

The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 5 Project Wide Effects

Chapter 2 Combined Effects of Onshore and
Offshore Elements of the Proposed Project

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5.2 Combined Effects of the Project

5.2.1 Introduction

- 5.2.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents details of the combined effects from the Suffolk and Kent Onshore Schemes and the Offshore Scheme that together make up the Proposed Project. As activities relating to the schemes may be undertaken simultaneously, there is the potential for combined effects to occur (i.e., effects not already identified in relation to the Onshore Scheme in isolation, or effects which are more significant when the two Schemes are considered together).
- 5.2.1.2 This chapter describes the methodology used and preliminary combined effects that could result from the Proposed Project.
- 5.2.1.3 The draft Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Figure 1.1.1 Draft Order Limits**. The Suffolk and Kent Onshore Scheme Boundaries are illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Boundary** and **Figure 1.1.3 Kent Onshore Scheme Boundary**. The Offshore Scheme Boundary is illustrated **Figure 1.1.4 Offshore Scheme Boundary**.
- 5.2.1.4 This chapter should be read in conjunction with:
- **Volume 1, Part 1, Chapter 4, Description of the Proposed Project;**
 - **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology;**
 - **Volume 1, Part 1, Chapter 6, Scoping Opinion and EIA Consultation;**
 - **Volume 1, Part 2, Chapters 2 to 14 for the Suffolk Onshore Scheme;**
 - **Volume 1, Part 3, Chapters 2 to 14 for the Kent Onshore Scheme; and**
 - **Volume 1, Part 4, Chapters 2 to 12 for the Offshore Scheme.**

5.2.2 Regulatory and Planning Context

Legislation

- 5.2.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (collectively referred to as “the EIA Regulations 2017”) (Ref. 5.2.1) require that the effects of a project, where these are likely to have a significant effect on the environment, are taken into account in the decision-making process for that project.
- 5.2.2.2 Regulation 5(2)(e) of EIA Regulations requires that the EIA must consider the interaction and interrelation of different environmental effects of the Proposed Development on various aspects. This chapter details the consideration of these effects for the Proposed Project.

National Policy

- 5.2.2.3 National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project would be considered. Table 5.2.1 provides details of the elements of the Overarching NPS for Energy (NPS, EN-1) (Ref. 5.2.2), that are relevant to this chapter, and how and where they are covered in the PEIR or will be covered within the Environmental Statement (ES).
- 5.2.2.4 It also notes that “...in the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of IPC decision making given the national significance of the infrastructure”.

Table 5.2.1 NPS EN-1 requirements relevant to the Combined Effects of the Project Assessment

NPS EN-1 Section	Where this is covered in the PEIR
Paragraph 4.2.6 states that the ES should: <i>‘...consider how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.’</i>	This chapter of the PEIR provides a preliminary assessment of combined effects of the Proposed Project.

- 5.2.2.5 In March 2023, the Department for Energy Security & Net Zero (DESNZ) published revised draft NPSs including EN-1 (Ref. 5.2.3). The Draft Overarching National Policy Statement for Energy (EN-1) in relation to the assessment of inter-related effects remains broadly similar.

Local Planning Policy

- 5.2.2.6 The following local and regional planning authorities fall within the inter-related effects study area and due regard has been given to their local planning policies within the technical PEIR chapters in **Volume 1, Part 2 Suffolk Onshore Scheme** and **Part 3 Kent Onshore Scheme**.
- Suffolk County Council;
 - East Suffolk Council;
 - Kent County Council;
 - Thanet District Council; and
 - Dover District Council.

5.2.3 Scoping Opinion and Consultation

Scoping

- 5.2.3.1 A Scoping Report (Ref. 5.2.4) for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 and a Scoping Opinion (Ref. 5.2.5) was received from the Secretary of State (SoS) on 1 December 2022. Table 5.2.2 sets out the comments raised in the Scoping Opinion and how these have been addressed in this PEIR or will be addressed within the ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate. **Appendix 1.6.A: Scoping Response Tables** provides responses to the comments made by the prescribed consultees and how each comment has been or will be considered.

Table 5.2.2 Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
6.3.2	<p>Justification for scoping in/out receptor groups</p> <p>Table 5.3.1 identifies where there is a potential pathway for effect both from the onshore and offshore elements of the Proposed Development on receptors. However, the potential for a combined effect is not identified; the ES should explain the pathways for effect for each receptor group.</p>	<p>Part 2, Chapter 13 Suffolk Onshore Scheme Intra-project Cumulative Effects, Part 3, Chapter 13 Kent Onshore Scheme Intra-project Cumulative Effects, and Part 4, Chapter 11 Offshore Scheme Intra-project Cumulative Effects considers the potential for combined effects of the schemes on receptors. This chapter assesses the potential for combined effects of the project.</p>
6.3.3	<p>Methodology</p> <p>The ES should set out the methodology(s) for assessing significant combined effects.</p>	<p>Section 5.2.4 of this chapter provides further details on how the assessment has been undertaken.</p>

Consultation and Project Engagement

- 5.2.3.2 No consultation has been undertaken in relation to combined effects.

5.2.4 Approach and Methodology

- 5.2.4.1 **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology** sets out the overarching approach which has been used in developing the preliminary environmental information.

Guidance Specific to the Assessment of Combined Project Effects

- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Ref. 5.2.6)
 - Guideline for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (Ref. 5.2.7)
 - Planning Inspectorates Advice Note Nine Rochdale Envelope (2012) (Ref. 5.2.8)
- 5.2.4.2 Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report highlights the need to consider interactions between the different environmental aspects in a single project. It recommends using interactive matrices that consider the interactions of impacts assessed individually.
- 5.2.4.3 Guideline for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions sets out various tools that can be used for inter-related effects, guidance on the approach and assessment. Section 3 of the guidance outlines the tools that can be used for inter-related effects, which are: expert opinion, matrices, consultation and questionnaires, network and systems analysis and spatial analysis.
- 5.2.4.4 Planning Inspectorate's Advice Note Nine Rochdale Envelope (2012) states:
- 5.2.4.5 *"The ES should not be a series of separate unrelated topic reports. The inter-relationship between aspects of the proposed development should be assessed and careful consideration should be given by the developer to explain how inter-relationships have been assessed in order to address the environmental impacts of the proposal as a whole. It need not necessarily follow that the maximum adverse impact in terms of any one topic impact would automatically result in the maximum potential impact when a number of topic impacts are considered collectively. In addition, individual impacts may not be significant when their inter-relationship is assessed. It will be for the developer to demonstrate that the likely significant impacts of the project have been properly assessed."*
- 5.2.4.6 To address the potential for inter-related effects, it is proposed that the ES will include a combined effects assessment. This document will enable the Planning Inspectorate, in the first instance, and then the Secretary of State, to consider the application for the development consent with regard to the likely effects of the Proposed Project as a whole. A preliminary chapter has therefore been prepared for the PEIR.

Summary of Potential for Combined Effects

- 5.2.4.7 The boundary of the Suffolk Onshore Scheme is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Boundary** and is located within the administrative boundary of Suffolk County Council and the East Suffolk District local planning authority areas.
- 5.2.4.8 The Suffolk Onshore Scheme is in an area that is predominantly rural. The settlements of Aldeburgh, Friston, Saxmundham, Leiston, and Knodishall Common are located adjacent to the Suffolk Onshore Scheme Scoping Boundary. The Sizewell nuclear site is located to the north of the Suffolk Onshore Scheme Scoping Boundary and there are two existing 400 kV overhead lines that cross the Suffolk Onshore Scheme Boundary, which connect into Sizewell substation located within the nuclear site. Preliminary effects identified for the Suffolk Onshore Scheme are reported in **Part 2** of this PEIR and summarised in the **Non-Technical Summary (NTS)**.

- 5.2.4.9 The boundary of the Kent Onshore Scheme is illustrated on **Figure 1.1.3 Kent Onshore Scheme Boundary** and is located within the administrative boundary of Kent County Council and the Thanet District Council and Dover District Council local planning authority areas.
- 5.2.4.10 The Kent Onshore Scheme is in an area which is semi-rural although land use in the areas closest to the coast include Golf Courses and areas of nature conservation. The settlement of Cliffs End is located adjacent to the north of the Kent Onshore Scheme Boundary and the settlement of Minster is also to the north, approximately 350 m from the Kent Onshore Scheme Boundary. Richborough Energy Park and a wastewater treatment works are located adjacent to the south of the Kent Onshore Scheme Scoping Boundary. An existing 400 kV overhead line crosses through the far western extent of the Project Boundary. Preliminary effects identified for the Kent Onshore Scheme are reported in **Part 3** of this PEIR and summarised in the NTS.
- 5.2.4.11 The boundary of the Offshore Scheme is illustrated on **Figure 1.1.4 Offshore Scheme Boundary** and is located wholly within English Territorial Waters, and it lies within the East Inshore and South East Inshore Marine Plan areas. The Proposed Project Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas.
- 5.2.4.12 The Offshore Scheme is located to the west of London Array Offshore Wind Farm and to the east of Thanet, Greater Gabbard and Galloper Offshore Wind Farms.
- 5.2.4.13 Preliminary effects identified for the Offshore Scheme are reported in **Part 4** of this PEIR and summarised in the NTS.
- 5.2.4.14 Due to the geographical separation of the Suffolk and Kent Onshore Schemes, there is no potential for a combined effect to result from any of the effects proposed to be assessed within the technical chapters of the two Onshore Schemes. Therefore, combined effects between the Suffolk Onshore Scheme and the Kent Onshore Scheme are considered no further.
- 5.2.4.15 The Suffolk Onshore Scheme and the Kent Onshore Scheme both extend down to the mean low water springs (MLWS) mark as illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Boundary** and **Figure 1.1.3 Kent Onshore Scheme Boundary**. The Offshore Scheme extends up to the mean high water springs (MHWS) mark as illustrated on **Figure 1.1.4 Offshore Scheme Boundary**. The relevant aspects of the intertidal area are therefore included in both the terrestrial (**Part 2 Suffolk Onshore Scheme** and **Part 3 Kent Onshore Scheme**) and the marine (**Part 4 Offshore Scheme**) parts. Where this is the case, there is no potential for a combined effect as the effect is already assessed within the individual technical chapters in each of the parts.
- 5.2.4.16 The landfalls as described in **Volume 1, Part 1, Chapter 4: Description of the Proposed Project** will be assessed in both, onshore and offshore parts. There is no potential for a combined effect from the landfalls as the effects will be assessed within the individual technical chapters in each of the parts.
- 5.2.4.17 There is the potential that combined effects could conceivably occur where there is a pathway between an onshore and an offshore impact with a shared receptor.
- 5.2.4.18 Table 5.2.3 identifies the potential pathway for a combined effect to occur on receptor groups, as identified at Scoping (Ref. 5.2.4).

Table 5.2.3 Potential for combined effects (Ref. 5.2.4)

Receptor groups	Potential for a combined effect.
Landscape elements	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Seascape character	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Residential receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Designated Sites	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Terrestrial and aquatic ecological receptors	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Notable Habitats (terrestrial and aquatic)	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Non-designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Water resources (existing abstractions and discharges)	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Watercourses and waterbodies	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.

Receptor groups	Potential for a combined effect.
Flood risk receptors	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Agricultural Land	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Agricultural holdings	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Soil	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Public rights of way	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Cycle Routes	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Roads	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Communities	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Geology	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Groundwater	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Human Health	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.

Receptor groups	Potential for a combined effect.
Marine Physical Environment	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Benthic Ecology	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Fish and Shellfish Ecology	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Marine Mammals	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Ornithology	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Marine Archaeology	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Shipping and Navigation	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial Fisheries	There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.
Other Sea Users	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Greenhouse Gas Emissions	No potential for the onshore and offshore schemes to result in a combined effect as this will be assessed at a Project level as described in Part 5, Chapter 1 Climate Change.

5.2.4.19 Table 5.2.3 identifies the following receptors groups, which have the potential for combined effects and have therefore been taken forward into the preliminary assessment:

- Designated Sites;

- Ecological receptors;
- Notable Habitats (terrestrial and aquatic);
- Water resources (existing abstractions and discharges);
- Watercourses and waterbodies;
- Flood risk receptors;
- Geology;
- Groundwater;
- Marine Physical Environment;
- Benthic Ecology;
- Fish and Shellfish Ecology;
- Marine Mammals;
- Ornithology; and
- Commercial Fisheries

Assessment Approach

- 5.2.4.20 This section sets out the approach and methodology for assessing any combined effects of the Proposed Project. This scope will be developed as the design of the Proposed Project evolves and through feedback received from Statutory Consultation.
- 5.2.4.21 The assessment of inter-related effects only considers the effects of Proposed Project and not from other projects (these are considered within the cumulative effects assessment provided within the aspect chapters (**Volume 1, Part 2, Chapter 14, Suffolk Onshore Scheme Inter-project Cumulative Effects, Part 3, Chapter 14, Kent Onshore Scheme Inter-project Cumulative Effects, and Part 4, Chapter 12, Offshore Scheme Inter-project Cumulative Effects**) and **Volume 1, Part 2, Chapter 13, Suffolk Onshore Scheme Intra-project Cumulative Effects, Part 3, Chapter 13, Kent Onshore Scheme Intra-project Cumulative Effects, and Part 4, Chapter 11, Offshore Scheme Intra-project Cumulative Effects** considers the potential for combined impacts on receptors. This chapter assess the potential for combined effects of the project.
- 5.2.4.22 This combined effects of the project assessment considers the potential for effects to interact, spatially and temporally, between the Suffolk and Kent Onshore Schemes with the Offshore Scheme, to create an effect on a receptor of greater significance than when the effects are considered in isolation. These may be short term, temporary or transient, or longer term effects.
- 5.2.4.23 To undertake this assessment the findings of the individual chapters, for those receptors screened in (see Table 5.2.3), have been reviewed to understand and interpret the potential additional effects that may be of greater significance when compared to individual effects arising from one aspect of the Proposed Project. Where additional effects are identified, these are considered additively and qualitatively using professional judgement.
- 5.2.4.24 The approach undertaken is summarised in the following steps.

- Step 1: Pre-screening, review and identification of shared receptors from assessments undertaken for each technical chapter.
- Step 2: Source-pathway-receptors identification for the potential inter-related effect receptors and where those pathways are described and assessed.
- Step 3: Assessment of combined effects of the Proposed Project and development of a summary in tabulated form.

5.2.4.25 There is the potential for inter-related effects to occur where effects that have a significance of minor or higher occurrence, and interactions between these effects that could cause an impact to any step of the source-receptor-pathway model. These have then been considered through professional judgement in this chapter. Where effects that represent no change or negligible change to the baseline (i.e., no impact) occur, these are unlikely to have inter-related effects when combined with other impacts and have been scoped out of the inter-related effects assessment. The PEIR assessments in the technical chapters have not identified individual significance criteria, instead the effects are likely to be significant or not. This approach has been followed here as well.

5.2.4.26 The EIA process takes a holistic approach to ensuring environmental assessments are comprehensive and assess all relevant potentially significant effects upon all relevant receptors. As a result of this, some elements of the assessments inherently consider combined effects. For example, Habitats Regulation Screening (**Part 5, Chapter 3**) and Water Framework Directive Screening (**Part 5 Chapter 5**). Where these potential inter-related effects are identified as being inherently considered in the impact assessment, this is described within their individual chapters.

5.2.5 Preliminary Assessment of Effects

5.2.5.1 The preliminary assessment of the combined effects of the Proposed Project described in this section considers the embedded, control and management measures, and mitigation measures identified within the technical assessment chapters: **Volume 1, Part 2, Chapters 2 to 12** for the Suffolk Onshore Scheme; **Volume 1, Part 3, Chapters 2 to 12** for the Kent Onshore Scheme; and **Volume 1, Part 4, Chapters 2 to 10** for the Offshore Scheme.

5.2.5.2 The preliminary assessment of the combined effects of the Proposed Project is presented in the following sections:

- combined effects of the Suffolk onshore scheme and offshore scheme where the schemes are likely to interact in the vicinity of the Suffolk landfall; and
- combined effects of the Kent onshore scheme and offshore scheme where the schemes are likely to interact in the vicinity of the Kent landfall.

Combined Effects of the Suffolk Onshore Scheme and Offshore Scheme

Step 1 screening, review and identification of shared receptors

5.2.5.3 Table 5.2.4 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Suffolk Landfall to identify common receptor groups to both schemes.

Table 5.2.4 Stage 1 Screening of shared Suffolk Onshore Scheme and Offshore Scheme shared receptors within the vicinity of the Suffolk landfall.

Receptor	Suffolk	Offshore
Designated Sites	Sandlings Special Protection Area (SPA) Leiston-Aldeburgh Site of Special Scientific Interest (SSSI) The Haven Local Nature Reserve (LNR)	Sandlings SPA Leiston-Aldeburgh SSSI
Terrestrial and Aquatic Ecological receptors (excluding birds)	Reptiles Bats, Riparian mammals Dormice, Invertebrates, Fish	None (Marine receptors listed separately)
Ornithology	Birds	Seabirds and waterbirds.
Benthic Ecology	None	Benthic Habitat

Receptor	Suffolk	Offshore
		Benthic Species
Fish and Shellfish Ecology	None	Fish and Shellfish Ecology
Marine Mammals	None	Marine Mammals
Notable Habitats (terrestrial and aquatic)	Royal Society for the Protection of Birds (RSPB) North Warren Reserve Woodland Blocks Hedgerow Grassland Intertidal habitat	Intertidal habitat Marine habitat
Water resources (existing abstractions and discharges)	Licensed abstractions	None
Watercourses and waterbodies	Hundred River Fromus Alde & Ore	Anglian River Basin Management Plan
Flood risk receptors	Residential Works Site	None
Geology	Designated Geological Sites Safeguarded Mineral reserves Exposure to and mobilisation of existing potential contamination	Seabed Geology
Groundwater	Waveney and East Suffolk Chalk and Crag groundwater body	None
Marine Physical Environment	None	Water column Water quality Seabed morphology Suffolk coastline Coraline Crag Ridges Sizewell B and C power plant water intake Seabed Bathymetry
Commercial Fisheries	None	Mobile fishing gear Static fishing gear

- 5.2.5.4 Table 5.2.4 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Suffolk Landfall to identify common receptor groups to both schemes.
- 5.2.5.5 Table 5.2.4 identifies the following receptors groups which may be impacted by both the Suffolk Onshore Scheme and the Offshore Scheme:
- Designated Sites;
 - Ornithology; and
 - Notable Habitats (terrestrial and aquatic).
- 5.2.5.6 These receptor groups have been progressed for further assessment in Step 2.

Step 2 source-pathway-receptors identification

Designated Sites

- 5.2.5.7 Table 5.2.4 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Suffolk Landfall to identify common receptor groups to both schemes.
- 5.2.5.8 Table 5.2.4 above identifies the following designated sites which have the potential to be impacted by both the Suffolk Onshore Scheme and Offshore Scheme due to their proximity to the Suffolk Landfall:
- Sandlings SPA
 - Leiston-Aldeburgh SSSI
- 5.2.5.9 Impacts likely to arise on these designated sites include loss of land and disturbance during construction.
- 5.2.5.10 Whilst several coastal designated sites do lie within the Suffolk Onshore Boundary and Offshore Boundary, these will all be crossed using trenchless techniques and no land from the designated sites will be lost to the Proposed Project. Therefore the combination of Suffolk Onshore Boundary and Offshore Boundary will be Not Significant in relation to land lost from designated sites.
- 5.2.5.11 Sandlings SPA is designated for nightjar and woodlark. These species nest primarily within the SPA, although in 2023 nesting pairs of woodlark were recorded nesting within 200 m of one of the construction access routes (an existing track) connecting the Suffolk Onshore Boundary with Leiston Road. Both woodlark and nightjar have relatively broad foraging habitat requirements such as heathland, early-stage plantation, grazed grass heath, arable land. They have also been recorded foraging in deciduous woodland and rough pasture, as well as domestic gardens. As such there is no shortage of suitable foraging habitat for both species within 2 km of the SPA or other nest locations. While there will be temporary loss of this potentially suitable foraging habitat within 2 km of the SPA, this represents a small proportion of available foraging habitat within 2 km of the SPA, and the vast majority will be restored within 2-3 years (as the entire route will not be excavated at once). It is therefore concluded that no likely significant effect on Sandlings SPA due to loss of functionally-linked habitat will occur.

- 5.2.5.12 Whilst construction or decommissioning activities may result in the disturbance of designated sites, control measures as outlined in the Outline Code of Construction Practice (CoCP) (**Volume 2, Part 1, Appendix 1.4.A**) such as GG03, GG04, GG06, GG09, GG21, and careful consideration of timing of the construction or decommissioning works, where feasible, would help to minimise disturbance of breeding nightjar (*Caprimulgidae*) and woodlark (*Lullula arborea*) in the adjacent Sandlings SPA. The provision of visual and noise disturbance mitigation along the boundary of compounds of works would help to reduce disturbance impacts. Until details of mitigation are identified there remains the potential for significant effects from disturbance to Sandlings SPA and Leiston-Aldeburgh SSSI.
- 5.2.5.13 The combined effects of the designated sites from the Suffolk Onshore Scheme and Offshore Scheme are considered to be not significant in relation to the loss of land and potentially significant in relation to disturbance during construction.
- 5.2.5.14 Further assessment of the designated sites is provided within **Volume 1, Part 2, Chapter 3: Ecology and Biodiversity** and **Part 5, Chapter 3: Habitats Regulation Screening Report**.

Ornithology

- 5.2.5.15 The habitat in the vicinity of the Suffolk landfall where effects of the Suffolk Onshore and Offshore Schemes have the potential to combine and create a greater impact is known to support birds, including seabirds and waterbirds. Loss of habitat that may support birds in the vicinity of the Suffolk landfall, may impact on breeding birds, seabirds and water birds.
- 5.2.5.16 The Suffolk Onshore Boundary and Offshore Boundary at the Suffolk Landfall will be crossed using trenchless techniques which will minimise habitat loss at the interface between these schemes.
- 5.2.5.17 As noted above under designated sites, Sandlings SPA is designated for nightjar and woodlark. While there will be temporary loss of potentially suitable foraging habitat within 2 km of the SPA, this represents a small proportion of available foraging habitat within 2 km of the SPA, and the vast majority will be restored within two to three years (as the entire route will not be excavated at once). It is therefore concluded that no likely significant effect on Sandlings SPA due to loss of functionally-linked habitat will occur.
- 5.2.5.18 Thousands of non-breeding wigeon and teal, as well as shelduck (*Tadorna tadorna*), black-tailed godwit (*Limosa limosa*), herring gull (*Larus argentatus*), gadwall (*Anas strepera*), and shoveler (*Anas clypeata*), have been recorded on the RSPB North Warren Reserve (where trenchless techniques will be used), and some of these have also been recorded on farmland within the Suffolk Onshore Boundary during wintering bird surveys. Until the second season of wintering bird surveys are complete it is not possible to determine whether the Suffolk Onshore Boundary supports more than 1% of the Alde-Ore Estuary SPA population of these species. Therefore, the land within the Suffolk Onshore Boundary could constitute functionally-linked land for the Alde-Orde Estuary SPA/Ramsar site, which is less than 1 km from the Proposed Project. Most habitat loss in this area would be temporary but some (under the Friston Substation and Saxmundham Converter Station) would be permanent.
- 5.2.5.19 Of the species identified in Natural England guidance as making significant use of land more than 2 km from designated site boundaries, none are reasons for designation of the Alde-Ore Estuary SPA and one (non-breeding white-fronted goose) is a reason for

designation of Minsmere-Walberswick SPA. The relevant marshland parts of the SPA are located 5.6 km north of the Proposed Project. White-fronted goose can utilise habitat for roosting and foraging up to 10 km from the boundaries of the sites for which it is designated. Until wintering bird surveys are complete it is therefore not possible to dismiss likely significant effects due to loss of functionally-linked habitat associated with Alde-Ore Estuary SPA/Ramsar and Minsmere-Walberswick SPA. This impact pathway is therefore screened in for Appropriate Assessment, see **Volume 1, Part 5, Chapter 1: Habitat Regulations Screening Report**. The fields through which the cable route will pass support a typical farmland breeding bird assemblage, as well as non-breeding birds that are probably linked to the nearby RSPB North Warren Reserve. The temporary loss of land will be replanted within two to three years of removal.

- 5.2.5.20 Birds and other fauna using the site are likely to be sensitive to noise and visual disturbance during construction or decommissioning. The most sensitive features are likely to be the fauna of field boundaries (hedgerows and ditches) and the SPA, RSPB Reserve and SSSI already referenced. Disturbance is likely to arise throughout the construction or decommissioning period. Even with mitigation it may not be possible to avoid disturbance in some parts of the site.
- 5.2.5.21 The Offshore Scheme directly passes through sites that are designated nationally or internationally for the protection of seabirds and waterbirds, including Leiston-Aldeburgh SSSI. The breeding season for seabirds varies between species but broadly extends between April and August, with the core breeding period between May and July, during which time their distribution offshore is constrained by the need to return to their breeding sites. Non-breeding birds within the Study Area include Red-Throated Diver (*Gavia stellata*).
- 5.2.5.22 Control and management measures and embedded and additional mitigation have been built into the Offshore Scheme to avoid and/or reduce impacts to ornithological receptors. For example, vessels will avoid areas where rafting birds sit, often in groups on the water, and areas with high densities of birds. Existing shipping lanes will be utilised for vessel transiting routes to avoid additional disturbance where possible. Furthermore, to avoid cumulative effects with other projects, the construction works will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March.
- 5.2.5.23 The potential impacts of the Offshore Scheme on ornithological receptors include direct disturbance and displacement of birds associated with sound, visual impacts and presence of vessels, and direct loss and disturbance of seabed habitat (including, associated prey) used by foraging seabirds and waterbirds. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant.
- 5.2.5.24 There is, therefore, some potential for significant combined projects effects on ornithology receptors in relation to loss functionally-linked habitat associated. This will be considered further in the ES and Appropriate Assessment submitted during the application for development consent.

Habitat

- 5.2.5.25 Table 5.2.4 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Suffolk Landfall to identify common receptor groups to both schemes.

- 5.2.5.26 Table 5.2.4 above identifies that intertidal habitat has the potential to experience potential combined effects of the Suffolk Onshore and Offshore Schemes. However, whilst intertidal habitat is common to land that lies within the Suffolk Onshore Boundary and Offshore Boundary these areas will all be crossed using trenchless techniques and no intertidal habitat will be lost to the Proposed Project.
- 5.2.5.27 Control measures will also be employed to minimise any indirect effects during construction, which are set out within the Outline CoCP (**Volume 2, Part 1, Appendix 1.4.A**).
- 5.2.5.28 The combined effects on intertidal habitat arising from the Suffolk Onshore Scheme and Offshore Scheme collectively are considered to be not significant.

Step 3 summary of potential combined effects of the Suffolk Onshore and Offshore Schemes

Table 5.2.5 Stage 3 summary of Suffolk Onshore Scheme and Offshore Scheme combined effects

Receptor	Summary of potential combined effects of the Suffolk Onshore and Offshore Schemes at the Suffolk Landfall
Designated Sites	Not significant in relation to loss of land Potential significant effects on international and national sites in relation to disturbance until the details of the mitigation identified are developed.
Ornithology	Potential to be significant in relation to loss of functionally-linked habitat until the details of the mitigation identified are developed
Notable Habitats (terrestrial and aquatic)	Not significant as trenchless techniques will minimise the loss of intertidal habitat.

Combined Effects of the Kent Onshore Scheme and Offshore Scheme

Step 1 Pre-screening, review and identification of shared receptors

- 5.2.5.29 Table 5.2.6 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Kent Landfall to identify common receptor groups to both schemes.

Table 5.2.6 Stage 1 Pre-screening of shared Kent Onshore Scheme and Offshore Scheme shared receptors within the vicinity of the Kent landfall

Receptor	Suffolk	Offshore
Designated Sites	Thanet Coast & Sandwich Bay SPA and Ramsar Thanet Coast Special Area of Conservation (SAC) Stodmarsh SPA/Ramsar Stodmarsh SAC Humber Estuary SAC Sandwich Bay to Hacklinge Marshes SSSI	Sandwich Bay to Hacklinge Marshes SSSI Thanet Coast & Sandwich Bay SPA and Ramsar Southern North Sea SAC Sandwich Bay SAC Thanet Coast Marine Conservation Zone
Terrestrial and Aquatic Ecological receptors	Reptiles Bats, Riparian mammals Dormice, Invertebrates, Fish	None (Marine receptors listed separately)
Ornithology	Birds	Seabirds and waterbirds.
Benthic Ecology	None	Benthic Habitat Benthic Species
Fish and Shellfish Ecology	None	Fish and Shellfish Ecology
Marine Mammals	None	Marine Mammals
Notable Habitats (terrestrial and aquatic)	Woodland Blocks Hedgerow Grassland Intertidal habitat	Intertidal habitat Marine habitat
Water resources (existing abstractions and discharges)	Licensed abstractions	None
Watercourses and waterbodies	Stour Monkton and Minster Marshes Stoneless Stream	South East River Basin Management Plan
Flood risk receptors	Residential Works Site	None
Geology	Exposure to and mobilisation of existing potential contamination	Seabed Geology

Receptor	Suffolk	Offshore
Groundwater	East Kent Tertiaries	None
Marine Physical Environment	None	Water column Water quality Seabed morphology Kent coastline Seabed Bathymetry
Commercial Fisheries	None	Mobile fishing gear Static fishing gear

5.2.5.30 Table 5.2.6 identifies the following receptors groups which may be impacted by both the Kent Onshore Scheme and the Offshore Scheme

- Designated Sites;
- Ornithology; and
- Notable Habitats.

5.2.5.31 These receptor groups have been progressed for further assessment in Step 2.

Step 2 Source-pathway-receptors identification

Designated Sites

5.2.5.32 Table 5.2.4 presents a screening of the receptors identified as having the potential for combined effects at scoping (Ref. 5.2.4) and summarised in Section 5.2.4 above. The table summarises the receptors in the vicinity of the Suffolk Landfall to identify common receptor groups to both schemes.

5.2.5.33 Table 5.2.4 above identifies the following shared receptors for designated sites which have the potential to be impacted by both the Kent Onshore Scheme and Offshore Scheme due to their proximity to the Kent Landfall:

- Thanet Coast & Sandwich Bay SPA and Ramsar;
- Thanet Coast SAC;
- Stodmarsh SPA/Ramsar;
- Stodmarsh SAC;
- Humber Estuary SAC;
- Sandwich Bay to Hacklinge Marshes SSSI; and
- Sandwich Bay SAC

5.2.5.34 Impacts likely to arise on these designated sites include loss of land and disturbance during construction.

- 5.2.5.35 Whilst there are several coastal designated sites that technically lie within the Kent Onshore Boundary and Offshore Boundary these will all be crossed using trenchless techniques and no land from these sites will be lost at the Kent Landfall. Part of a belt of dense trees and scrub east of the railway line at Weather Lees Hill of Sandwich Bay to Hacklinge Marshes SSSI lies within the proposed Kent Onshore Scheme. However, the boundaries of the proposed Kent Onshore Scheme have been defined to provide maximum flexibility for routing and locating decisions to be refined; construction will not necessarily take place on all areas within the boundary.
- 5.2.5.36 Construction or decommissioning may result in the disturbance of designated sites, control measures; however, measures outlined in the Outline Code of Construction Practice (CoCP) (**Volume 2, Part 1, Appendix 1.4.A**) such as GG03, GG04, GG06, GG09, GG21 will help to manage any impacts. Given that the Sandwich Bay to Hacklinge Marshes SSSI is adjacent to an active railway line wildlife would probably not be disturbed by traffic using the haul road. Without mitigation, noise and lighting could disturb the SSSI; however, the provision of visual and noise disturbance mitigation along the boundary of compounds of works would help to reduce impacts.
- 5.2.5.37 The combined effects of the designated sites from the Kent Onshore Scheme and Offshore Scheme are not considered to be significant in relation to the loss of land and disturbance during construction due to both the design of the Proposed Project and the appropriate control measures that will be in place.
- 5.2.5.38 Further assessment of the designated sites is provided within **Volume 1, Part 2, Chapter 3: Ecology and Biodiversity** and **Part 5, Chapter 3: Habitats Regulation Screening Report**.

Ornithology

- 5.2.5.39 The onshore habitat around the Kent Onshore Scheme that is known to support key bird species is focused further inland around Minster Substation and Minster Converter Station. For example, the fields in which the Minster Converter Station and substation are proposed to be located held a flock of more than 700 non-breeding golden plover (one of the species for which Thanet Coast & Sandwich Bay SPA is designated) on a single survey visit in December 2022, when the fields were partly flooded. This constitutes more than 1% of the SPA population, albeit number like this have only been recorded on a single occasion to date. These fields, amounting to 13.6 ha of arable land, will be permanently lost. Although the entire fields will not be occupied by the Proposed Project, they will effectively cease to support significant non-breeding bird assemblages. In addition, non-breeding hen harrier, marsh harrier, skylark and lapwing were recorded using the inland survey area in occasionally notable numbers, either for foraging or resting. They were generally focussed on the River Stour or the fields immediately adjacent.
- 5.2.5.40 Birds and other fauna using the habitats within the Kent Onshore Scheme and surrounding area are likely to be sensitive to noise and visual disturbance during construction or decommissioning. Disturbance is likely to arise throughout the construction or decommissioning period. Even with mitigation it may not be possible to avoid disturbance in some parts of the site.
- 5.2.5.41 The Offshore Scheme directly passes through sites that are designated nationally or internationally for the protection of seabirds and waterbirds. These include Thanet Coast and Sandwich Bay SPA, Thanet Coast and Sandwich Bay Ramsar, Sandwich and Pegwell Bay National Nature Reserve (NNR), and Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI).

- 5.2.5.42 The breeding season for seabirds varies between species but broadly extends between April and August, with the core breeding period between May and July, during which time their distribution offshore is constrained by the need to return to their breeding sites.
- 5.2.5.43 Control and management measures and embedded and additional mitigation have been built into the Offshore Scheme to avoid and/or reduce impacts to ornithological receptors. For example, vessels will avoid rafting birds (where birds sit, often in groups, on the water) and areas with high densities of birds. In addition, existing shipping lanes will be used for vessel transiting routes to avoid additional disturbance.
- 5.2.5.44 The potential impacts of the Offshore Scheme on ornithological receptors include direct disturbance and displacement of birds associated with sound, visual impacts and presence of vessels, and direct loss and disturbance of seabed habitat (including, associated prey) used by foraging seabirds and waterbirds. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant for the Proposed Project.
- 5.2.5.45 Overall the potential for combined projects effects on ornithology are considered to be significant, though the greatest effects would arise away from the landfall.

Habitat

- 5.2.5.46 Table 5.2.6 above identifies that intertidal habitat has the potential to experience potential combined effects of the Kent Onshore and Offshore Schemes. However, whilst intertidal habitat is common to land that lies within the Kent Onshore Boundary and Offshore Boundary these areas will all be crossed using trenchless techniques and no intertidal habitat will be lost to the Proposed Project.
- 5.2.5.47 Control measures will also be employed to minimise any indirect effects during construction; these measures are set out in the Outline CoCP (**Volume 2, Part 1, Appendix 1.4.A**).
- 5.2.5.48 The combined effects on intertidal habitat arising from the Kent Onshore Scheme and Offshore Scheme collectively are considered not to be significant.

Step 3 Summary of potential combined effects of the Suffolk Onshore and Offshore Schemes

Table 5.2.7 Stage 3 Summary of Suffolk Onshore Scheme and Offshore Scheme combined effects

Receptor	Summary of potential combined effects of the Kent Onshore and Offshore Schemes at the Suffolk Landfall
Designated Sites	Not significant in relation to loss of land and disturbance during construction.
Ornithology	Potential to be significant in relation to loss functionally-linked habitat until the details of the mitigation identified are developed

Receptor	Summary of potential combined effects of the Kent Onshore and Offshore Schemes at the Suffolk Landfall
Notable Habitats (terrestrial and aquatic)	Not significant as trenchless techniques will minimise the loss of intertidal habitat.

5.2.6 References

Ref. 5.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Ref. 5.2.2 Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). London: Department of Energy and Climate Change.

Ref. 5.2.3 Department for Energy Security & Net Zero. (2023a). Overarching National Policy Statement for Energy (EN-1). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147380/NPS_EN-1.pdf [accessed 31 July 2023]

Ref. 5.2.4 National Grid Electricity Transmission plc Sea Link Scoping Report October 2022. Available at: EN020026-000042-EN020026 - Scoping Report - Volume 1 - Part 1 Introduction.pdf (planninginspectorate.gov.uk) [Accessed 14 June 2023].

Ref. 5.2.5 Planning Inspectorate Scoping Opinion Proposed Sea Link December 2022. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020026/EN020026-000027-EN020026-Scoping-Opinion.pdf> [Accessed 14 June 2023].

Ref. 5.2.6 Publications Office of the European Union (2017) Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU)

Ref. 5.2.7 Publications Office of the European Union (1999) Guideline for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions

Ref. 5.2.8 Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope

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