk/the-rochford-district-local-plan Accessed: October 2026

Ref 17.4-33 Rochford District Council (Undated), Local Development Scheme (LDS) 2025-28. Available at: https://www.rochford.gov.uk/media/3162 Accessed: October 2026

Ref 17.4-34 Rochford District Council (December 2014), Local Development Framework, Development Management Plan. Available at: https://www.rochford.gov.uk/development-management-plan Accessed: October 2026

Ref 17.4-35 HM Government (2012), Part 2A Contaminated Land Statutory Guidance. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223705/pb13735cont-land-guidance.pdf Accessed: October 2026

Ref 17.4-36 Environment Agency (2020, updated 2025), Online guidance for the management of land contamination 'Land contamination: risk management' (LCRM). Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm Accessed: October 2026

Ref 17.4-37 British Standard Institute (BSI) (2017), BS 10175 (2026), 'Investigation of Potentially Contaminated Sites - Code of Practice'.

Ref 17.4-38 BSI (2013), BS 8576 'Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)'.

Ref 17.4-39 BSI (2019), BS 8485:2015+A1:2019 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

Ref 17.4-40 CIRIA (2007), C665 'Assessing risks posed by hazardous ground gases to buildings'.

Ref 17.4-41 CIRIA (2001), C552 'Contaminated Land Risk Assessment: A Guide to Good Practice'.

Ref 17.4-42 CIRIA (2023), C811 5th Edition 'Environmental Good Practice on Site'.

Ref 17.4-43 CL:AIRE (2025), 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention'.

Ref 17.4-44 BRE (2005), Third edition, Special Digest 1:2005 'Concrete in Aggressive Ground'.

Ref 17.4-45 CL:AIRE (2025), Framework for Assessing the Sustainability of Soil and Groundwater Remediation

Ref 17.4-46 Groundsure (Accessed 21st August 2026), Groundsure Insights Platform. Available at: https://insights.groundsure.io/ Accessed: October 2026

Ref 17.4-47 DEFRA (2024), Magic Map Application. Available at: https://magic.defra.gov.uk/MagicMap.html Accessed: October 2026

Ref 17.4-48 DEFRA (October, 2025), Permitted Waste Sites – Authorised Landfill Site Boundaries. Available at: https://environment.data.gov.uk/dataset/692eaecf-d465-11e4-ac2e-f0def148f590 Accessed: October 2026

Ref 17.4-49 DEFRA (October, 2025), Historic Landfill Sites. Available at: https://environment.data.gov.uk/dataset/7a955570-d465-11e4-a37c-f0def148f590 Accessed: October 2026

Ref 17.4-50 Zetica (UXO) (Accessed 24th August 2026), Risk Maps. Available at: https://zeticauxo.com/guidance/risk-maps/ Accessed: October 2026

Ref 17.4-51 Mining Remediation Authority (Accessed 24th August 2026), Mining Remediation Authority Map Viewer. Available at: https://datamine-cauk.hub.arcgis.com Accessed: October 2026

Ref 17.4-52 BGS (Accessed 24th August 2026), GeoIndex Onshore Viewer. Available at: https://www.bgs.ac.uk/map-viewers/geoindex-onshore/ Accessed: October 2026

Ref 17.4-53 UK Government (Accessed 24th August 2024), National Data Library. Available at: https://www.data.gov.uk/ Accessed: October 2026

Ref 17.4-54 BGS (1986), Geology of the country around Southend and Foulness, Memoir for 1:50,000 Sheets 258 and 259, (England and Wales). Available at: https://pubs.bgs.ac.uk/publications.html?pubID=B01654 Accessed: October 2026

Ref 17.4-55 BGS (1985), Geology of the country around Chelmsford, Memoir for 1:50,000 Geological Sheet 241 (England and Wales). Available at: https://pubs.bgs.ac.uk/publications.html?pubID=B01648 Accessed: October 2026

Ref 17.4-56 EA (Updated 17th July 2025), Protect groundwater and prevent groundwater pollution. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#groundwater-definition Accessed: October 2026

Ref 17.4-57 BGS (1975) 1:50,000 Sheet 241, Solid and Drift Chelmsford.

Ref 17.4-58 BGS (1975) 1:10,560 Sheet TM00SW, Solid and Drift

Ref 17.4-59 BGS (2012), 1:10,000 Sheet TM00NW, Solid and Drift
Ref 17.4-60 BGS (2012), 1,10:000 Sheet TM00NE, Solid and Drift
Ref 17.4-61 BGS (2012, 1,10:000 Sheet TM00SE, Solid and Drift
Ref 17.4-62 BGS (2012), 1,10:000 Sheet TL90NE, Solid and Drift
Ref 17.4-63 BGS (2012), 1,10:000 Sheet TL90SE, Solid and Drift
Ref 17.4-64 BGS (2012), 1,10:000 Sheet TQ99NE, Solid and Drift
Ref 17.4-65 BGS (2012), 1,10:000 Sheet TR09NW, Solid and Drift
Ref 17.4-66 BGS (2012), 1,10:000 Sheet TR09NE, Solid and Drift
Ref 17.4-67 EA (17th July 2025) Protect Groundwater and Prevent Pollution Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution Accessed: October 2026
Ref 17.4-68 The Essex Field Club (Accessed 3rd September 2026). Geological Sites in Essex. Available at: https://www.essexfieldclub.org.uk/portal.php/p/Geological+sites+in+Essex Accessed: October 2026
Ref 17.4-69 BGS (2010) 1:50,000 Combined Sheets 224 and 242 Colchester and Brightlingsea, Solid and Drift
Ref 17.4-70 BGS (1976) 1:50,000 Combined Sheets 258 and 259 Southend and Foulness, Solid and Drift
Ref 17.4-71 Essex County Council (2017) (Accessed 15th September 2026). Essex and South-end on Sea Waste Local Plan: Waste Policies Map. Available at https://www.essex.gov.uk/sites/default/files/migration_data/files/assets.ctfassets.net/knkzaf64jx5x/4OteTNJawrCl0X7RZLd17m/7803de7636beb4738cc7919503e602dc/waste-policies-map.pdf Accessed: October 2026

17.5 Human Health

17.5.1 **Section 17.5: Human Health** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to human health during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the human health section of the Environmental Statement (ES).

17.5.2 The World Health Organisation (WHO) Europe defines health as *"...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* (Ref 17.5-1) Consequently, public health encompasses general well-being, not just the absence of illness. Health is defined as incorporating both physical and mental health and is affected by a range of factors, termed the 'wider determinants of health', which span bio-physical, social, behavioural, economic and institutional factors.

Study Area

17.5.3 The health baseline has been informed by demographic and health indicators for communities located within approximately 500m of the EIA Scoping Site Boundary. This area has been used to provide a high-level profile of the local population and to identify potentially vulnerable groups within the vicinity of the Proposed Development. Relevant study areas for specific determinants of health, including air quality, noise and vibration, traffic and transport, socio-economics and land-use, landscape and visual effects, water environment, ground conditions, major accidents and disasters (where relevant), and electromagnetic fields, are defined within the corresponding technical chapters.

Legislation, Planning Policy Context and Guidance

17.5.4 Legislation, planning policy and guidance relating to human health and pertinent to the Proposed Development is listed in this section.

Legislation

17.5.5 Relevant legislation includes the Infrastructure Planning (EIA) Regulations 2017 (Ref 17.5-1) (the Regulations). The Regulations require the consideration of the likely significant direct or indirect effects of projects on "*population and human health*". The purpose of assessing effects on human health would be to identify and characterise relevant health receptors (the population, including vulnerable groups), to consider the nature and scale of potential impacts arising from the Proposed Development, and to assess the significance of any likely effects.

National Planning Policy

17.5.6 The following planning policies from relevant National Policy Statements (NPS) have been considered as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. NPS EN-1 (adopted 2025) (Ref 17.5-3), with specific reference to Section 4.4. paragraph 4.4.1, acknowledges that access to energy is beneficial to society as a whole and that the production, distribution, and use of energy may have negative impacts on some people's health. Paragraphs 4.4.4 to 4.4.6 set out the assessment criteria.

17.5.7 Other relevant national planning and guidance includes:

a. National Planning Policy Framework (NPPF) (August 2026) (Ref 17.5-4), specifically, Chapter 16: Promoting healthy and safe communities, which sets out the need for planning policies and decisions to promote healthy, inclusive and safe places, and Chapter 17: Pollution, public protection and security.

Local Planning Policy

17.5.8 The Proposed Development is located primarily within Maldon District, with elements of the Proposed Development also situated within the administrative areas of Basildon Borough, Chelmsford City and Rochford District Councils. Essex County Council is the upper-tier local authority for the Site. Relevant local planning policy documents for each authority area have been considered within this human health scoping exercise.

Essex County

17.5.9 Relevant county-level health and wellbeing policy includes the Essex Joint Health and Wellbeing Strategy 2026-2029 (Ref 17.5-5), Disability Strategy (2023) (Ref 17.5-6), and Adult Social Care Business Plan and Local Account Report 2024-2030 (Ref 17.5-7), which set out priorities for improving health, wellbeing, inclusion and access to care services across Essex.

Maldon District

17.5.10 The Maldon District Approved Local Development Plan 2014-2029 (Ref 17.5-8) includes Policy I2: Health and Wellbeing, which seeks to improve health outcomes through the provision of accessible services, healthy and inclusive environments, opportunities for physical activity, and enhanced access to green infrastructure and open space. The policy also recognises the needs of an ageing population and supports measures that promote independent and healthy living.

Basildon Borough

17.5.11 The Basildon Borough Draft Local Plan 2023-2043 (Ref 17.5-9) includes Policy AQMP3: Ensuring Health and Safety in Development, which seeks to protect human health and amenity in relation to new development.

Chelmsford City

17.5.12 The Chelmsford Local Plan 2013-2036 (Ref 17.5-10) identifies the promotion of healthy communities as a strategic priority, including the provision of green infrastructure, open space and access to the countryside.

Rochford District

17.5.13 The Draft Rochford Local Plan Regulation 18 (2026) (Ref 17.5-11) includes Policy MG3: Health Impact Assessment, which supports consideration of health and wellbeing effects in the planning process and references the Castle Point and Rochford Health and Wellbeing Strategy (Ref 17.5-12).

Relevant Industry Guidance

17.5.14 Relevant industry guidance includes the Institute of Environmental Management and Assessment (IEMA – now the Institute of Sustainability and Environmental Professionals (ISEP)) Guide to: Effective Scoping of human health in Environmental Impact Assessment (2022) (Ref 17.5-13) and guidance on Determining Significance for human health in EIA (2022) (Ref 17.5-14). The scoping guidance provides a framework for identifying relevant health determinants, pathways and vulnerable populations that should be considered within the assessment. The significance guidance presents a framework for EIA practitioners to identify and evaluate significant effects of a Proposed Development on human health and defines significance as informed expert judgement of the importance, desirability or acceptability of a change. Both guidance documents emphasise the need to consider health effects in relation to vulnerable populations and health inequalities.

Consultation

17.5.15 Consultation undertaken in relation to other environmental topics may identify matters relevant to human health. In particular, consultation responses from statutory consultees, local authorities (including Basildon Borough, Chelmsford City, Maldon, and Rochford District Councils), public health bodies and local communities relating to topics such as air quality, noise and vibration, traffic and transport, socio-economics and land-use, recreation and public access will be considered as relevant as part of the relevant technical assessments.

17.5.16 Any human health considerations identified through the consultation process will be addressed, where relevant, within the corresponding ES topic chapters.

Baseline Conditions

17.5.17 This section describes the baseline environmental characteristics for the EIA Scoping Site and surrounding areas with specific reference to human health.

Sources of Information

17.5.18 The human health baseline has been established through a desk-based review of publicly available demographic, socio-economic and health data.

17.5.19 Data is presented for the study area, which is defined at this point as comprising all lower layer super output areas (LSOAs) intersecting the Proposed Development and located within 500m of the EIA Scoping Site Boundary. LSOAs are small-area statistical geographies used by the Office for National Statistics (ONS), typically containing around 1,000 to 3,000 residents. They provide the lowest geographical level at which a wide range of demographic, socio-economic and health data are consistently available. The human health study area has thus been defined using 31 LSOAs intersecting the Proposed Development and its immediate surroundings across Basildon, Castle Point, Chelmsford, Maldon and Rochford local authority areas. The LSOAs include:

a. Basildon: 007A, 007B, 007C, 007D, 008D and 011F;
b. Castle Point: 002D;
c. Chelmsford: 016B, 019A, 019B, 019C, 019D, 020B, 020F, 021C, 021D and 021E;
d. Maldon: 006A, 006B, 006C, 006D, 006E, 007B, 007C, 007E, 007F, 007G, 008D and 008I; and
e. Rochford: 006A and 008D.

17.5.20 Middle layer super output areas (MSOAs) are used in instances where no LSOA-level data is available. In particular, health data including emergency hospital admissions and mortality indicators is reported at MSOA level rather than LSOA level. The study area comprises 13 Middle Layer Super Output Areas (MSOAs): Basildon 007, Basildon 008, Basildon 011, Castle Point 002, Chelmsford 016, Chelmsford 019, Chelmsford 020, Chelmsford 021, Maldon 006, Maldon 007, Maldon 008, Rochford 006 and Rochford 008.

17.5.21 Data is presented for the local authority districts of Basildon, Chelmsford, Maldon and Rochford, the county of Essex, the region of East of England, and the Nation (England) in order to provide geographical comparators for the local population.

Desk Study

17.5.22 The desk study has drawn upon data and information from the following sources:

a. ONS Census 2021 datasets obtained through Nomis, including population, age structure, general health and disability indicators (Ref 17.5-15); and
b. Department of Health and Social Care / Office for Health Improvement and Disparities (OHID) Local Health datasets, including unemployment, long-term unemployment, emergency hospital admissions and mortality indicators (Ref 17.5-16).

Surveys

17.5.23 No primary health surveys have been undertaken for the purposes of this EIA Scoping Report. The baseline has been informed by publicly available health, demographic and socio-economic datasets and existing environmental information.

Baseline Information

17.5.24 A summary of the health profile of the population currently residing in proximity to the Proposed Development is set out in **Table 17-11** below, drawing on Department of Health and Social Care / OHID public health datasets and Census data (Ref 17.5-15; Ref 17.5-16).

Table 17-11: Human Health Profile

	Study Area	Maldon	Basildon	Chelmsford	Rochford	Essex	East of England	England
Population (2021) (000s)	51.2	66.2	188	182	85.7	1,504	6,355	56,490
Population aged under 16 (%) (2021)	17.5%	16.3%	20.7%	18.6%	17.5%	18.6%	18.7%	18.6%
Population aged 65+ (%) (2021)	22.3%	25.0%	17.0%	19.4%	23.3%	20.6%	19.6%	18.4%
Unemployment (% working age population claiming out of work benefits) (2024/25)	3.0%	2.5%	3.8%	2.6%	2.3%	3.1%	3.2%	4.1%
Long-term unemployment-rate per 1,000 working age	0.35	0.3	0.31	0.41	0.3	0.36	0.36	0.51

	Study Area	Maldon	Basildon	Chelmsford	Rochford	Essex	East of England	England
population (2024/25)								
General Health – bad or very bad (%) (2021)	4.3%	4.8%	5.0%	3.6%	4.2%	4.7%	4.6%	5.2%
Long term illness or disability (%) (2021)	16.1%	17.3%	16.7%	14.4%	16.0%	16.7%	16.6%	17.3%
Emergency hospital admissions for all causes (Standard Admissions Ratio*) (2016/17 - 20/21)	96.5	78.8	114.1	87	89.9	94.0	-	100.0
Deaths from respiratory diseases, all ages (Standardised Mortality Ratio**) (2019 – 2023)	94.3	82.9	108.6	80.9	88.9	93.7	90.4	100.0

**Standard Admissions Ratio: A measure comparing the observed number of hospital admissions in an area with the number expected based on the age and sex profile of a reference population. Values above 100 indicate higher-than-expected admissions.*

***Standard Mortality Ratio: A measure comparing the observed number of deaths in an area with the number expected based on the age and sex profile of a reference population. Values above 100 indicate higher-than-expected mortality.*

17.5.25 The human health profile shows that:

a. The study area population comprises approximately 51,200 people, based on 2021 Census data. 17.5% of the study area population was aged under 16, which is lower than the proportions recorded for Basildon (20.7%), Chelmsford (18.6%), Essex (18.6%), the East of England (18.7%) and England (18.6%), and comparable with Rochford (17.5%). The proportion is higher than that recorded in Maldon (16.3%).
b. The proportion of the study area population aged 65 and over is 22.3%, which is higher than the proportions recorded for Basildon (17.0%), Chelmsford

(19.4%), Essex (20.6%), the East of England (19.6%) and England (18.4%), but lower than Maldon (25.0%) and Rochford (23.3%).

c. The proportion of the working-age population claiming out-of-work benefits in the study area is 3.0%, which is lower than the proportions recorded for Basildon (3.8%), Essex (3.1%), the East of England (3.2%) and England (4.1%), but higher than Chelmsford (2.6%), Maldon (2.5%) and Rochford (2.3%).
d. The long-term unemployment rate in the study area is 0.35 per 1,000 working-age population, which is higher than the rates recorded for Basildon (0.31), Maldon (0.30) and Rochford (0.30), but lower than Chelmsford (0.41), Essex (0.36), the East of England (0.36) and England (0.51).
e. The percentage of people self-reporting their health as 'bad' or 'very bad' is 4.3% within the study area. This is lower than the proportions recorded for Basildon (5.0%), Maldon (4.8%), Essex (4.7%), the East of England (4.6%) and England (5.2%), but higher than Chelmsford (3.6%) and Rochford (4.2%).
f. The proportion of the study area population reporting a long-term illness or disability is 16.1%, which is lower than the proportions recorded for Basildon (16.7%), Maldon (17.3%), Essex (16.7%), the East of England (16.6%) and England (17.3%), but higher than Chelmsford (14.4%) and broadly comparable with Rochford (16.0%).
g. The Standard Admissions Ratio for emergency hospital admissions from all causes is 96.5 within the study area. This is higher than the values recorded for Chelmsford (87.0), Maldon (78.8), Rochford (89.9) and Essex (94.0), but lower than Basildon (114.1) and England (100.0).
h. The Standardised Mortality Ratio for deaths from respiratory diseases is 94.3 within the study area. This is higher than the values recorded for Chelmsford (80.9), Maldon (82.9), Rochford (88.9), Essex (93.7) and the East of England (90.4), but lower than Basildon (108.6) and England (100.0).

17.5.26 Overall, the study area is characterised by a relatively older population profile than Essex, the East of England and England. Levels of self-reported poor health, long-term illness and disability are generally comparable to county and regional averages, while levels of benefit claimants and unemployment are similar to or slightly better than the county and regional averages. As noted within IEMA/ISEP guidance, older people and those with existing health needs may represent more vulnerable population groups and may therefore be more sensitive to changes in environmental conditions, community amenity and wider determinants of health.

Potential Effects and Mitigation

17.5.27 This section sets out the potential effects of the Proposed Development on human health as well as mitigation measures relevant to human health.

17.5.28 Mitigation measures are set out in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report. Mitigation relevant to potential effects on human health will be addressed through the relevant technical topic assessments, including air quality, noise and vibration, traffic and transport, socio-economics and land use, landscape and visual effects, water environment, ground conditions, electromagnetic fields and major accidents and disasters, where relevant. Further details are provided within the corresponding technical topic chapters of this EIA Scoping Report. Information on embedded, standard and topic-specific mitigation is provided where appropriate and will be further developed through the EIA process. Any additional mitigation measures identified through the assessment will be reported within the relevant ES technical chapters, and captured as relevant within the management plans submitted with the DCO Application.

Potential Effects

17.5.29 A standalone human health assessment is proposed to be scoped out of the ES. This is considered to be a proportionate approach because the potential pathways through which the Proposed Development could influence human health and wellbeing will be considered within other relevant technical assessments.

17.5.30 The following ES technical chapters will assess environmental and socio-economic effects that may be relevant to human health during the construction, operation (and maintenance) and decommissioning phases of the Proposed Development:

a. **Chapter 8: Climate Change**;
b. **Chapter 11: Landscape and Visual Amenity**;
c. **Chapter 13: Noise and Vibration**;
d. **Chapter 14: Socio-economics and Land Use**;
e. **Chapter 15: Traffic and Transport**;
f. **Chapter 16: Water Environment**;
g. **Chapter 17: Other Environmental Topics (including Section 17.1: Air Quality**, **Section 17.4: Ground Conditions** and **Section 17.2: Electromagnetic Fields)**; and
h. **Appendix 17-A: Long List of Major Accidents and Disasters**.

Construction

17.5.31 During construction, potential health-related effects may arise through changes in environmental conditions and community amenity. Relevant pathways include changes in air quality, noise and vibration, traffic and transport conditions, access and connectivity, employment and economic activity, and the potential for disturbance to recreational resources and local communities.

17.5.32 These matters will be assessed within the relevant ES technical chapters and any necessary mitigation measures will be identified through those assessments.

Operation

17.5.33 During operation, potential health-related effects may arise through changes in visual amenity, access and connectivity impacts, operational traffic movements, employment generation and economic activity and other environmental factors where relevant.

17.5.34 Potential beneficial effects may include employment opportunities, investment in the local area and the Proposed Development's contribution to climate change mitigation, including support for renewable energy generation and the reduction of greenhouse gas emissions. These benefits may have positive implications for wider environmental determinants of health and population health outcomes over the longer term.

17.5.35 These matters will be assessed within the relevant ES technical chapters and any appropriate mitigation measures will be identified through those assessments.

Decommissioning

17.5.36 During decommissioning, potential impacts would be similar to the construction phase.

Mitigation

17.5.37 Where practicable, mitigation measures will be incorporated into the Proposed Development design and/or construction methods. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation / mitigation by design approach will be taken into account when evaluating the significance of the potential impacts of the Proposed Development.

17.5.38 An Outline Construction Environmental Management Plan (CEMP), Outline Operational Environmental Management Plan (OEMP) and Outline Decommissioning Environmental Management Plan (DEMP), as well as other relevant outline management plans, will be prepared and submitted with the

DCO Application. These outline management plans will include measures to reduce impacts across the Proposed Development lifecycle as relevant and will be secured through Requirements in the DCO and developed, in consultation with the relevant Local Planning Authorities (LPAs) and statutory bodies, into the detailed management plans by the relevant personnel

17.5.39 Further details of embedded, standard and topic-specific mitigation are provided within the relevant technical topic chapters and **Appendix 6-A: Environmental Mitigation and Commitments Register**. Any additional mitigation measures identified through the EIA process will be reported within the relevant ES technical chapters and secured through the appropriate management plans where required.

Construction

17.5.40 Potential health-related effects during construction would be managed through mitigation identified within the relevant technical assessments, including measures relating to construction traffic management, noise and vibration control, air quality and dust management, protection of public rights of way and access routes, and construction environmental management measures.

Operation

17.5.41 Potential health-related effects during operation would be managed through mitigation and design measures identified within the relevant technical assessments. These may include measures relating to operational traffic and transport, landscape mitigation, maintenance of public access arrangements, environmental management and any topic-specific measures identified through the EIA process.

Decommissioning

17.5.42 The decommissioning phase would be expected to apply similar mitigation measures to those identified for the construction phase. Measures relating to traffic management, noise and vibration control, air quality management, public access and environmental management would be implemented, as appropriate, to minimise potential adverse effects.

Assessment Methodology

17.5.43 This EIA Scoping Report chapter section has been informed by the principles of relevant published guidance, including the IEMA (now ISEP) Determining Significance for human health in Environmental Impact Assessment (Ref 17.5-14) guidance.

17.5.44 Human health effects will be considered indirectly through the assessment of environmental, social and economic determinants of health within the relevant ES technical chapters.

17.5.45 Accordingly, a standalone human health assessment is not proposed as part of the ES, and the consideration of health-related effects will be embedded within the relevant environmental and socio-economic topic assessments.

Limitations and Assumptions

17.5.46 At the time of preparing this EIA Scoping Report, the location and design of certain elements of the Proposed Development, together with aspects of the construction methodology and associated mitigation measures, have not been finalised. Consequently, the potential for effects on the wider determinants of health can only be considered at a high level at this stage.

17.5.47 The health baseline has been informed by publicly available demographic, socio-economic and health datasets at LSOA, MSOA and local authority level. In some instances, data are not available for the defined study area and higher-level geographic datasets have been used as a proxy to characterise baseline conditions.

17.5.48 However, the baseline presented in this section is considered sufficient to identify the broad characteristics of the local population, including potentially vulnerable groups, and inform the scope of assessment.

Summary of Elements Scoped In and Out

17.5.49 The potential for effects on human health has been considered as part of the EIA Scoping process. A standalone human health assessment is proposed to be scoped out of the ES. This is considered a proportionate approach given the nature of the Proposed Development and because the environmental, social and economic determinants of health relevant to the Proposed Development will implicitly be assessed through the relevant ES technical chapters.

17.5.50 A summary of the human health determinants scoped in and out of the ES is presented in **Table 17-12** below.

Table 17-12: Elements scoped in and out of the human health assessment

Element	Scoped In / Scoped Out
Standalone human health ES chapter	**Scoped Out**: No likely significant effects on human health requiring a standalone human health chapter within the ES have been identified at this stage. Potential effects on human health will be considered through the assessment of environmental and socio-economic determinants of health within other ES technical chapters, including air quality, noise and vibration, landscape and visual amenity, traffic and transport, socio-economics and land use, and climate change, where relevant.
Health effects associated with air quality	Standalone human health assessment within the ES is **scoped out**. Potential effects relevant to health will be assessed as part of the Air Quality assessment in the ES (see **Section 17.1: Air Quality** of **Chapter 17: Other Environmental Topics** of this EIA Scoping Report).
Health effects associated with noise and vibration	Standalone human health assessment within the ES is **scoped out**. Potential effects relevant to health and wellbeing will be assessed within the Noise and Vibration assessment in the ES (see **Chapter 13: Noise and Vibration** of this EIA Scoping Report).
Health effects associated with traffic and transport	Standalone human health assessment within the ES is scoped out. Potential effects on transport conditions, accessibility and community connectivity will be assessed within the Traffic and Transport assessment in the ES (see **Chapter 15: Traffic and Transport** of this EIA Scoping Report).
Health effects associated with socio-economics	Standalone human health assessment within the ES is **scoped out**. Potential effects relating to employment, economic activity, land use and community receptors will be assessed within the Socio-economics assessment in the ES (see **Chapter 14: Socio-economics and Land Use** of this EIA Scoping Report).
Health effects associated with landscape and visual amenity	Standalone human health assessment within the ES is **scoped out**. Potential effects on visual amenity and recreational receptors will be assessed within the Landscape and Visual

Element	Scoped In / Scoped Out
	Amenity assessment in the ES (see **Chapter 11: Landscape and Visual Amenity** of this EIA Scoping Report).
Health effects associated with water environment	Standalone human health assessment within the ES is **scoped out**. Potential effects associated with water quality, water resources and flood risk will be assessed within the Water Environment assessment in the ES (see **Chapter 16: Water Environment** of this EIA Scoping Report).
Health effects associated with Climate Change	Standalone human health assessment within the ES is **scoped out**. Climate-related effects with the potential to influence communities and wellbeing will be assessed within the Climate Change assessment in the ES (see **Chapter 8: Climate Change** of this EIA Scoping Report).
Electromagnetic Fields, Ground Conditions and Major Accidents and Disasters	Standalone human health assessment within the ES is **scoped out**. Potential effects relevant to health will be assessed within the relevant technical assessments in the ES (see **Sections 17.3: Glint and Glare, Section 17.5: Human Health** and **Section 17.7: Telecommunications and Utilities** of **Chapter 17: Other Environmental Topics** of this EIA Scoping Report, respectively).

References

Ref 17.5-1 World Health Organization (WHO) (1948). Constitution of the World Health Organization. Geneva: WHO. Available at: https://www.who.int/about/governance/constitution Accessed: October 2026

Ref 17.5-2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 17.5-3 Department for Energy Security & Net Zero (2025) Overarching National Policy Statement for Energy (EN-1). Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 17.5-4 Ministry of Housing, Communities and Local Government (MHCLG) (2026) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National_Planning_Policy_Framework.pdf Accessed: October 2026

Ref 17.5-5 Essex County Council. Health, wellbeing and social care. Essex Joint Health and Wellbeing strategy (2026 to 2029). Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/health-wellbeing-and-social-care/essex-joint-health-and Accessed: October 2026.

Ref 17.5-6 Essex County Council. Health, wellbeing and social care. Disability strategy (2023). Available at: https://www.essex.gov.uk/about-council/plans-and-strategies/health-wellbeing-and-social-care/disability-strategy Accessed: October 2026.

Ref 17.5-7 Essex County Council. Health, wellbeing and social care. Adult social care business plan and local account report (2024 to 2030). Available at: https://www.essex.gov.uk/adult-social-care-and-health/adult-social-care-business-plan-and-local-account-report Accessed: October 2026.

Ref 17.5-8 Maldon District Council (2017). Maldon District Approved Local Development Plan (2014 – 2029). Available at: https://www.maldon.gov.uk/download/downloads/id/14807/approved_maldon_district_local_development_plan_2014-2029.pdf Accessed: October 2026.

Ref 17.5-9 Basildon Borough Council (2024). Basildon Borough Draft Local Plan (2023 – 2043). Available at: https://basildonlocalplan25.commonplace.is/ https://res.cloudinary.com/commonplace-digital-limited/image/upload/v1732190157/projects/66cefc3ee7288a32d6535ca

3/media-upload/Basildon Borough Draft Local Plan 2023 - 2043.pdf/ulluyamdfmr8tbcescyu.pdf Accessed: October 2026.

Ref 17.5-10 Chelmsford City Council (2020). Chelmsford Adopted Local Plan (2013 – 2036). Available at: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026

Ref 17.5-11 Rochford District Council. Draft Rochford Local Plan Regulation 18 (2026). Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 17.5-12 Rochford Council (2022). Castle Point & Rochford Health and Wellbeing Strategy 2025-28. Available at: https://www.rochford.gov.uk/castle-point-rochford-health-and-wellbeing-strategy-2025-28 Accessed: October 2026

Ref 17.5-13 Institute of Environmental Management and Assessment (IEMA) (2022), Guide to Effective Scoping of Human Health in Environmental Impact Assessment (EIA).

Ref 17.5-14 Institute of Environmental Management and Assessment (IEMA) (2022), IEMA Guide: Determining Significance for Human Health in Environmental Impact Assessment.

Ref 17.5-15 Office for National Statistics (ONS), (2022); Census 2021.

Ref 17.5-16 Department of Health & Social Care, (2025); Local health, public health data for small geographical areas.

17.6 Major Accidents and Disasters

Introduction

17.6.1 **Section 17.6: Major Accidents and Disasters** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to major accidents and disasters during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the major accidents and disasters section of the Environmental Statement (ES).

17.6.2 The Environmental Impact Assessment (EIA) Regulations (Ref 17.6-1) require consideration of the likely significant effects of the Proposed Development arising from MADs, citing two specific Directives as examples of risk assessments to be brought into EIA, namely Directive 2012/18/EU of the European Parliament and of the European Council which deals with major accident hazard registered sites (Ref 17.6-2) and Council Directive 2009/71/Euratom which deals with nuclear sites (Ref 17.6-2). Neither of these Directives are relevant to the Proposed Development.

17.6.3 Schedule 4 paragraph 5(d) of the EIA Regulations requires that the EIA contains *"a description of the likely significant effects of the development on the environment resulting from the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)"* whilst Schedule 4, paragraph 8 requires that the EIA contains *"a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned"*.

17.6.4 There is no prescribed methodology for undertaking a MADs assessment within an EIA. The assessment will therefore be undertaken with reference to a Primer published by the Institute of Sustainability and Environmental Professionals (ISEP) (formerly Institute of Environmental Management and Assessment (IEMA)) (Ref 17.6-3). The Primer provides the following definitions:

"Major accident: events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the Client or its appointed representatives to manage. Whilst malicious intent is not accidental, the

outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events;

Disaster: may be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."

17.6.5 This section is supported by Appendix 17-A: Long List of Major Accidents and Disasters.

17.6.6 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 8: Climate Change**;
b. **Chapter 10: Ecology and Biodiversity**;
c. **Chapter 16: Water Environment**; and
d. **Chapter 17: Other Environmental Topics, particularly:**

   i. **Section 17.3: Glint and Glare**
   ii. **Section 17.4: Ground Conditions**
   iii. **Section 17.5: Human Health**

Study Area

17.6.7 There is no prescribed study area for the assessment of MADs. The study area has therefore been defined using professional judgement, taking account of the nature of the Proposed Development, relevant guidance and the study areas adopted within the other technical assessments where appropriate.

17.6.8 The study area has been defined to identify existing infrastructure, natural hazards and other features that could influence the vulnerability of the Proposed Development to a major accident or disaster, or the potential for the Proposed Development to contribute to such an event. The following features will be considered:

a. Built Environment:

   i. Airports and airfields within 13km (CAA safeguarding consultation zone);
   ii. Control of Major Accident Hazards (COMAH) establishments within 5km (worst case HSE consultation zone);
   iii. Major Accident Hazard (MAH) Pipelines within 1km (worst case HSE consultation zone);
   iv. Fuel bulk storage within 1km (worst case HSE consultation zone);
   v. Rail within 1km;

vi. Utilities / transmission crossing the Proposed Development boundaries; and
vii. Unexploded ordnance (UXO) within 500m

b. Natural Features:

i. Flooding within 1km;
ii. Ground stability within 1km;
iii. Dam failures within 3km; and
iv. Seismic activity within 5km.

Legislation, Planning Policy Context and Guidance

17.6.9 Legislation, planning policy and guidance relating to MADs and pertinent to the Proposed Development is listed in this section.

Legislation

17.6.10 Relevant legislation includes:

a. Infrastructure Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (Ref 17.6-1);
b. Health and Safety at Work etc. Act 1974 (Ref 17.6-4);
c. The Electricity at Work Regulations 1989 (Ref 17.6-5);
d. The Workplace (Health, Safety and Welfare) Regulations 1992 (Ref 17.6-6);
e. The Management of Health and Safety at Work Regulations 1999 (Ref 17.6-7);
f. Construction (Design and Management) (CDM) Regulations 2015 (Ref 17.6-8);
g. The Dangerous Substances (Notification and Marking of Sites) Regulations 1990 (Ref 17.6-9);
h. The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) (Ref 17.6-10);
i. Control of Major Accident Hazards (COMAH) Regulations 2015 (Ref 17.6-12)
j. Civil Contingencies Act 2004 (Ref 17.6-11); and
k. The Regulatory Reform (Fire Safety) Order 2005 (Ref 17.6-13).

National Planning Policy

17.6.11 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching NPS for Energy (EN-1) (2025) (Ref 17.6-14) refers to major accidents only in the context of the COMAH regulations and hazardous substances consent. If applicable, these regimes ensure that applicants prevent / mitigate the effects of major accidents on the populations around a major hazard site or pipeline and consult the competent authorities, such as the Health and Safety Executive (HSE);
b. NPS for Renewable Energy Infrastructure (EN-3) (2025) (Ref 17.6-15) does not include a standalone accidents/disasters section, however it mentions requirements that solar schemes must assess project vulnerability to external hazards (e.g., storms and flooding); and
c. NPS for Electricity Networks Infrastructure (EN-5) (2025) (Ref 17.6-16) does not include a standalone accidents/disasters section but it does state that electricity networks infrastructure must in the first instance be safe and secure.

17.6.12 Other relevant national planning and guidance includes:

a. National Planning Policy Framework (NPPF) (Ref 17.6-17) paragraph 198 states "*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.*"; and
b. Planning Practice Guidance (PPG) – Renewable and Low Carbon Energy (Ref 17.6-18).

Local Planning Policy

17.6.13 The Proposed Development lies within the jurisdiction of Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents do not specifically mention MADs, but do include related policies, such as flood risk management, pollution control and hazardous installations, which are of relevance to this assessment:

a. Basildon Borough Council
    i. Basildon District Local Plan Saved Policies (Ref 17.6-19)
b. Chelmsford City Council
    i. Chelmsford Local Plan (Ref 17.6-20)
c. Maldon District Council

i. Maldon District Approved Local Development Plan (Ref 17.6-21)

d. Rochford District Council

i. Draft Rochford Local Plan Regulation 18 (Ref 17.6-22)

Relevant Industry Guidance

17.6.14 Relevant industry guidance includes:

a. ISEP (formerly IEMA), Major Accidents and Disasters in EIA: A Primer 2020 (Ref 17.6-3);
b. Department for Environment, Food and Rural Affairs (DEFRA), Guidelines for Environmental Risk Assessment and Management (Ref 17.6-23);
c. ISO 31000: 2018 Risk Management – Guidelines (Ref 17.6-24);
d. DESNZ, Health and safety in grid scale electrical energy storage systems (Ref 17.6-25);
e. Health and Safety Executive (HSE), Grid-scale battery energy storage systems (Ref 17.6-26);
f. National Fire Chiefs Council, Grid Scale Battery Energy Storage System planning – Guidance for Fire and Rescue Services (FRS) (Ref 17.6-27); and
g. Cabinet Office, National Risk Register 2026 (Ref 17.6-28).

Consultation

17.6.15 No consultation has been undertaken with specific regard to MADs prior to submission of this EIA Scoping Report.

17.6.16 Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with statutory parties as required, including the relevant local authorities and the HSE.

17.6.17 In accordance with PPG (Ref 17.6-18) the relevant Fire and Rescue Service will also be consulted, where appropriate.

Baseline Conditions

17.6.18 This section describes the baseline environmental characteristics for the Proposed Development area and surrounding areas with specific reference to the MADs.

Sources of Information

17.6.19 The MADs baseline condition has been determined by a desk study of available information.

Desk Study

17.6.20 The following Data sources have been used to inform this MADs assessment:

a. UK National Risk Register 2026 (Ref 17.6-28);
b. British Geological Survey (BGS) GeoIndex (onshore) (Ref 17.6-29);
c. Ordnance Survey Flood Risk Map (Ref 17.6-30);
d. Zetica UXO Risk Maps (Ref 17.6-31);
e. COMAH 2015 Public Information Search (Ref 17.6-32); and
f. Google aerial and street view maps covering the study area.

Baseline Information

Infrastructure and Industrial Sites

17.6.21 There are no COMAH establishments within the study area. The closest industrial receptors are commercial units within towns near the Proposed Development. The closest COMAH sites are in Canvey Island, located approximately 8km south of the EIA Scoping Site.

17.6.22 Two Point of Connection options are being considered (as shown on **Figure 3-1: EIA Scoping Site and Proposed Development Components**), either to connect the Proposed Development to the National Grid Rayleigh GSP Substation (via GCC A, B or C, or alternatively to connect the Proposed Development to the Former Bradwell Substation via GCC D). GCC A follows the existing National Grid overhead line (OHL) corridor, which extends from the Energy Park to the Rayleigh GSP Substation. GCC D would provide a connection between the Energy Park and the Former Bradwell Substation to the north and may require the installation of new 400 kV transmission infrastructure, either as underground cabling or overhead line sections.

17.6.23 Utility searches are ongoing to identify the locations of existing buried and overhead infrastructure. Initial consultation with statutory undertakers and telecommunications providers will also be undertaken to identify existing assets,required easements or stand-off distances.

17.6.24 Transport infrastructure in the area consists of A roads and B roads including the A130, A132, B1012 and the B1010. The closest railway lines are the Greater Anglia lines from Wickford to Southminster, which bypasses sections of GCC A between South Woodham Ferrers and North Fambridge, as well as between Wickford and Battlesbridge. The railway line also runs adjacent to the Energy Park between Southminster and Burnham-on-Crouch. London Southend Airport is located within the study area, approximately 9km south of GCC A and 11km south west of the Energy Park. There are also two airfields within the study area, the Tillingham Airfield located within GCC B and the Barling Airstrip located approximately 7km south of the Energy Park.

17.6.25 The nearest residential areas to the Proposed Development include the villages of Bradwell-on-Sea, Tillingham, Asheldham, as well as the towns of Southminster, South Woodham Ferrers, Wickford and Rayleigh. There are also isolated farmhouses and farmsteads within the vicinity.

17.6.26 The majority of the EIA Scoping Site is on agricultural land in areas of low risk of UXOs, with some areas being moderate risk closer to Wickford and Rayleigh, as well as high risk in the area around Burnham-on-Crouch as shown on Zetica UXO Risk Maps (Ref 17.6-31).

Sensitive Receptors of Relevance to MADs

17.6.27 The following sensitive receptors which could be vulnerable to a MADs event have been identified:

a. Residential receptors within the local area;
b. Local economic receptors including businesses and employees;
c. Community receptors, including public rights of way, community land, and community buildings;
d. The historic and cultural environment including archaeological heritage and built heritage;
e. Designated ecological sites, described in **Chapter 10: Ecology and Biodiversity**, including:

    i. Sandbeach Meadows Site of Special Scientific Interest (SSSI);
    ii. Essex Estuaries Special Area of Conservation (SAC);
    iii. Outer Thames Estuary SPA;
    iv. Dengie Ramsar, SPA, SSSI and NNR;
    v. Crouch and Roach Estuaries SPA and SSSI;
    vi. Foulness Ramsar;
    vii. Goldsands Road Pit SSSI; and
    viii. Blackwater Estuary Ramsar, SPA and SSSI.

f. The water environment, including groundwater, local rivers, and surrounding ponds / lagoons;
g. Infrastructure and built environment including transport infrastructure, industrial infrastructure, and energy infrastructure; and
h. The potential interactions between the receptors above.

17.6.28 Construction workers are not considered further as a separate receptor group in the MADs assessment in relation to occupational health and safety risks, as these are managed through separate health and safety legislation. However, potential effects on employees at neighbouring businesses and other relevant receptors will be considered, where appropriate, as part of the assessment.

Potential Effects and Mitigation

17.6.29 This section identifies the potential MADs relevant to the Proposed Development and describes the approach used to determine those requiring further assessment within the ES.

17.6.30 An initial scoping exercise has been undertaken to identify and review all MADs that could be relevant to the Proposed Development. This initial list was drawn from a number of sources, including the National Risk Register 2026 (Ref 17.6-28). This initial scoping exercise shows the potential vulnerability of the Proposed Development to the risk of a major accident and / or disaster associated with a variety of different events during each phase of the Proposed Development and is presented in **Appendix 17-A: Long List of Major Accidents and Disasters**.

17.6.31 In general, major accidents or disasters, as they relate to the Proposed Development, fall into three categories:

a. Events that could not realistically occur, due to the nature of the Proposed Development or its location;
b. Events that could realistically occur, but for which the Proposed Development, and associated receptors, are either no more vulnerable than any other project or would not have an impact should the event occur; and
c. Events that could occur, and to which the Proposed Development could be vulnerable, or which the Proposed Development itself has a particular capacity to exacerbate.

17.6.32 Events falling into this last category are scoped in for further assessment in the ES.

17.6.33 Those events scoped in for further assessment are summarised in **Table 17-13** to **Table 17-15**. The full screening exercise is presented in **Appendix 17-A: Long List of Major Accidents and Disasters**, which identifies the events proposed to be scoped into and out of the assessment together with the justification for each scoping decision.

17.6.34 Mitigation measures relevant to MADs are set out in Table 17-13 to Table 17-15 and are included in Appendix 6-A: Environmental Mitigation and Commitments Register of this EIA Scoping Report.

Construction

17.6.35 **Table 17-13** identifies the potential MADs scenarios relating to the construction of the Proposed Development to be considered further within the ES.

Table 17-13: Construction Phase Major Accidents and Disasters to be considered further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Flooding	Parts of the Proposed Development are located within Flood Zones 2 and 3 with the majority of the Energy Park being in Flood Zone 3. Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, will be covered in the Flood Risk Assessment (FRA) and reported in the ES. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**
Flood defence failure	Parts of the Proposed Development may be at risk of flooding from flood defence failure. If applicable, this will be covered in the FRA and reported in the ES, both in terms of the risk to the Proposed Development and increased risk caused by the Proposed Development. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Plant Disease / Invasive Plant	The spread of invasive plants could outcompete the local flora and damage local infrastructure. Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased, invasive plants to prevent their spread on and off-site. Such control measures would be captured within a Landscape and Ecological Management Plan (LEMP) and/or Construction Environmental Management Plan (CEMP). An Outline LEMP and Outline CEMP will be submitted as part of the application and would then be further developed by the appointed Principal Contractor post-consent before construction commences.	Habitats and species	**Chapter 10: Ecology and Biodiversity** and **Chapter: 11 Landscape and Visual**
Road Accidents	During construction there will be an increase in heavy construction plant and equipment on the local road network which may increase the risk of road traffic accidents. The main mitigation for traffic and transport effects would be described within an Outline Construction Traffic Management Plan (CTMP) which would be submitted as part of the DCO Application.	Road users	**Chapter 15: Traffic and Transport**
Aviation Disasters	If tall structures, such as lifting cranes, are considered aerodrome obstacles, consultation with the Civil Aviation Authority will be undertaken to ensure appropriate mitigation is incorporated into	Aircraft users	**Outline CEMP**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
	the construction of the Proposed Development, which would be captured in the Outline CEMP.		
Utilities failure (electricity, gas, water supply and sewage)	The Proposed Development has the potential to affect existing utility infrastructure. To identify any existing infrastructure constraints, both consultation with utility providers and a desk-based study will be undertaken. Consultation with relevant utilities providers is a routine part of solar development and consultees may include water, gas and electricity utilities providers and telecommunications providers as appropriate. This will be covered under **Section 17.7: Telecommunications and Utilities** of the Other Environmental Topics ES Chapter.	Employees and local residents	**Chapter 17: Other Environmental Topics (Section 17.7: Telecommunications and Utilities)**
Major Accident Hazard Pipelines	There are some Major Accident Hazard Pipelines operated by Cadent Gas within GCC A. Consultation with pipeline operators will be undertaken as part of the EIA process which will ensure that appropriate risk assessments and method statements are captured within management plans such as the Outline Environmental Management Plans for each phase, to be developed further before the relevant phase commences.	Employees and local residents	**Outline CEMP** and **Chapter 17: Other Environmental Topics (Section 17.7: Telecommunications and Utilities)**
UXO	The majority of the EIA Scoping Site is on agricultural land in areas of low UXO risk, with some areas of moderate risk closer to Wickford and Rayleigh, as	Employees, local residents	**Chapter 17: Other Environmental Topics (Section 17.4: Ground Conditions)**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
	well as some high risk in the area around Burnham-on-Crouch. Strategic Targets have also been identified within the surrounding area of the EIA Scoping Site including a Luftwaffe target identified at Asheldham, 500m east of GCC A. An UXO risk assessment will be undertaken as part of a Preliminary Risk Assessment (to be appended to the ES), to establish whether a credible UXO risk exists and if further investigation is required.		
Pollution incident to Ground Receptors	During the construction phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the Outline CEMP.	Employees, local residents, local habitats and species	**Chapter 10: Ecology and Biodiversity** and **Chapter 17: Other Environmental Topics** (**Section 17.4: Ground Conditions**)
Pollution incident to Aquatic Receptors	During the construction phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. This risk would be controlled through standard control measures which would form commitments within the Outline CEMP.	Employees, local residents, local aquatic habitats and species	**Chapter 16: Water Environment**

Operation

17.6.36 **Table 17-14** identifies the potential MADs scenarios relating to the operation of the Proposed Development to be considered further within the ES.

Table 17-14: Operational Phase Major Accidents and Disasters to be considered further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Flooding	Parts of the Proposed Development are located within Flood Zones 2 and 3 with the majority of the Energy Park being in Flood Zone 3. Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, will be covered in the FRA and reported in the ES. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**
Flood defence failure	Parts of the Proposed Development may be at risk of flooding from flood defence failure. If applicable, this will be covered in the FRA and reported in the ES, both in terms of the risk to the Proposed Development and increased risk caused by the Proposed Development. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Road Accidents	The Proposed Development is not expected to result in increased traffic flow or changes to traffic composition, however the potential for glint and glare, which may cause an impact on vision, that may affect road users will be considered in the Other Environmental Topics ES chapter. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Road users	**Chapter 15: Traffic and Transport** and **Chapter 17: Other Environmental Topics** (**Section 17.3: Glint and Glare**)
Rail Accidents	The Proposed Development is not expected to result in increased usage of or changes to the railway line which could have an adverse impact on railway safety, however the potential for glint and glare, which may cause an impact on vision, that may affect train drivers will be considered in the Other Environmental Topics ES chapter. Mitigation will be considered and, where necessary, incorporated into the and Proposed Development design.	Rail users	**Chapter 17: Other Environmental Topics** (**Section 17.3: Glint and Glare**)
Aviation Disasters	The closest airfield is Tillingham Airfield located within GCC B. The Barling Airstrip is also located nearby approximately 7km south of the Proposed Development and London Southend Airport is located in the study area approximately 9km south of GCC A and 11km south west of the Energy Park.	Aircraft users	**Outline OEMP** and **Chapter 17: Other Environmental Topics** (**Section 17.3: Glint and Glare**)

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
	The potential for glint and glare, which may cause an impact on vision, that may affect plane pilots will be considered in the Other Environmental Topics (Glint and Glare section) ES chapter.		
Utilities failure (electricity, gas, water supply, other pipelines and sewage)	The Proposed Development has the potential to affect existing utility infrastructure. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant utilities providers is a routine part of solar development and consultees may include water, gas and electricity utilities providers and telecommunications providers as appropriate. This will be covered under **Section 17.7: Telecommunications and Utilities** of the Other Environmental Topics ES Chapter.	Employees and local residents	**Chapter 17: Other Environmental Topics (Section 17.7: Telecommunications and Utilities)**
Fires	The battery storage element of the Proposed Development contributes to the potential for fire. The BESS would include cooling systems designed to regulate temperatures to within safe conditions which minimises the risk of fire. In addition, the Proposed Development design would include adequate separation between battery banks to ensure an isolated fire would not become widespread and lead to a major incident. Fire detection and suppression features would be installed to detect (e.g. multispectral infrared flame	Employees, local residents, local aquatic habitats and species	**Outline Battery Safety Management Plan (Standalone document to be submitted with DCO)**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
	detectors) and suppress (e.g. water based suppression systems) fires to minimise this risk. The BESS will be located at least 30m from residential receptors and other occupied buildings offsite, in line with NFCC safety guidelines and in consultation with the local fire and rescue service. An Outline Battery Safety Management Plan will be prepared for the Proposed Development and submitted alongside the DCO Application. The development of the Battery Safety Management Plan will be considered in the iterative design of the Proposed Development in consultation with local Fire and Rescue Services to ensure that fire safety design requirements (such as ensuring adequate provision of land for water storage) and management of any firewater runoff are captured.		
Pollution incident to Air	Gaseous hazardous substances are not expected to form part of the operation of the Proposed Development, however there is potential for release of toxic substances to air originating from a fire at the BESS. Mitigation measures would be presented in the Outline OEMP and Outline Battery Safety Management Plan.	Employees, local residents, local habitats and species	**Outline OEMP and Outline Battery Safety Management Plan**
Pollution incident to Aquatic Receptors	Liquid hazardous substances are not expected to form part of the operation of the Proposed Development, however there is potential for release	Employees, local residents, local aquatic habitats and species	**Outline Battery Safety Management Plan**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
	of toxic substances entrained within firewater originating from a fire at the BESS. Mitigation for this event includes the measures as outlined above for fire risk.		**Chapter 16: Water Environment**

Decommissioning

17.6.37 During decommissioning, potential impacts would be similar to the construction phase, although it is anticipated that the power cables may be left in situ.

17.6.38 **Table 17-15** identifies the potential MADs scenarios relating to the decommissioning of the Proposed Development to be considered further within the ES.

Table 17-15: Decommissioning Phase Major Accidents and Disasters to be considered further

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Flooding	Parts of the Proposed Development are located within Flood Zones 2 and 3. Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, will be covered in the FRA and reported in the ES. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**
Flood defence failure	Parts of the Proposed Development may be at risk of flooding from flood defence failure. If applicable, this will be covered in the FRA and reported in the ES, both in terms of the risk to the Proposed Development and increased risk caused by the Proposed Development. Mitigation will be considered and, where necessary, incorporated into the Proposed Development design.	Property and people in areas of increased flood risk	**Chapter 16: Water Environment**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Plant Disease / Invasive Plant	The spread of invasive plants could outcompete the local flora and damage local infrastructure. Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased, invasive plants to prevent their spread on and off-site. Such control measures would be captured within a Landscape and Ecological Management Plan (LEMP).	Habitats and species	**Chapter 10: Ecology and Biodiversity** and **Chapter: 11 Landscape and Visual**
Road Accidents	During decommissioning there will be an increase in heavy construction plant and equipment on the local road network which may increase the risk of road traffic accidents. The main mitigation for traffic and transport effects would be described within a Decommissioning Environmental Management Plan (DEMP), which would be developed and submitted closer to the end of the project's lifecycle before decommissioning works commence.	Road users	**Chapter 15: Traffic and Transport**
Aviation Disasters	If tall structures, such as lifting cranes, are considered aerodrome obstacles, consultation with the Civil Aviation Authority will be undertaken to ensure appropriate mitigation is incorporated into the decommissioning of the Proposed Development, which would be captured in the Outline DEMP.	Aircraft users	**Outline DEMP**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Utilities failure (electricity, gas, water supply and sewage)	The Proposed Development has the potential to affect existing utility infrastructure. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. Consultation with relevant utilities providers is a routine part of solar development and consultees may include water, gas and electricity utilities providers and telecommunications providers as appropriate. This will be covered under **Section 17.7: Telecommunications and Utilities** of the Other Environmental Topics ES Chapter.	Employees and local residents	**Chapter 17: Other Environmental Topics (Section 17.7: Telecommunications and Utilities)**
Major Accident Hazard Pipelines	There are some Major Accident Hazard Pipelines operated by Cadent Gas within GCC A. Consultation with pipeline operators will be undertaken as part of the EIA process which will ensure that appropriate risk assessments and method statements are captured within management plans such as the Outline Environmental Management Plans for each phase, to be developed further before the relevant phase commences.	Employees and local residents	**Outline DEMP** and **Chapter 17: Other Environmental Topics (Section 17.7: Telecommunications and Utilities)**
Pollution incident to Ground Receptors	During the decommissioning phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the decommissioning activities. This risk would be controlled through standard control measures which would form commitments within the Outline DEMP.	Employees, local residents, local habitats and species	**Chapter 10: Ecology and Biodiversity** and **Chapter 17: Other Environmental Topics (Section 17.4: Ground Conditions)**

Major Accident or Disaster	Commentary	Potential Receptors	Considered in other ES Chapters?
Pollution incident to Aquatic Receptors	During the decommissioning phase there may be an increase in the risk of leaks and spillages of hazardous materials associated with the decommissioning activities. This risk would be controlled through standard control measures which would form commitments within the Outline DEMP.	Employees, local residents, local aquatic habitats and species	**Chapter 16: Water Environment**

Mitigation

17.6.39 Where practicable, mitigation measures will be incorporated into the Proposed Development design and / or how it shall be constructed and operated. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset. This embedded mitigation/mitigation by design approach has been taken into account when evaluating the significance of the potential impacts of the Proposed Development.

17.6.40 An Outline CEMP, Outline OEMP and Outline DEMP, as well as other relevant outline management plans, will be prepared and submitted with the DCO Application. These outline management plans will include measures to reduce impacts across the Proposed Development lifecycle as relevant and will be secured through Requirements in the DCO and developed, in consultation with the relevant Local Planning Authorities (LPAs) and statutory bodies, into the detailed management plans by the relevant personnel.

17.6.41 Mitigation measures relevant to MADs are included within **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction

17.6.42 Key embedded mitigation measures which will be incorporated during the construction of the Proposed Development include:

a. Implementation of the relevant British and European (BS EN) design standards; Compliance with material specification standards; and
b. Implementation of management plans such as the CEMP, CTMP and LEMP.

Operation

17.6.43 Key embedded mitigation measures which will be incorporated during the operation of the Proposed Development include:

a. Implementation of the appropriate EN design standards;
b. Compliance with material specification standards;
c. Regular maintenance and inspection of facilities;
d. Compliance with HSE operational standards; and
e. Implementation of management plans such as the OEMP and Battery Safety Management Plan.

Decommissioning

17.6.44 The decommissioning phase would apply similar design and mitigation measures as the construction phase, including:

a. Implementation of management plans such as the DEMP.

Assessment Methodology

17.6.45 A standalone assessment of Major Accidents and Disasters is proposed to be scoped out of the ES. This is because other chapters in the ES and management plans to be submitted with the DCO Application will comprehensively assess potential impacts of the Proposed Development which could give rise to the MADs events described in **Table 17-13** to **Table 17-15**. Given the nature of the Proposed Development and its potential impacts this is considered a proportionate approach. A MADs section will be included within the ES, within the 'Other Environmental Topics' chapter, as a directory for other chapters that have considered relevant MADs scenarios; this will not include a detailed assessment of MADs risk events.

Limitations and Assumptions

17.6.46 The location and layout of certain elements of infrastructure (including construction methodologies, mitigation and location of the BESS), have not yet been determined. It is assumed that the risk of MADs will be taken into account within the iterative design process, including the choice of locations within the Proposed Development and use of best practice methodologies for construction.

17.6.47 Although the majority of the major accidents or disasters identified in the long list in **Appendix 17-A: Long List of Major Accidents and Disasters** are considered under other legislative or design requirements, this is not considered to be sufficient reason to automatically eliminate the major accident or disaster from further consideration. However, where it is concluded that the need for compliance is so fundamental that the risk of any receptors being affected is remote, major accidents or disasters on the long list are scoped out.

Summary of Elements Scoped In and Out

17.6.48 All potential MADs will be adequately covered elsewhere within other technical chapters of the ES and a specific MADs assessment is therefore scoped out.

References

Ref 17.6-1 HM Government, The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 17.6-2 OJEU (2009) Directive 2009/71/EURATOM of the European Parliament and of the Council of 25 June 2009 establishing a community framework for the nuclear safety of nuclear installations. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0071&qid=1767616981692 Accessed: October 2026

Ref 17.6-3 ISEP formerly IEMA (2020) Major Accidents and Disasters in EIA: A Primer. Available at: https://www.isepglobal.org/content/major-accidents-and-disasters-in-eia-an-iema-primer-october-2020/ Accessed: October 2026

Ref 17.6-4 HMSO (1974). The Health and Safety at Work etc. Act 1974 (SI 1974/37). Available at: https://www.hse.gov.uk/legislation/hswa.htm Accessed: October 2026

Ref 17.6-5 HMSO (1989). The Electricity at Work Regulations 1989 (SI 1989/635). Available at: https://www.legislation.gov.uk/uksi/1989/635/contents Accessed: October 2026

Ref 17.6-6 HMSO (1992). The Workplace (Health, Safety and Welfare) Regulations 1992 (SI 1992/3004). Available at: https://www.legislation.gov.uk/uksi/1992/3004/contents/made Accessed: October 2026

Ref 17.6-7 HMSO (1999) Management of Health and Safety at Work Regulations 1999 (SI 1999/3242). Available at: https://www.legislation.gov.uk/uksi/1999/3242/contents/made Accessed: October 2026

Ref 17.6-8 HMSO (2015). Construction (Design and Management) Regulations 2015 (SI 2015/51). Available at: https://www.legislation.gov.uk/uksi/2015/51/contents/made Accessed: October 2026

Ref 17.6-9 HMSO (1990). The Dangerous Substances (Notification and Marking of Sites) Regulations 1990 (SI 1990/304). Available at: https://www.legislation.gov.uk/uksi/1990/304/contents/made Accessed: October 2026

Ref 17.6-10 HMSO (2002). Dangerous Substances and Explosive Atmospheres Regulations 2002 (SI 2002/2776). Available at:

https://www.legislation.gov.uk/uksi/2002/2776/contents Accessed: October 2026

Ref 17.6-11 HMSO (2004). Civil Contingencies Act 2004 (SI 2004/36). Available at: https://www.legislation.gov.uk/ukpga/2004/36/contents Accessed: October 2026

Ref 17.6-12 HMSO (2015) The Control of Major Accident Hazards Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/483/contents Accessed: October 2026

Ref 17.6-13 HMSO (2005). The Regulatory Reform (Fire Safety) Order 2005 (SI 2005/1541). Available at: https://www.legislation.gov.uk/uksi/2005/1541/contents Accessed: October 2026

Ref 17.6-14 Department for Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). December 2025. Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 17.6-15 HM Government (2025), National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025 Accessed: October 2026

Ref 17.6-16 Department for Energy Security and Net Zero (DESNZ) (2025). National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 17.6-17 Ministry of Housing, Communities and Local Government (MHCLG) (Dec 2024, updated 2025) National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf Accessed: October 2026

Ref 17.6-18 MHCLG (2016) Planning Practice Guidance – Renewable and Low Carbon Energy. Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy Accessed: October 2026

Ref 17.6-19 Basildon Borough Council (2007) Local Plan Saved Policies. Available at: https://www.basildon.gov.uk/media/598/Basildon-District-Local-Plan-Saved-Policies-September-2007/pdf/Basildon_District_Local_Plan_Saved_Policies_-_September_2007.pdf?m=1540381932580 Accessed: October 2026

Ref 17.6-20 Chelmsford City Council (2020) Chelmsford Local Plan. Available at: https://www.chelmsford.gov.uk/media/id1jmniz/chelmsford-local-plan-may-2020-includes-a1-plans.pdf Accessed: October 2026

Ref 17.6-21 Maldon District Council (2014) Approved Local Development Plan. Available at: https://www.maldon.gov.uk/downloads/file/14807/approved_maldon_district_local_development_plan_2014-2029 Accessed: October 2026

Ref 17.6-22 Rochford District Council (2026) Draft Rochford Local Plan Regulation 18. Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 17.6-23 DEFRA (2011) Guidelines for environmental risk assessment and management: Green leaves III. Available at: https://www.gov.uk/government/publications/guidelines-for-environmental-risk-assessment-and-management-green-leaves-iii Accessed: October 2026

Ref 17.6-24 International Organization for Standardization (ISO) (2018) ISO 31000:2018 Risk Management – Guidelines.

Ref 17.6-25 DESNZ (2024) Health and safety in grid scale electrical energy storage systems. Available at: https://www.gov.uk/government/publications/grid-scale-electrical-energy-storage-systems-health-and-safety/health-and-safety-in-grid-scale-electrical-energy-storage-systems-accessible-webpage Accessed: October 2026

Ref 17.6-26 HSE (2026) Grid-scale battery energy storage systems. Available at: https://www.hse.gov.uk/electricity/battery-energy-storage-systems.htm Accessed: October 2026

Ref 17.6-27 National Fire Chiefs Council (NFCC) (2022) Grid Scale Battery Energy Storage System planning – Guidance for FRS. Available at: https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf Accessed: October 2026

Ref 17.6-28 Cabinet Office (2026) National Risk Register 2026 edition. Available at: https://assets.publishing.service.gov.uk/media/6a50d66b1228eb26a4cab76c/National_Risk_Register_2026.pdf Accessed: October 2026

Ref 17.6-29 BGS (2020) GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html Accessed: October 2026

Ref 17.6-30 Ordnance Survey (2026) Flood Risk Map. Available at: https://check-long-term-flood-risk.service.gov.uk/map Accessed: October 2026

Ref 17.6-31 Zetica (UXO) (2026), Risk Maps. Available at: https://zeticauxo.com/guidance/risk-maps/ Accessed: October 2026

Ref 17.6-32 HSE (2026) COMAH 2015 Public Information Search. Available at: https://notifications.hse.gov.uk/COMAH2015/Search.aspx Accessed: October 2026

17.7 Telecommunications and Utilities

Introduction

17.7.1 **Section 17.7: Telecommunications and Utilities** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to telecommunications and utilities during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the telecommunications and utilities section of the Environmental Statement (ES).

17.7.2 is section sets out the potential for the Proposed Development to affect existing telecommunications and utility infrastructure during the construction, operation and maintenance, and decommissioning phases of the Proposed Development. This chapter also sets out the proposed approach to determining whether telecommunications and utilities should be scoped into or out of the Environmental Impact Assessment (EIA).

17.7.3 Solar farms have the potential to affect existing below ground utility infrastructure, for example, through 'cable strike' when piling the solar photovoltaic (PV) mounting structures or excavating the cable trenches.

Study Area

17.7.4 The study area for telecommunications and utilities comprises the EIA Scoping Site Boundary (see **Figure 1-1: Proposed Development Location Plan**), as potential interactions with existing infrastructure are limited to the footprint of the Proposed Development and associated construction activities.

Legislation, Planning Policy Context and Guidance

17.7.5 Legislation, planning policy and guidance relating to telecommunications and utilities and pertinent to the Proposed Development comprises

Legislation

17.7.6 Relevant legislation includes:

a. Infrastructure Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (Ref 17.7-1);
b. Communications Act 2003 (Ref 17.7-2); and
c. Digital Economy Act 2017 (Ref 17.7-3).

National Planning Policy

17.7.7 The following planning policies from relevant National Policy Statements (NPS) have been taken into account as part of identifying the assessment methodology, receptor selection/sensitivity, potential significant environmental effects, and mitigation:

a. Overarching National Policy Statement for Energy (EN-1) (December 2025) (Ref 17.7-4), section 4.1, requires applicants to demonstrate the need for infrastructure and explain how the development functions as a whole. Telecommunications equipment can be justified as ancillary operational infrastructure necessary for monitoring, control and security of the solar farm. Applicants should consider Section 4.7 in relation to good design; and

b. National Policy Statement for Electricity Networks Infrastructure (EN-5) (December 2025) (Ref 17.7-5) is generally less directly relevant to telecommunications equipment, however sections 2.2 (Factors influencing site selection and design), 2.4 (Consideration of good design for energy infrastructure) and 2.9 to 2.11 (Applicant assessment, mitigation and SoS assessment respectively) are still relevant.

Other Policy and Guidance

17.7.8 Other relevant national policy and guidance includes:

a. National Planning Policy Framework (August 2026) (Ref 17.7-6) – Chapter 9 relates to 'Supporting high quality communications'; and

b. Planning Practice Guidance (PPG) – Renewable and Low Carbon Energy (Ref 17.7-7).

Local Planning Policy

17.7.9 The Proposed Development lies within the administrative area of the Basildon Borough Council, Chelmsford City Council, Maldon and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the telecommunications and utilities assessment:

a. Basildon Borough Council

i. Basildon District Local Plan – Policy BAS BE20: Telecommunications (Ref 17.7-8) and Policy INF5: Digital Infrastructure (Ref 17.7-9).

b. Chelmsford City Council

i. Chelmsford Local Plan – Policy S9: Infrastructure Requirements, Policy DM7: New Buildings and Structures in the Green Wedge and Policy DM8: New Buildings and Structures in the Rural Area (Ref 17.7-10); and
ii. Chelmsford Regulation 19 Local Plan – Policy S9: Infrastructure Requirements (Ref 17.7-11).

c. Maldon District Council

i. Maldon Local Development Plan – Policy S1: Sustainable Development and Policy D4: Renewable and Low Carbon Energy (Ref 17.7-12).

d. Rochford District Council

i. Rochford Regulation 18 Local Plan – Policy EC4: Communications and Digital Infrastructure, Policy EC7: Southend Airport (Ref 17.7-13); and
ii. Rochford Development Management Plan – Policy DM6: Telecommunications (Ref 17.7-14).

Relevant Industry Guidance

17.7.10 Relevant industry guidance includes:

a. The Health and Safety Executive (HSE): Avoiding danger from underground services (Ref 17.7-15) which provides guidance on the identification and protection of underground utility infrastructure during construction activities; and
b. Relevant guidance for overhead electricity transmission or distribution lines includes HSE guidance Avoidance of danger from overhead electric power lines (Ref 17.7-16).

Consultation

17.7.11 Consultation will be undertaken as part of the EIA process with relevant statutory undertakers and other consultees, as appropriate, to identify existing telecommunications and utility infrastructure that may be affected by the Proposed Development. Consultees are anticipated to include, but are not limited to:

a. Relevant telecommunication providers; and
b. Utilities providers (such as water, gas, oil and fuel pipelines, and electricity providers). This will include National Grid and other relevant infrastructure providers identified through utility searches and ongoing consultation.

Baseline Conditions

17.7.12 Identified telecommunications and utilities infrastructure within the EIA Scoping Site were identified using the Open Infrastructure Map (Ref 17.7-17), and includes:

a. National Grid Electricity Transmission infrastructure, specifically:

   i. Overhead Lines – including the decommissioned Bradwell-Rayleigh (132kV) which runs south west through Grid Connection Corridor A from the Former Bradwell Substation to Rayleigh, the Chelmsford East-Rayleigh (132kV), Rayleigh Main-Rayleigh Local (132kV), Woodham Mort-Rayleigh (132kV), National Grid Rayleigh Main-Tilbury (400kV), and National Grid Braintree-Rayleigh Main (400kV) OHLs; and
   ii. Substations - including the Former Bradwell Substation, and Rayleigh GSP Substation.

b. UK Power Networks electricity distribution infrastructure, specifically:

   i. 33kV Overhead Lines – including the Burnham – Tillingham (33kV), the South Woodham Ferrers-Wickford (33kV), and the South Woodham Ferrers-Maldon Causeway (33kV); and
   ii. Multiple 11kV and <10kV OHLs.

c. Existing electricity generation and storage infrastructure, specifically:

   i. Wind Farms- including Bradwell Wind Farm (20 MW), Middlewick Wind Farm (20.7 MW), and Turncole Wind Farm (17.5 MW) and their associated electrical connections and distribution infrastructure; and
   ii. BESS – including Rayleigh BESS, and Dollyman's Battery Storage (99.9 MW).

d. Gas pipelines, specifically the Major Accident Hazard Pipeline operated by Cadent Gas that connects to the decommissioned Shoeburyness Gas Holder Station;
e. Sewage Treatment Works (STW), specifically Wickford STW; and
f. Mobile telecommunications mast/tower installations, including point-to-point or point-to-multipoint wireless communication systems that use high-frequency radio waves to transmit voice, video, and data, examples of connections within or traversing the EIA Scoping Site include, but are not limited to:

   i. Airwave Solutions Limited, Licence No. 1271635/1 – west to east along Grid Connection Corridor A; and

ii. Port of London Authority Limited, Licence No. 1270599/2 – south to east across Energy Park Area E.

17.7.13 Other significant telecommunications and utilities infrastructure within 1km of the EIA Scoping Site are the Bradwell-on-Sea, Tillingham, and Woodham Ferrers STWs and Telephone Exchanges, the Bridgewick Pumping Stations, South Woodham Substation (33kV), Tillingham Substation (33kV), and Wick Farm Solar Farm (5 MW).

Potential Effects and Mitigation

17.7.14 This section sets out the potential effects of the Proposed Development on the telecommunications and utilities assessment.

Construction

17.7.15 During construction, there is potential for direct effects on existing telecommunications and utility infrastructure through accidental damage to buried or overhead assets during construction activities.

Operation and Maintenance

17.7.16 During operation (and maintenance), there is potential for effects where the Proposed Development could restrict access to existing telecommunications and utility infrastructure required for inspection, maintenance or repair.

17.7.17 OHL are being considered as part of the Proposed Development. Depending on the tower height, there is potential for these to affect telecommunications infrastructure.

Decommissioning

17.7.18 During decommissioning, potential effects would be similar to those identified for the construction phase and relate to the removal of the Proposed Development and associated ground disturbance.

Mitigation

17.7.19 The potential for effects on existing telecommunications and utility infrastructure will be managed through established design practices, consultation with relevant statutory undertakers and utility providers, and appropriate construction management measures.

17.7.20 The Proposed Development will be designed, where practicable, to avoid existing telecommunications and utility infrastructure and will incorporate appropriate stand-off distances and working areas to facilitate safe construction and maintenance. Utility searches and surveys will be undertaken as necessary pre-

construction to confirm the location and nature of existing infrastructure and inform the detailed design.

17.7.21 Where interaction with existing telecommunications or utility infrastructure cannot be avoided, appropriate measures will be identified through consultation with the relevant infrastructure owner or statutory undertaker. This may include agreed protection, diversion or other measures, as appropriate. Safe systems of work will be implemented during construction to minimise the risk of damage to existing infrastructure.

17.7.22 Where appropriate, Protective Provisions for the benefit of relevant statutory undertakers and infrastructure providers will be included within the DCO to provide for the protection of existing telecommunications and utility infrastructure during the construction and operation of the Proposed Development.

17.7.23 The above measures, together with any relevant design commitments arising through ongoing consultation, will be captured within the Environmental Mitigation and Commitments Register and secured through the DCO (such as via the Outline Construction Environmental Management Plan (CEMP)) where appropriate.

17.7.24 Mitigation measures relevant to this topic at this stage are also included in the **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Assessment Methodology

17.7.25 Consultation with relevant telecommunications and utility providers, together with utility record searches and surveys, will be used to identify existing infrastructure that could interact with the Proposed Development. The information obtained will inform the detailed design, including the application of appropriate stand-off distances, avoidance of existing assets where practicable, and any necessary protection, diversion or other measures.

17.7.26 On the basis of the current understanding of the Proposed Development, the baseline information available, and the embedded mitigation measures identified above, significant effects on telecommunications and utility infrastructure are not anticipated. Telecommunications and utilities are therefore proposed to be scoped out of the EIA.

Limitations and Assumptions

17.7.27 The justification for scoping out telecommunications and utilities from the EIA is based on the preliminary design information available at the time of preparing

the EIA Scoping Report, together with available utility records and mitigation to be committed to (such as suitable offset distance, pre-construction surveys and searches, etc.) via the management plans that will accompany the DCO Application (e.g., the Outline CEMP). The implementation of such mitigation will be secured via Requirement of the DCO. Utility searches, surveys and consultation will continue to inform the detailed design and confirm the location and protection requirements of existing infrastructure. As such, it is considered that any potential effects regarding telecommunications and utilities would be adequately mitigated such that there is no potential for likely significant effects to occur.

Summary of Elements Scoped In and Out

17.7.28 Telecommunications and utilities are proposed to be scoped out of the EIA and, therefore, a standalone chapter will not be included in the ES.

17.7.29 **Table 14-4** below summarises the justification for scoping out a telecommunications and utilities assessment from the EIA.

Table 17-16: Elements scoped in and out of the telecommunications and utilities assessment

Element	Scoped Out
Assessment of telecommunications and utilities for all phases of the Proposed Development	**Scoped out** – the Proposed Development will be designed, where practicable, to avoid existing telecommunications and utility infrastructure and will incorporate appropriate stand-off distances and other mitigation measures where required within the management plans secured via the DCO (e.g. the Outline CEMP). Protective Provisions for relevant statutory undertakers and infrastructure providers will also be included within the DCO, where appropriate. On this basis, likely significant effects on telecommunications and utility infrastructure are not anticipated.

References

Ref 17.7-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

Ref 17.7-2 Communications Act (2003). Available at: https://www.legislation.gov.uk/ukpga/2003/21/contents Accessed: October 2026

Ref 17.7-3 Digital Economy Act (2017). Available at: https://www.legislation.gov.uk/ukpga/2017/30/contents Accessed: October 2026

Ref 17.7-4 Department for Energy Security and Net Zero (DESNZ) Overarching National Policy Statement for Energy (EN-1) (2025). December 2025. Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025 Accessed: October 2026

Ref 17.7-5 Department for Energy Security and Net Zero (DESNZ) (2025). National Policy Statement for Electricity Networks Infrastructure (EN-5) (2025). Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025 Accessed: October 2026

Ref 17.7-6 Ministry of Housing, Communities and Local Government (MHCLG) (2026) National Planning Policy Framework (NPPF). Available at: https://www.gov.uk/guidance/national-planning-policy-framework Accessed: October 2026

Ref 17.7-7 Ministry of Housing, Communities and Local Government (2023, updated 2024). Planning Practice Guidance: Renewable and Low Carbon Energy. GOV.UK. Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy Accessed: October 2026

Ref 17.7-8 Basildon District Council (1998). Basildon District Local Plan Saved Policies https://www.basildon.gov.uk/media/598/Basildon-District-Local-Plan-Saved-Policies-September-2007/pdf/Basildon_District_Local_Plan_Saved_Policies_-_September_2007.pdf?m=1540381932580 Accessed: October 2026

Ref 17.7-9 Basildon Borough Council (2022). Basildon Borough Revised Publication Local Plan https://www.planning.data.gov.uk/entity/3800148 Accessed: October 2026

Ref 17.7-10 Chelmsford City Council (2020). *Chelmsford Local Plan*. Adopted May 2020 https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/adopted-local-plan/ Accessed: October 2026

Ref 17.7-11 Chelmsford City Council (2026). Chelmsford Local Plan Review: Pre-Submission (Regulation 19) Local Plan https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-local-plan/local-plan-review/ Accessed: October 2026

Ref 17.7-12 Maldon District Council (2017). *Maldon District Local Development Plan 2014–2029*. https://www.maldon.gov.uk/downloads/file/14807/approved_maldon_district_local_development_plan_2014-2029 Accessed: October 2026

Ref 17.7-13 Rochford District Council (2014). *Development Management Plan*. Adopted December 2014 https://www.rochford.gov.uk/development-management-plan Accessed: October 2026

Ref 17.7-14 Rochford District Council (2026). *Draft Rochford Local Plan*. Available at: https://www.rochford.gov.uk/media/3800 Accessed: October 2026

Ref 17.7-15 Health and Safety Executive (2014) *Avoiding danger from underground services.* Available at: https://www.hse.gov.uk/pubns/priced/hsg47.pdf Accessed: October 2026

Ref 17.7-16 Health and Safety Executive (2013) *Avoiding danger from overhead power lines.* Available at: https://www.hse.gov.uk/pubns/gs6.htm Accessed: October 2026

Ref 17.7-17 OpenStreetMap (2026) *Open Infrastructure Map.* Available at: https://openinframap.org/#11.29/51.6652/0.7767/A,L,O,P,S,T,W Accessed: October 2026

17.8 Arboriculture

Introduction

17.8.1 **Section 17.8: Arboriculture** of **Chapter 17: Other Environmental Topics** sets out the proposed approach to the assessment of likely significant effects relating to arboriculture during the construction, operation (and maintenance), and decommissioning phases of the Proposed Development. This section sets out how these effects will be identified and assessed, and how suitable mitigation strategies will be put forward and set out within the Arboriculture Impact Assessment (AIA) that will accompany the Environmental Statement (ES) and accord with BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations (Ref 17.8-1).

17.8.2 Arboriculture can be defined as the cultivation and management of trees. In this context it relates to the assessment of all tree-related features across the EIA Scoping Site, including individual trees, groups of trees, woodlands and hedgerows.

17.8.3 There are interrelationships between this chapter and other disciplines. Therefore, this chapter should be read in conjunction with the following chapters:

a. **Chapter 10: Ecology and Biodiversity**; and
b. **Chapter 11: Landscape and Visual**.

Study Area

17.8.4 The study area for arboriculture includes any trees with the potential to be impacted by the enabling works and construction of the Proposed Development. At this stage this equates to the consideration of trees within, and circa. 30m from, the EIA Scoping Site. Only trees at risk of impact will be considered.

Legislation, Planning Policy Context and Guidance

17.8.5 Legislation, planning policy and guidance relating to Arboriculture and pertinent to the Proposed Development is listed in this section.

Legislation

17.8.6 Relevant legislation includes:

a. Town and Country Planning Act (1990) (Ref 17.8-2)
b. Town and Country Planning (Tree Preservation) (England) Regulations (2012) (Ref 17.8-3)
c. Planning Act (2008) (Ref 17.8-4)

d. Localism Act (2011) (Ref 17.8-5)
e. The Forestry Act (1967) (Ref 17.8-6)
f. The Hedgerow Regulations (1997) (Ref 17.8-7)
g. The Management of Hedgerows (England) Regulations (2024) (Ref 17.8-8)
h. The Occupiers Liability Act (1957) as amended (1984) (Ref 17.8-9)
i. The Environment Act (2021) (Ref 17.8-10)
j. The Electricity Act (1989) (Ref 17.8-11)
k. The Electricity Safety, Quality and Continuity Regulations (2002) (Ref 17.8-12)

National Planning Policy

17.8.7 The following planning policies from National Policy Statements (NPS) are relevant to arboriculture in the context of the development proposals:

a. The Overarching National Policy Statement for Energy (EN-1), (2025) (Ref 17.8-13) with reference to paragraphs 5.4.15 - 5.4.16, 5.4.33, 5.4.55 - 5.4.57 and 5.11.27; and
b. The National Policy Statement for Renewable Energy Infrastructure (EN-3) (2025), (Ref 17.8-14) with reference to paragraphs 2.10.92 - 2.10.93.

17.8.8 In addition, the following guidance will also be taken into account:

a. The Planning Practice Guidance, Natural Environment, 2019, (Ref 17.8-15) section Trees and Woodland (paragraph 029-035).

Local Planning Policy

17.8.9 The Proposed Development lies within the administrative area of the Basildon Borough, Chelmsford City, Maldon, and Rochford District Councils and Essex County Council. The following local planning documents are of relevance to the Arboriculture assessment:

a. Essex County Council

Essex Local Nature Recovery Strategy July 2025 (Ref 17.8-16)

b. Basildon Borough Council

i. Planning Obligation Strategy - July 2015 (Ref 17.8-17)
ii. Basildon Borough Revised Local Plan 2014 – 2034 (Ref 17.8-18). Policy NE1, NE4 and NE5

c. Chelmsford City Council

i. Chelmsford Adopted Local Plan 2013-2036 (2020) (Ref 17.8-19). Policy DM16 and DM17

ii. Chelmsford Local Plan Planning Obligations Supplementary Planning Document (2026) (Ref 17.8-20). Strategic Policy S2, Policy 9.17 Green and Blue Infrastructure Mitigation

d. Maldon District Council

i. Approved Maldon District Local Development Plan 2014-2029 (2017) (Ref 17.8-21). Policy N2

e. Rochford District Council

i. Draft Rochford Local Plan Regulation 18 February 2026 (Ref 17.8-22). Policy SC1, Policy NE1, Policy NE4 and 5.

Relevant Industry Guidance

17.8.10 Relevant industry guidance includes:

a. BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (Ref 17.8-1);
b. Ancient Woodland standing advice - Ancient woodland, ancient trees and veteran trees: protecting them from development (2022) (Ref 17.8-23); and
c. Street Works UK: Publications (2026) Volume 4 – Guidelines for the planning, installation, and maintenance of Utility apparatus in proximity to Trees Issue 3 (Ref 17.8-24).

Consultation

17.8.11 Consultation as part of the EIA process will be undertaken following submission of this EIA Scoping Report with statutory and non-statutory parties as relevant, including Forestry Commission, Natural England and the Local Planning Authorities where substantive arboricultural impacts are anticipated.

17.8.12 The Applicant has contacted the relevant LPAs to request further information on Tree Preservation Orders (TPO).

Baseline Conditions

17.8.13 This section describes the baseline environmental characteristics for the EIA Scoping Site and surrounding areas with specific reference to arboriculture.

17.8.14 The EIA Scoping Site is formed of numerous distinct areas distributed throughout agricultural land across the Dengie Peninsula, Essex and connected to Rayleigh via Grid Connection Corridors. The trees present are predominantly established at field edges and within hedgerows. Tree cover is reduced to the south east of the Energy Park where arable fields are typically larger and lack boundary hedgerows.

17.8.15 The predominant species likely include native oak (*Quercus robur*), ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), elm species *(Ulmus sp.*), poplar species (*Populus* spp.) and Scots pine (*Pinus sylvestris*). Tree cover between fields across the EIA Scoping Site likely reflects present and historic agricultural management. Various small woodland areas are distributed across the EIA Scoping Site. These are likely formed of the same species identified above and of various native small tree and shrub species (such as hawthorn (*Crataegus monogyna*) and hazel (*Corylus avellana*)).

17.8.16 Ash in the UK and across Europe have been lost in great numbers due to ash dieback (ADB) caused by the ascomycete fungus (*Hymenoscyphus fraxineus*). It is expected that any ash trees within the EIA Scoping Site will show varying degrees of disease progression; the number of expected individuals showing resistance to the disease is debated but may be expected to be around 15% of individual ash trees.

17.8.17 Elm trees are typically impacted by Dutch Elm Disease (caused by the fungus *Ophiostoma novo-ulmi*) which is often fatal.

17.8.18 Across the UK, native oaks are threatened by several diseases and syndromes, along with the environmental impacts from changes in land use and climate change. However, the diseases impacting oaks are less acute and widespread than the effects of ADB on ash. The oaks are expected to be the highest value trees with the longest remaining life expectancy of the trees across the EIA Scoping Site.

17.8.19 Due to the nature of the current land use and the cultural practices of land management in England, veteran and ancient trees may be present within the EIA Scoping Site (which will be confirmed via tree surveys), although none have been identified via desk study. Both ancient woodland and ancient and veteran trees are considered to be irreplaceable habitat features which are given a high priority in the planning process.

Statutory and Non-statutory Designations

17.8.20 Natural England's Ancient Woodland - Revised (England) - Completed Counties dataset (Ref 17.8-25) identifies multiple areas of ancient woodland (irreplaceable habitat) located adjacent (within 30m) to the EIA Scoping Site. These are set out in **Table 17-17** and include ancient woodland adjacent to the Energy Park and the Grid Connection Corridors (GCC). All forms of ancient woodland are of equal status.

Table 17-17: Ancient Woodland

Form of Ancient Woodland	Name	Location	Within EIA Scoping Site
Ancient semi natural woodland	Curds Grove	North west of Bradwell on Sea (Energy Park)	No (Adjacent)
Ancient wood pasture	-	South east of Mayland (GCC)	No (Adjacent)
Ancient semi natural woodland	-	North of Althorne (GCC)	No (Adjacent)
Ancient replanted woodland	-	North west of Althorne (GCC)	No (Adjacent)
Ancient semi natural woodland	-	South of Latchingdon (GCC)	No (Adjacent)
Ancient semi natural woodland	North Fambridge Hall Wood	North of North Fambridge (GCC)	No (Adjacent)
Ancient semi natural woodland	Brookmead Grove	South of Cold Norton (GCC)	No (Adjacent)
Ancient semi natural woodland	Edwinshall Wood	North of South Woodham Ferrers (GCC)	No (Adjacent)

17.8.21 Ancient woodland requires a minimum buffer zone of 15m from development in accordance with Standing Advice from Natural England and Forestry Commission (2022).

17.8.22 Multiple Priority Habitat Inventory (England) – Deciduous Woodland and Traditional Orchard designations are identified within the EIA Scoping Site. The nearest area of Wood Pasture and Parkland BAP Priority Habitat (England) is located over 50m from the EIA Scoping Site, north of Asheldham.

17.8.23 The Dengie Site of Special Scientific Interest (SSSI) is located to the south east, north and north east of the EIA Scoping Site. The Sandbeach Meadows SSSI is located adjacent to the EIA Scoping Site to the north east of the Energy Park. The Operations Requiring Natural England's Consent (ORNEC) identifies controls to the introduction of, and changes in, tree and woodland management.

17.8.24 The Decoy Pond, 700m north east of Marsh House Farm, Scheduled Monument to the east of Tillingham is immediately adjacent to the EIA Scoping Site and contains trees which may be impacted by the Proposed Development. The Crop mark site, SW of Oldmoor, Scheduled Monument is located outside of, but in proximity to, the EIA Scoping Site to the south west of Asheldham (it is set back

by ~25m and separated by the B1021). No impacts associated with the Proposed Development are likely to impact any trees within this Scheduled Monument or others which are set further back from the EIA Scoping Site.

17.8.25 TPOs confer statutory protection to trees (notwithstanding certain exceptions such as tree safety works or tree works to facilitate full planning permission or DCO consent). The Local Planning Authority (LPA) online information has been checked on 3 September 2026 in relation to trees protected by TPOs which could be impacted by works within the EIA Scoping Site (e.g. trees that are within or near the boundary) and the results are set out in **Table 17-18**. The relevant LPAs have been contacted to request further information on TPOs. TPOs will be shown as relevant on the Tree Constraints Plan and Tree Protection Plan to be prepared and submitted with the DCO Application.

Table 17-18: Tree Preservation Orders

Local Planning Authority	Online Mapping Available	TPO Present / Absent	References	Within EIA Scoping Site?
Essex County Council	No	N/A[2]	-	-
Basildon Borough Council[3]	No	Absent (confirmed via email 16/9/26)	-	-
Chelmsford City Council	No	Present (confirmed via email 16/09/26)	TPO/2001/078 TPO/1982/018 TPO/1983/012 TPO/2009/009 TPO/2009/007 TPO/2009/057 TPO/2007/167	No No No No (adjacent <50m) No (adjacent <50m) No (adjacent <50m) No
Maldon District Council	No	- (emailed 08/09/26, no response to date)	-	-

[2] Confirmed by email 08/09/26 that all TPOs sit with local district, borough or city councils
[3] https://www.arcgis.com/apps/mapviewer/index.html?layers=2cdec0c488714910b3bc42421701d732

Local Planning Authority	Online Mapping Available	TPO Present / Absent	References	Within EIA Scoping Site?
Rochford District Council[4]	Yes	Absent	-	-

17.8.26 Trees within Conservation Areas are subject to statutory protection (notwithstanding certain exceptions including trees <75mm in stem diameter, tree safety works or tree works to facilitate full planning permission or DCO consent). Conservation Area online mapping is available for Basildon Borough Council only and there are no Conservation Areas recorded within proximity to the EIA Scoping Site. The relevant LPAs will be contacted to request further information following the submission of this EIA Scoping Report.

17.8.27 The Woodland Trust Ancient Tree Inventory (Ref 17.8-26) contains records of ancient and veteran trees identified by volunteers and there are no trees recorded which could be influenced by works within the EIA Scoping Site. The nearest recorded veteran tree is a smooth leaved elm ~100m located to the south of the Grid Connection Corridor A (north of Asheldham). Unrecorded veteran or ancient trees will be identified by the Arboricultural surveys described in **Section 0**).

17.8.28 Veteran trees require a minimum buffer zone equivalent to their stem diameter x 15 or their canopy spread +5m (whichever is greater) in accordance with Standing Advice from Natural England and Forestry Commission (2022).

Sources of Information

17.8.29 The Arboriculture baseline conditions of the EIA Scoping Site have been determined by a desk study of available information, as set out below.

Desk Study

17.8.30 Sources used to inform this chapter have included the following:

a. Google Aerial Imagery;
b. Google Street View;
c. Ancient Woodland - Revised (England) - Completed Counties (Natural England) (Ref 17.8-25);
d. MAGIC Map (DEFRA);

4 https://rochford.maps.arcgis.com/apps/instant/basic/index.html?appid=6db6e48531534bf58d9763ad86033da2

e. Local Authority websites and online mapping resources; and
f. Ancient Tree Inventory (Woodland Trust) (Ref 17.8-26).

Surveys

17.8.31 Following submission of the EIA Scoping Report, further assessments will be undertaken to inform the Arboriculture baseline for later phases of assessment, including:

a. Walkover tree survey to identify potential ancient or veteran trees within the Energy Park; and
b. Targeted tree survey to BS5837:2012 for at risk trees within the EIA Scoping Site but not within the Energy Park.

Potential Impacts and Mitigation

17.8.32 This section sets out the potential arboricultural impacts of the Proposed Development.

17.8.33 Mitigation measures relevant to arboriculture are set out below and included in **Appendix 6-A: Environmental Mitigation and Commitments Register** of this EIA Scoping Report.

Construction and Decommissioning

17.8.34 During construction and decommissioning of the Proposed Development, the following adverse arboricultural impacts have the potential to occur if not mitigated:

a. Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability.
b. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction.
c. Soils can be compacted to levels inhospitable to tree root growth. A single pass of machinery, regular pedestrian traffic or the storage of plant and materials can destroy the structure of the soil and lead to the death or dysfunction of roots and prevent future root growth.
d. Damage to stem and branches from movement of machinery and materials.
e. Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of

dysfunction and decay, with significant long-term implications for tree health.

Operation

17.8.35 During the operation of the Proposed Development the following adverse arboricultural impacts have the potential to occur if not mitigated:

a. Where trees are retained in proximity to infrastructure, facilitation pruning (e.g. crown lifting) may be required. This may result in an ongoing requirement to prune trees to maintain a reasonable clearance of access routes, visibility splays and other infrastructure for future usage, in accordance with best practice.
b. Where part of a tree group or woodland is to be removed, the retained trees may be subject to an increased risk of windthrow due to a loss of companion shelter. In addition, trees which were located in areas of low use (where significant defects required no management intervention) may subsequently, post development, require management or removal on safety grounds due to increased land use intensity.
c. In general, retained trees will also require periodic inspection by a competent person to assess their structural condition and to ensure that any risks from tree failure are managed. Occasional removal of dead wood or other remedial works to address significant defects may be required in areas of frequent access. In some areas this will be a change to current tree management requirements on the Site and will be the responsibility of the tree owner.
d. The operational equipment may require replacement within the lifetime of the Proposed Development. Where replacement activities are required, these are expected to be undertaken broadly within existing operational areas and are not anticipated to result in significant additional arboricultural impacts. Any additional works required during these activities would be controlled and managed through appropriate management plans, such as the Outline LEMP and secured through a Requirement of the DCO which will require the Detailed LEMP to be substantially in accordance with the Outline LEMP.

Mitigation

17.8.36 Where practicable, mitigation measures will be incorporated into the Proposed Development design, including how it shall be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as

practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts of the Proposed Development from the outset.

17.8.37 Mitigation measures will be informed by the desk study and targeted tree survey of arboricultural constraints and supported by design principles, parameters and commitments made through the secured documents and outline management plans which will support the DCO Application.

17.8.38 The impact of shading from trees and their future growth will be assessed and considered. Arboricultural impacts will be considered in an Arboricultural Impact Assessment (and Tree Protection Plan), to be appended to the ES submitted with the DCO Application, as described in the Methodology section below. Post consent, an Arboricultural Method Statement (which will be secured via the Outline Construction Environmental Management Plan (CEMP) and delivered either as part of the Detailed CEMP, or as a standalone document) will set out the specification for tree protection measures and the methodology for sensitive works near retained trees.

17.8.39 Mitigation, such as the use of specialist construction techniques, can be applied to reduce the extent of tree removals where new features (such as access routes and services) are unavoidably required in proximity to tree features (i.e., within root protection areas (RPAs).

17.8.40 Unavoidable tree loss will be addressed with new planting, secured via the Landscape Mitigation Plan included in the Outline LEMP submitted with the DCO Application, which can help to improve the diversity and resilience of the local tree population, particularly in the face of climate change and the emerging threat of new pests and diseases. New planting can utilise stock of a provenance and genetic diversity which will help to increase climate resilience in the long term.

17.8.41 Mitigation may also include new or increased proactive management for existing trees of value to increase quality, biodiversity value and resilience.

Assessment Methodology

17.8.42 The assessment of potential impacts as a result of the Proposed Development (construction, operation (and maintenance) and decommissioning) on Arboriculture will be in accordance with the principles of the guidance and criteria set out in BS5837:2012.

17.8.43 Potential impacts of the Proposed Development on Arboriculture will be assessed by:

a. Considering the existing (baseline) status of the Arboricultural features within the EIA Scoping Site and relevant surrounds with respect to trees;
b. Identifying potential impacts of the Proposed Development on Arboriculture during the construction, operation (and maintenance), and decommissioning phases;
c. Proposing suitable mitigation measures to be incorporated into the Proposed Development design, construction, operation (and maintenance), and decommissioning to offset any adverse impacts (i.e. embedded mitigation).

Site Walkover

17.8.44 A walkover will be undertaken within the Energy Park to identify and record trees which are likely ancient or veteran, and thus have greater constraints associated with them than that of non-ancient/veteran trees. Such trees are of at least mature dimensions for the species and exhibit substantial dead or decayed wood habitat. Where identified they will be recorded via a tree survey to British Standards BS5837 which will identify the quality and value of the trees and the spatial constraints associated with them. Buffer zones will be applied in accordance with Standing Advice.

17.8.45 Tree dimensions, health and structural condition, quality category and likely remaining useful contribution (in years) will be considered. This will provide essential information to the design team to allow the retention of the highest value trees where feasible. This will also include a consideration of the likely future growth and shading impact of trees.

Desk Study and Targeted Tree Survey

17.8.46 A targeted approach to tree surveys is considered appropriate, and this has been successfully applied on a range of consented solar NSIPs across the UK (including East Yorkshire Solar Farm and Sunnica Energy Farm).

17.8.47 A desk study will be undertaken with reference to the National Tree Map dataset (provided by Bluesky International Ltd). This provides data on tree heights and canopy spread derived from LiDAR and aerial imagery. A buffer zone will be added to each tree based on its recorded height which will be used to estimate a typical maximum stem diameter. The buffer will be derived from AECOM's extensive dataset of tens of thousands of trees surveyed across the UK. This will be used to provide early tree constraint information and to inform the design.

17.8.48 The desk study will then identify those trees at substantive risk from impacts from the construction activities within the EIA Scoping Site, and these will then be subject to a targeted detailed tree survey to BS5837:2012 (i.e., 'at risk areas').

17.8.49 Topographical survey information will be utilised where available to inform the position of tree features subject to targeted detailed tree surveys.

17.8.50 Trees which are not subject to a detailed survey will be addressed solely via desk study data.

Baseline Tree Constraints

17.8.51 A Tree Constraints Plan, appended to the AIA, will be produced to set out the spatial constraints associated with arboricultural features on and immediately adjacent to the EIA Scoping Site. This will include identification of any feature with a significant statutory or non-statutory designation and any relevant buffer zone.

17.8.52 The likely future impact of trees will also need to be fully considered in the design process to ensure well placed tree retention and to minimise unnecessary conflicts associated with trees. Trees will continue to grow and increase in stature and must be provided reasonable space for their likely future dimensions to avoid pressure for tree removal or ongoing onerous tree pruning works which would have a negative impact on the health or amenity value of the trees. Current and future shading arcs will be shown on the Tree Constraints Plan based on tree heights. Future tree heights will be based on published mature heights for the species identified and will adopt a maximum height of 30m where species is not identified (e.g. trees considered via desk study only); this maximum height value may be reduced where justified based on local species composition and typical mature heights in the locality (informed by the results of tree surveys).

Assessment of Arboricultural Impacts

17.8.53 An Arboricultural Impact Assessment to BS5837:2012 will be developed to consider the likely direct and indirect impacts of the Proposed Development on trees. This will constitute a desktop analysis of the Proposed Development overlaid onto the Tree Constraints Plan and will identify those trees to be removed, as well as consider how trees to be retained are to be protected throughout the construction phase. Suitable mitigation measures will also be recommended as appropriate.

17.8.54 A Tree Protection Plan, appended to the AIA, will set out the spatial positioning of protective measures to protect retained trees and will identify trees for removal.

17.8.55 Full consideration of the spatial constraints associated with trees and well implemented and maintained tree protection measures throughout the construction phase, will ensure that important trees can be successfully retained and incorporated into the Proposed Development.

17.8.56 An Arboricultural Impact Assessment will be included as an appendix to **Chapter 11: Landscape and Visual** of the ES.

17.8.57 A commitment to produce an Arboricultural Method Statement (AMS) will be included in the Outline CEMP; an AMS will be delivered either as part of the Detailed CEMP, or as a standalone document.

Limitations and Assumptions

17.8.58 The location and layout of certain elements of infrastructure (including construction methodologies and mitigation), have not yet been determined. This is of particular importance when considering impacts associated with Arboriculture.

17.8.59 Should access be restricted due to land access agreements, dense vegetation or other restrictions, trees will be surveyed from the nearest feasible vantage point, and compared with aerial imagery, to estimate their condition and dimensions.

17.8.60 Important hedgerows (as per the Hedgerow Regulations) will be determined by the ecology and biodiversity, and cultural heritage assessments.

17.8.61 The level of topographical survey detail will impact the accuracy of tree positions (and any associated buffer zones and/or RPAs) and will also have an impact on how much detail can be feasibly recorded especially for trees within woodlands and tree groups.

17.8.62 Where trees form a coherent group feature, they will be recorded as group and be assigned maximum dimensions.

17.8.63 The British Standard BS5837:2012 is currently under revision and the revised version (which has been delayed) is due to be published in July 2027. Because the tree survey will have been completed to the current 2012 standard, it is proposed to adopt this methodology for the arboricultural assessment to be submitted as part of the ES.

17.8.64 The desk study, use of buffers and targeted approach to tree surveys is considered a reasonable and proportionate response to the scale of the Proposed Development and has been used successfully on a range of Nationally Significant Infrastructure Projects (NSIPs), including solar NSIPs (such as East Yorkshire Solar Farm). This approach is likely to overestimate rather than underestimate tree constraints. The application of site walkovers to identify ancient or veteran trees and targeted tree surveys of at-risk locations helps to further reduce any risk that tree constraints may not be fully represented.

17.8.65 The loss of companion shelter, and any additional tree management to address this, will need to be considered following site clearance works, and may result in the requirement for additional tree loss or management (beyond that identified within any initial assessment of arboricultural impacts).

Summary of Elements Scoped In and Out

17.8.66 A standalone ES chapter for Arboriculture is proposed to be scoped out; however, an Arboricultural Impact Assessment will be completed to the relevant standards, to include identification for the mitigation of impacts to trees and will be appended to **Chapter 11: Landscape and Visual** of the ES.

References

Ref 17.8-1 British Standards Institution (BSI), 2012. BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

Ref 17.8-2 The Town and Country Planning Act 1990 (as amended). Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents Accessed: October 2026

Ref 17.8-3 The Town and Country Planning (Tree Preservation) (England) Regulations 2012. Available at: https://www.legislation.gov.uk/uksi/2012/605/contents/made Accessed: October 2026

Ref 17.8-4 Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents Accessed: October 2026

Ref 17.8-5 Localism Act (2011). Available at: https://www.legislation.gov.uk/ukpga/2011/20/contents Accessed: October 2026

Ref 17.8-6 The Forestry Act 1967. Available at: https://www.legislation.gov.uk/ukpga/1967/10?view=extent Accessed: October 2026

Ref 17.8-7 The Hedgerow Regulations 1997. Available at: https://www.legislation.gov.uk/uksi/1997/1160/regulation/12/made Accessed: October 2026

Ref 17.8-8 The Management of Hedgerows (England) Regulations 2024. Available at: https://www.legislation.gov.uk/ukdsi/2024/9780348260472/regulation/6 Accessed: October 2026

Ref 17.8-9 The Occupiers Liability Act 1984. Available at: https://www.legislation.gov.uk/ukpga/1984/3/contents Accessed: October 2026

Ref 17.8-10 The Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/part/6/crossheading/tree-felling-and-planting/enacted Accessed: October 2026

Ref 17.8-11 The Electricity Act 1989. Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents Accessed: October 2026

Ref 17.8-12 The Electricity Safety, Quality and Continuity Regulations 2002. Available at: https://www.legislation.gov.uk/uksi/2002/2665/contents/made Accessed: October 2026

Ref 17.8-13 Department for Energy Security & Net Zero (December, 2025). Overarching National Policy Statement for Energy (EN-1) (Online).

Available at: https://assets.publishing.service.gov.uk/media/695d1015f41883f4e50ed9ab/overarching-national-policy-statement-for-energy-en-1-web-accessible.pdf Accessed: October 2026

Ref 17.8-14 Department for Energy Security & Net Zero (December, 2025). Overarching National Policy Statement Renewable Energy Infrastructure (EN-3) (Online). Available at: https://assets.publishing.service.gov.uk/media/695d1368b5c46330350ed9a2/national-policy-statement-for-renewable-energy-infrastructure-en-3-web-accessible.pdf Accessed: October 2026

Ref 17.8-15 The Planning Practice Guidance Natural Environment 2019 Natural Environment Trees and Woodland. Available at: https://www.gov.uk/guidance/natural-environment Accessed: October 2026

Ref 17.8-16 Essex Local Nature Partnership (2025) Essex Local Nature Recovery Strategy. Available at: https://essexnaturepartnership.com/wp-content/uploads/2025/08/lnrs-jul-25.pdf Accessed: October 2026

Ref 17.8-17 Basildon Borough Council (2015) Planning Obligation strategy. Available at: https://www.basildon.gov.uk/media/6282/Planning-Obligations-Strategy-July-2015/pdf/Basildon_Council_-_Planning_Obligations_Strategy_-_July_2015.pdf?m=1439554648337 Accessed: October 2026

Ref 17.8-18 Basildon Borough Council (2018) Basildon Borough Revised Publication Local Plan 2014 – 2034. Available at: https://docs.planning.org.uk/20220303/170/R7SZT9CQIRL00/fcbbqsrdm3cl09ak.pdf Accessed: October 2026

Ref 17.8-19 Chelmsford City Council (2020) The Chelmsford Local Plan 2013–2036. Available at: https://www.chelmsford.gov.uk/media/fvfjkf0i/chelmsford-adopted-local-plan-may-2020-text-only.pdf Accessed: October 2026

Ref 17.8-20 Chelmsford City Council (2026) Chelmsford Local Plan Planning Obligations Supplementary Planning Document. Available at: https://www.chelmsford.gov.uk/media/afwbeov3/inf011-planning-obligations-supplementary-planning-document-january-2026.pdf Accessed: October 2026

Ref 17.8-21 Maldon District Council (2017) Maldon District Local Development Plan (LDP). Available at: https://www.maldon.gov.uk/homepage/7031/emerging_local_plan/ Accessed: October 2026

Ref 17.8-22 Rochford District Council (2026) Draft Rochford Local Plan Regulation. Available at: https://rochford.oc2.uk/document/231/28815#d28815 Accessed: October 2026

Ref 17.8-23 Natural England and Forestry Commission (2022) Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Standing Advice). Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions Accessed: October 2026

Ref 17.8-24 Street Works UK: Publications (2026) Volume 4 – Guidelines for the planning, installation, and maintenance of Utility apparatus in proximity to Trees Issue 3

Ref 17.8-25 Natural England (2024) Ancient Woodland - Revised (England) - Completed Counties. Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::ancient-woodland-revised-england-completed-counties-1/about Accessed: October 2026

Ref 17.8-26 Woodland Trust (2026). Ancient Tree Inventory website (Online).

18. Proposed Structure of the Environmental Statement

18.1 Introduction

18.1.1 The Environmental Statement (ES) will consist of three volumes and a Non-Technical Summary (NTS). This section provides a summary of each volume that will form the ES.

ES Volume I: Main Document

18.1.2 This will form the main body of the ES, detailing the results of the Environmental Impact Assessment (EIA), likely significant effects arising from the Proposed Development, and the proposed mitigation measures. The ES will also identify opportunities for social and economic benefits and environmental enhancement. The ES will be divided into a number of background and technical chapters, each being supported with figures and relevant technical appendices contained in Volume II and Volume III, respectively. The following chapters will be included within **ES Volume I**:

a. Chapter 1: Introduction
b. Chapter 2: The Development Consent Order Site and Surroundings
c. Chapter 3: Proposed Development
d. Chapter 4: Alternatives Considered and Design Evolution
e. Chapter 5: EIA Methodology
f. Chapter 6: Agriculture and Soils
g. Chapter 7: Climate Change
h. Chapter 8: Cultural Heritage
i. Chapter 9: Ecology and Biodiversity
j. Chapter 10: Landscape and Visual
k. Chapter 11: Materials and Waste
l. Chapter 12: Noise and Vibration
m. Chapter 13: Socio-economics
n. Chapter 14: Traffic and Transport
o. Chapter 15: Water Environment
p. Chapter 16: Other Environmental Topics:

    i. Section 16.1: Air Quality
    ii. Section 16.2: Electromagnetic Fields
    iii. Section 16.3: Glint and Glare

iv. Section 16.4: Ground Conditions

q. Chapter 17: Cumulative Effects and Interactions; and
r. Chapter 18: Summary of Environmental Effects.

18.1.3 The following chapters included within this EIA Scoping Report are proposed to be scoped out of the ES subject to feedback received as part of the Scoping Opinion:

a. Human Health (this will be considered within the technical Chapters 6-16 of the ES, namely, Chapter 12: Noise and Vibration, Chapter 14: Traffic and Transport, and Chapter 16: Other Environmental Topics (Section 16.1: Air Quality and Section 16.2: Electromagnetic Fields));
b. Major Accidents and Disasters (this will be considered within the technical Chapters 6-16 of the ES, namely, Chapter 7: Climate Change, Chapter 14: Traffic and Transport, Chapter 15: Water Environment, and Chapter 16: Other Environmental Topics (Section 16.2: Electromagnetic Fields and Section 16.4: Ground Conditions)); and
c. Telecommunications and Utilities.

ES Volume II: Figures

18.1.4 This will include drawings and diagrams to be read alongside the environmental chapters in **ES Volume I**.

ES Volume III: Technical Appendices

18.1.5 A complete set of appendices will be provided for reference. These will provide supplementary information comprising background data, technical reports, tables, figures and surveys which support the assessments in **ES Volume I**.

ES Non-Technical Summary

18.1.6 The NTS will be presented in a separate document and will provide a concise description of the Proposed Development, the alternative designs considered, baseline conditions, assessment methodology, predicted residual environmental effects and mitigation measures.

18.1.7 The NTS will be designed to provide some information on the Proposed Development in an accessible format which can be understood by a wide audience and to assist interested parties with understanding of the Proposed Development and its associated environmental effects.

19. Summary

19.1.1 This EIA Scoping Report represents notification under Regulation 8(1)(b) of the EIA Regulations (Ref 19-1) that the Applicant will undertake an EIA in respect of the Proposed Development and produce an ES to report the findings of the EIA. It also presents a formal application to the Planning Inspectorate under Regulation 10 of the EIA Regulations for a 'Scoping Opinion' as to the information to be provided within the ES that will form part of the DCO Application.

19.1.2 This EIA Scoping Report has identified the environmental effects that are considered to have the potential to be significant and proposes the approach to be used in assessments that will be undertaken for the EIA to characterise and understand the significance of these effects. The prescribed consultees are invited to consider the contents of this report and comment accordingly within the statutory time period.

19.1.3 In line with Planning Inspectorate recommendations, **Table 19-1** presents the element(s) proposed to be scoped in and out of the EIA for each technical environmental topic chapter of the ES, along with a summary of the rationale for scoping out specific elements. **Table 19-2** presents the element(s) proposed to be scoped in and out of the Other Environmental Topics chapter of the ES, along with a summary of rationale for scoping out specific elements, and, where relevant, environmental topics entirely.

Table 19-1: Summary of Proposed EIA Scope

Topic	Scoped In (✓) / Out (×)	Element(s) Proposed to be Scoped In / Out	Rationale for Scoping Out
Chapter 7: Agriculture and Soils	✓	BMV agricultural land within the EIA Scoping Site (construction, operation (and maintenance), and decommissioning)	*n/a*
	✓	Soil resources within the EIA Scoping Site (construction, and decommissioning)	*n/a*
	×	*Soil resources within the EIA Scoping Site (operation and maintenance)*	*The topic is considered by UK Government at the national scale and land use change is not considered to be a likely significant effect. DEFRA maintains that food production levels can be maintained or moderately increased alongside the land use change required to meet Net Zero and Environment Act 2021 targets and commitments.*
	×	*Crop selection and agricultural production*	*Resting the soil from cultivation and agricultural production will result in benefits to the soil resources during operation, which are unlikely to yield a significant effect.*
Chapter 8: Climate Change	✓	Greenhouse Gas Impact Assessment	n/a
	✓	Climate Change Risk Assessment	n/a
	✓	In-Combination Climate Impact Assessment	n/a
Chapter 9: Cultural Heritage	✓	Designated Heritage Assets (construction, operation (and maintenance) and decommissioning)	*Potential impacts during decommissioning are not anticipated to be any greater than those assessed at construction and operation, with no new ground disturbance anticipated and therefore no additional effects on buried archaeological remains. Established perimeter planting would provide screening of decommissioning activities, meaning effects on the settings of heritage assets are likely to be less than those experienced during construction and the land returned to its former use. However, because the specific method for decommissioning is uncertain at present, potential impacts from decommissioning are scoped in.*
	✓	Non-designated Built Heritage Assets (construction, operation (and maintenance) and decommissioning)	*n/a*
	✓	Previously un-recorded archaeological remains (construction and decommissioning)	*n/a*
	✓	Historic Landscape Character (construction, operation (and maintenance) and decommissioning)	*n/a*
	×	*Non-designated buried heritage assets, including previously unrecorded archaeological remains (operation)*	*No impacts on buried archaeological remains are anticipated during the operational phase of the Proposed Development, as any such impacts would have occurred and been appropriately mitigated during the construction phase. No new ground disturbance is proposed during operation, including for the maintenance or replacement of cabling.*
Chapter 10: Ecology and Biodiversity	✓	Statutorily designated sites at an International level (National Site Network Sites up to 10km from the EIA Scoping Site and up to 30km from the EIA Scoping Site with mobile species as qualifying criteria)	n/a
	✓	Statutorily Designated sites of National Importance within 5km of the EIA Scoping Site	n/a

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	Rationale for Scoping Out
	✓	Non-statutorily designated site within 2km of the EIA Scoping Site	n/a
	✓	Habitats and species categorised as Important Ecological Features (IEFs)	n/a
	✓	Biodiversity Net Gain	n/a
	✗	*Habitats and species not categorised as IEFs*	*Potential impacts from construction, operation (and maintenance) and decommissioning will be managed via embedded mitigation measures, secured via the Outline CEMP, OEMP and DEMP and therefore no likely significant effects are anticipated.*
Chapter 11: Landscape and Visual	ü	Impacts to EIA Scoping Site landscape character	n/a
	✓	Impacts to local landscape character areas (Energy Park and Connection and Access Corridors)	n/a
	✓	Impacts to county and district published landscape character areas (Energy Park and Connection and Access Corridors)	n/a
	✓	Impacts to county and district published seascape character areas (Energy Park and Connection and Access Corridors)	n/a
	✓	Impacts to people's views via the representative viewpoints set out in Chapter 11: Landscape and Visual for the construction and operational phases of the Energy Park and Connection and Access Corridors	n/a
	✓	Impacts to residential amenity	n/a
	✓	Impacts and effects from the Grid Connection Corridor(s) on published county and district landscape character areas during the construction phase	n/a
	✓	Impact and effects from the Grid Connection Corridor(s) on representative visual receptors during the construction, operation and decommissioning phases	n/a
	✗	*Impacts on the character of the night sky*	*Any lighting during the construction phase would be temporary in duration and localised to the area of construction activity. In operation, whilst there would be security lighting and lighting at the Substation compounds, this would be controlled by lighting sensors, such that no part of the Proposed Development would be continually lit.*
	✗	*Views from the sea i.e. from a boat*	*Viewpoints along the coastline are considered representative of (or worse than) views from the sea.*
	✗	*Views from new areas of open space or permissive paths created by the Proposed Development*	*These locations do not currently exist and therefore are not representative of potential views which could be impacted by the Proposed Development.*
	✗	*Effects to published National Character Areas (NCA) 81, NCA 111 and Marine Character Area 19*	*The Proposed Development is too small a geographic area in relation to the wider geographic scale of the National Character Areas.*

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	Rationale for Scoping Out
	✗	*Impact and effects from the Grid Connection Corridors during the operational phases at Year 1 and 15 of operation on landscape character and visual amenity*	*The Proposed Development will utilise the existing OHL towers (where possible), therefore reflecting the existing character and visual amenity during operation. If cabling is buried, there will be no Landscape and Visual impacts beyond the construction phase.*
Chapter 12: Materials and Waste	✓	Changes in available landfill void capacity (construction, operation (and maintenance) and decommissioning)	n/a
	✓	Changes in availability of materials (construction, operation (and maintenance) and decommissioning)	n/a
	✓	Changes to waste sites.	n/a
	✗	*Waste arising from extraction, processing and manufacture of construction components and products*	*Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.*
	✗	*Environmental Impacts associated with the management of waste from Proposed Development*	*Environmental impacts associated with the management of waste from the Proposed Development e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant sections.*
	✗	*Environmental Impacts associated with operation (and maintenance) of offsite waste management facilities (construction, operation (and maintenance) and decommissioning)*	*Environmental effects are considered as part of the planning and permitting process for these facilities themselves.*
	✗	*Changes to safeguarded mineral sites.*	*There are no mineral safeguarding sites within the EIA Scoping Site Boundary.*
Chapter 13: Noise and Vibration	✓	Noise and vibration levels associated with construction, operation (and maintenance) and decommissioning works	n/a
	✓	Traffic noise (construction and decommissioning)	n/a
	✗	*Traffic noise (operational)*	*Operational traffic flows would be minimal and not sufficient to result in a 1 dB increase in noise, which would require a 25% increase in traffic volume (which is not currently expected).*
	✗	*Construction Traffic vibration (construction, and decommissioning)*	Similarly to operational traffic vibration, which includes heavy goods vehicles, traffic induced vibration during construction is not considered to generate likely significant effects and is therefore scoped out.
	✗	*Operational Traffic vibration*	DMRB LA 111 states that operational vibration should be scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so vibration will not have the potential to lead to significant adverse effects
	✗	*Decommissioning Traffic vibration*	Road traffic can cause vibration; however, DMRB LA 111 states: "*operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effects*." It is assumed that Essex County Council will maintain good quality conditions for highways used to access the EIA Scoping Site. Therefore, an assessment of decommissioning traffic vibration has been scoped out.

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	Rationale for Scoping Out
	✗	*Operational (and maintenance) vibration*	*No operational plant that would generate perceptible levels of vibration are part of the EIA Scoping Site and, as such, there will be no associated operational vibration effects. It is proposed that operational ground-borne vibration is scoped out of any further assessment.*
Chapter 14: Socio-economics and Land Use	✓	Employment, skills and training (construction, operation (and maintenance), and decommissioning)	n/a
	✓	Local expenditure, supply chain and economic growth (construction, operation (and maintenance) and decommissioning	n/a
	✓	Farming businesses and agricultural operations (construction, operation (and maintenance), and decommissioning	n/a
	✓	Residential properties, businesses, community facilities and services (construction, operation (and maintenance), and decommissioning	n/a
	✓	Recreation, open space and (including PRoW) (construction, operation (and maintenance), and decommissioning)	n/a
	✓	Tourism, visitor attractions and visitor accommodations (construction, operation (and maintenance), and decommissioning)	n/a
	✓	Effects on Development Land	n/a
	✗	*Mineral Safeguarded Areas*	*There are no Mineral Safeguarding Areas or other safeguarding designations within the EIA Scoping Site.*
Chapter 15: Traffic and Transport	✓	Impact of the construction, operation (and maintenance) and decommissioning phases of the Proposed Development	n/a
	✓	Severance (construction and operation (and maintenance phases)	n/a
	✓	Pedestrian Delay (construction and operation (and maintenance phases))	n/a
	✓	Non-motorised User Amenity (construction phase)	n/a
	✓	Fear and Intimidation, Driver Delay and Road Safety (construction phase)	n/a
	✓	Hazardous / Large Loads (construction phase)	n/a
	✓	PRoW diversions and closures (construction and operation (and maintenance) phases)	n/a

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	Rationale for Scoping Out
	✗	*Non-motorised User Amenity (operation (and maintenance) phase)*	*The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be nominal and therefore not result in a significant impact on non-motorised user amenity.*
	✗	*Fear and Intimidation, Driver Delay and Road Safety (operation (and maintenance) phase)*	*The trips associated with the operation (and maintenance) phase of the Proposed Development are expected to be nominal and therefore not result in a significant impact on fear and intimidation, driver delay and road safety.*
Chapter 16: Water Environment	✓	Surface water (potential impact to land-based surface water features during construction, operation (and maintenance) and decommissioning)	n/a
	✓	Hydromorphology (construction operation (and maintenance) and decommissioning) – Appendix 16-A: Water Framework Directive Screening will be revisited during the ES stage once more information on the design to be assessed is available	n/a
	✓	Groundwater (construction, operation (and maintenance) and decommissioning)	n/a
	✓	Flood Risk, including drainage (construction, operation (and maintenance) and decommissioning)	n/a
	✗	*Water supply*	*Regarding water supply, if the water board or abstractions cannot fulfil water supply need, water may be tankered into the Proposed Development Site.*
	✗	*Foul drainage*	*Foul wastewater generated on site would be of small volumes only and would be stored in self-contained foul drainage system to a sealed cesspit or similar sealed system. These tanks would be emptied under contract with a registered recycling and waste management contractor. Therefore, impact on foul drainage has been scoped out of further assessment. However, this will be included within the ES to demonstrate deliverability and minimisation of water needs.*
	✗	*Nutrient Neutrality assessment*	*The Proposed Development is not located within a nutrient neutrality catchment.*
	✗	*Groundwater - Impact on local potable water supplies from foul drainage*	*Impact on local potable water supplies and from foul drainage is scoped out on the basis that these are regulated industries, that suitable sources of water not involving a new local abstraction will be used (this will be kept under review).*

Table 19-2: Proposed Scope of Other Environmental Topics Chapter

Note: It is considered that any effects arising from the below environmental topics would be adequately mitigated and there is no potential for likely significant effects. Therefore, the below environmental topics will be assessed in the Other Environmental Topics Chapter of the ES and a separate technical chapter is not warranted as either: any likely significant effects can be avoided; or the environmental topic is adequately considered through the assessment findings undertaken in other technical chapters of the ES. See **Table 19-2** *below for details.*

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	*Rationale for Scoping Out*
Chapter 17.1: Air Quality	✓	Construction phase road traffic emissions	n/a
	✗	*Construction phase dust emissions*	*The impacts of dust emissions during the construction phase of the development have been considered and, with appropriate mitigation, there is no risk of significant effects. A dust risk assessment will be carried out in order to identify the suitable level of mitigation and this will be reported, for completeness, within a technical appendix to the ES chapter.*
	✗	*Operation and Decommissioning phase dust emissions.*	*Dust emissions for operation and decommissioning have been scoped out as they are expected to be significantly smaller than for the construction phase.*
Chapter 17.2: Electromagnetic Fields	✓	EMF interference associated with operation and maintenance works, on safeguarded assets (London Southend Airport).	n/a
	✓	EMFs effects, associated with operation and maintenance works, on local residents; users of non-residential properties; and users of Public Rights of Way – Overhead Lines operating at up to 400kV within the Connection and Access Corridors and Grid Connection Corridor(s)	n/a
	✗	*EMFs and EMF interference associated with construction and decommissioning works*	*EMFs are produced by the electrical equipment on the operational site and therefore potential EMF effects during construction and decommissioning of the Proposed Development have been scoped out.*
	✗	*EMFs effects, associated with operation and maintenance works, on local residents; users of non-residential properties; and users of Public Rights of Way – underground cables*	*EMFs produced by underground cabling are screened to a greater extent than OHLs and therefore the OHL assessment is considered a reasonable worst-case.*
	✗	*EMFs effects, associated with operation and maintenance works, on workers*	*The Control of Electromagnetic Fields at Work Regulations sets out the duties of employers in relation to controlling the risks of magnetic fields to employees. The threshold for workers is five times greater than for members of the public. Therefore, as effects of magnetic fields on workers for the Proposed Development would be controlled and mitigated to acceptable levels for members of the public through the legislative framework, impacts on workers are not considered within the assessment.*
Chapter 17.3: Glint and Glare	✓	Glint and Glare impacts on residential, road, rail, bridleways and aviation will be included in a technical appendix, with a short summary in the chapter.	n/a
Chapter 17.4: Ground Conditions	✓	Preliminary Risk Assessment (construction, operation (and maintenance) and decommissioning).	n/a

Topic	Scoped In (✓) / Out (✗)	Element(s) Proposed to be Scoped In / Out	*Rationale for Scoping Out*
Chapter 17.5: Human Health	✗	A standalone assessment of human health is not proposed.	It is considered that human health as a result of the Proposed Development will be covered through the assessment findings undertaken in other technical chapters of the ES namely: Landscape and Visual; Noise and Vibration; Traffic and Transport; and Air Quality.
Chapter 17.6: Major Accidents and Disasters	✗	*All MADs matters, including: flooding; plant disease; road accidents; rail accidents; aviation disasters; flood defence failure; utilities failure; fires; major accident hazard pipelines; UXO; air pollution accidents; pollution to ground receptors; pollution to aquatic receptors*	*A standalone assessment of Major Accidents and Disasters is proposed to be scoped out of the ES. This is because other chapters in the ES will comprehensively assess potential effects of the Proposed Development which could give rise to the MADs events described (namely Chapter 8: Climate Change, Chapter 10: Ecology and Biodiversity, Chapter 11: Landscape and Visual, Chapter 15: Traffic and Transport, Chapter 16: Water Environment, Chapter 17: Other Environmental Topics, particularly Section 17.3: Glint and Glare, Section 17.4: Ground Conditions and Section 17.5: Human Health).*
Chapter 17.7: Telecommunications and Utilities	✗	All telecommunications matters	Consultation with relevant telecommunications and utility providers, together with utility record searches and surveys, will be used to identify existing infrastructure that could interact with the Proposed Development. With the identification of telecommunications and utilities assets and implementation of suitable offset distances for the Proposed Development infrastructure, it is considered that any effects would be adequately mitigated and there is no potential for likely significant effects.
Chapter 17.8: Arboriculture	✗	A standalone ES chapter for Arboriculture is proposed to be scoped out.	An Arboricultural Impact Assessment will be completed to the relevant standards, to include identification for the mitigation of impacts to trees and will be appended to Chapter 11: Landscape and Visual of the ES.

19.2 References

Ref 19-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017). Available at: https://www.legislation.gov.uk/uksi/2017/572/contents Accessed: October 2026

20. Glossary and Abbreviations

20.1 Glossary

Term	Definition
Proposed Development	The full Dengie Peninsula Energy Park proposal, including Energy Park Areas, Connection and Access Corridors and Grid Connection Corridors.
EIA Scoping Site	The area being considered within the Scoping Report that contains all potential development components.
Energy Park	The area containing Solar PV Arrays, BESS, substations and associated infrastructure.
Energy Park Areas A-F	The seven principal development areas comprising the Energy Park.
Solar PV Array	A collection of Solar PV Modules forming a power-generating unit.
Solar PV Module / Panel	A collection of photovoltaic cells that convert sunlight into electricity.
BESS	Battery storage infrastructure used to store and release electricity.
BESS Compound	Area containing battery storage units and associated equipment.
Main On-Site Substation	Main electrical substation connecting the Energy Park to the Point of Connection.
Collector Substation	Intermediate substations that collect electricity from Energy Park Areas.
Connection and Access Corridor	Corridor used for internal cabling and access between Energy Park Areas.
Grid Connection Corridor	Corridor used to connect the Energy Park to the transmission network.
Point of Connection (PoC)	Connection location to the National Electricity Transmission System.
Point of Connection A	Rayleigh Grid Supply Point Substation.
Point of Connection B	Former Bradwell Substation.
Bradwell-Rayleigh Overhead Line	Existing electricity transmission line between Bradwell and Rayleigh.
Biodiversity Net Gain (BNG)	Enhancement of biodiversity resulting in a measurable improvement compared to the pre-development baseline.
Rochdale Envelope	Assessment approach allowing flexibility within defined project parameters while assessing worst-case environmental effects.
Embedded Mitigation	Mitigation incorporated directly into project design.

20.2 Abbreviations

Abbreviation	Definition
AC	Alternating Current
ADB	Ash Dieback
AEDT/AADT	Annual Average Daily Traffic
AEP	Annual Exceedance Probability
AIA	Arboricultural Impact Assessment
AIL	Abnormal Indivisible Load
AIMS	Asset Information and Management System
ALC	Agricultural Land Classification
AMS	Arboricultural Method Statement
ANC	Association of Noise Consultants
APFP	Applications: Prescribed Forms and Procedure Regulations
AQMA	Air Quality Management Area
ARC	Anti-Reflective Coating
ATC	Automatic Traffic Count
ATCT	Air Traffic Control Tower
BAP	Biodiversity Action Plan
BESS	Battery Energy Storage System
BGS	British Geological Survey
BMV	Best and Most Versatile Agricultural Land
BOAT	Byway Open to All Traffic
BRE	Building Research Establishment
BS	British Standard
BSMP	Battery Safety Management Plan
BSSS	British Society of Soil Science
CCTV	Closed-Circuit Television
CCC	Climate Change Committee
CEMP	Construction Environmental Management Plan
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLOCS	Construction Logistics and Community Safety
COMAH	Control of Major Accident Hazards
CoPA	Control of Pollution Act
COSHH	Control of Substances Hazardous to Health
CCRA	Climate Change Risk Assessment
CRTN	Calculation of Road Traffic Noise
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DEMP	Decommissioning Environmental Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero

Abbreviation	Definition
DMS	Delivery Management System
DoWCoP	Definition of Waste Code of Practice
EA	Environment Agency
ECC	Essex County Council
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
ERP	Emergency Response Plan
ES	Environmental Statement
ESSCP	Employment, Skills and Supply Chain Plan
FAA	Federal Aviation Administration
FC	Field Capacity
FCD	Field Capacity Days
FRA	Flood Risk Assessment
FSF	Fixed South Facing (Solar Arrays)
GCC	Grid Connection Corridor
GCR	Geological Conservation Review
GHG	Greenhouse Gas
GLTA	Ground Level Tree Assessment
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GSP	Grid Supply Point
GVA	Gross Value Added
GWDTE	Groundwater Dependent Terrestrial Ecosystem
HDD	Horizontal Directional Drilling
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Assessment
HSE	Health and Safety Executive
HV	High Voltage
IAQM	Institute of Air Quality Management
ICCI	In-Combination Climate Change Impact
ICNIRP	International Commission on Non-Ionising Radiation Protection
IEF	Important Ecological Feature
IEMA	Institute of Environmental Management and Assessment (now ISEP)
IoQ	Institute of Quarrying
IPP	Independent Power Producer
ISEP	Institute of Sustainability and Environmental Professionals
LCA	Landscape Character Area
LCRM	Land Contamination Risk Management
LDV	Light Duty Vehicle
LEMP	Landscape and Ecological Management Plan
LHA	Local Highway Authority

Abbreviation	Definition
LLFA	Lead Local Flood Authority
LOAEL	Lowest Observed Adverse Effect Level
LPA	Local Planning Authority
LWS	Local Wildlife Site
LV/MV	Low Voltage / Medium Voltage
LVIA	Landscape and Visual Impact Assessment
MADs	Major Accidents and Disasters
MCA	Marine Character Area
MCC	Manual Classified Count
MPA	Minerals Planning Authority
MSA	Mineral Safeguarding Area
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NCA	National Character Area
NCN	National Cycle Network
NERTC	Natural Environment and Rural Communities Act
NESO	National Energy System Operator
NGET	National Grid Electricity Transmission
NH	National Highways
NHLE	National Heritage List for England
NNR	National Nature Reserve
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NPSE	Noise Policy Statement for England
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NTS	Non-Technical Summary
NVZ	Nitrate Vulnerable Zone
OEMP	Operational Environmental Management Plan
OHL	Overhead Line
ORNEC	Operations Requiring Natural England Consent
OS	Ordnance Survey
PAS	Publicly Available Specification
PCU	Power Conversion Unit
PIC	Personal Injury Collision
PM10/PM2.5	Particulate Matter
PoC	Point of Connection
PPG	Planning Practice Guidance
PRA	Preliminary Risk Assessment
PRoW	Public Right of Way
PV	Photovoltaic
RPA	Root Protection Area

Abbreviation	Definition
SAT	Single Axis Tracker
SAC	Special Area of Conservation
SFRA	Strategic Flood Risk Assessment
SGHAT	Solar Glare Hazard Analysis Tool
SOAEL	Significant Observed Adverse Effect Level
SoCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SuDS	Sustainable Drainage Systems
TAN	Transport Assessment Note
TPO	Tree Preservation Order
UKCP18	UK Climate Projections 2018
UKHSA	UK Health Security Agency
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WFD	Water Framework Directive
WHO	World Health Organisation
WPAs	Waste Planning Authorities
WRAP	Waste and Resources Action Programme