

## The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and  
Eastern Green Link 4 (EGL 4)

# Preliminary environmental information report (PEIR)

Volume 1, Part 2, Chapter 6: Biodiversity  
May 2025

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# 6. Biodiversity

# 6. Biodiversity

## 6.1 Introduction

- 6.1.1 This chapter presents the preliminary findings of the Environmental Impact Assessment (EIA) undertaken to date for the Eastern Green Link 3 (EGL 3) and Eastern Green Link 4 (EGL 4) English Onshore Scheme, with respect to biodiversity. The preliminary assessment is based on information obtained to date. It should be read in conjunction with the description of the Projects provided in **Volume 1, Part 1, Chapter 4: Description of the Projects**.
- 6.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, current baseline conditions, current environmental measures, and the preliminary biodiversity effects that could result from the English Onshore Scheme during the construction and operation (and maintenance) phases. Specifically, it relates to the English onshore elements of EGL 3 and EGL 4 (the English Onshore Scheme) landward of Mean Low Water Springs (MLWS).
- 6.1.3 This chapter should be notably read in conjunction with:
- **Volume 1, Part 2, Chapter 7 Cultural Heritage** (due to the potential for effects on historic hedgerows);
  - **Volume 1, Part 2, Chapter 8 Landscape and Visual Amenity** (due to the close association between some landscape receptors and ecological features (habitats/flora) and the potential for overlapping embedded environmental measures);
  - **Volume 1, Part 2, Chapter 9 Water Environment and Chapter 10: Geology and Hydrogeology** (due to the close association between some habitats, flora and fauna, and local hydrology);
  - **Volume 1, Part 2, Chapter 12 Agriculture and Soils** (due to the close association between soil and ecosystem factors);
  - **Volume 1, Part 2, Chapter 13 Noise and Vibration** (due to potential for noise and vibration to adversely affect ecological receptors);
  - **Volume 1, Part 2, Chapter 14: Air Quality** (in relation to the scope of assessment for the English Onshore Scheme associated with air quality impacts and designated sites for nature conservation); and
  - Relevant offshore chapters relating to the intertidal zone or migratory species that may be present in both onshore and offshore environments:
    - **Volume 1, Part 3, Chapter 19 Intertidal and Subtidal Benthic Ecology;**
    - **Volume 1, Part 3, Chapter 20 Fish and Shellfish;**
    - **Volume 1, Part 3, Chapter 21 Intertidal and Offshore Ornithology; and**
    - **Volume 1, Part 3, Chapter 22 Marine Mammals and Marine Reptiles.**

6.1.4 This chapter is supported by the following figures:

- **Volume 3, Part 2, Figure 6-1: Internationally Designated Sites for Nature Conservation;**
- **Volume 3, Part 2, Figure 6-2: National and Local Statutory Designated Sites for Nature Conservation;** and
- **Volume 3, Part 2, Figure 6-3: Local Non-Statutory Designated Sites for Nature Conservation.**

6.1.5 This chapter is supported by the following appendices:

- **Volume 2, Part 2, Appendix 2.6.A: International Statutory Designated Sites;**
- **Volume 2, Part 2, Appendix 2.6.B: National and Local Statutory Designated Sites;**
- **Volume 2, Part 2, Appendix 2.6.C: Non-statutory Designated Sites;** and
- **Volume 2, Part 2, Appendix 2.6.D: Protected and Priority species records within 2 km Summary.**

## Limitations

6.1.6 The information provided in this Preliminary Environmental Information Report (PEIR) is preliminary, the final assessment of significant effects will be reported in the Environmental Statement (ES). The PEIR has been produced to fulfil National Grid Electricity Transmission plc (NGET)'s consultation duties in accordance with Section 42 of the PA2008 and enable consultees to develop an informed view of the preliminary significant effects of the English Onshore Scheme.

6.1.7 The assessment within this chapter is based on preliminary desk study analysis and field surveys undertaken to date at the point of writing, which has consisted principally of preliminary habitat classification and species suitability assessments across approximately 50% of the study area<sup>1</sup> for the English Onshore Scheme. As such, it cannot be taken as a complete picture of the potential presence and significance of important ecological features (as defined in **Section 6.9 Assessment Methodology** below) that could be affected by the English Onshore Scheme. The majority of detailed baseline surveys are yet to be completed and a full and final account of the ecological baseline and detailed impact assessment will be presented within the ES. Therefore, this chapter is intended to provide an understanding of ecological information gathered at the time of writing, but is purposefully higher-level in terms of the assessment of impacts in the absence of full baseline information.

6.1.8 There remains a risk that site access issues or health and safety issues prior to submission of the Development Consent Order (DCO) application prohibit completion of surveys in discrete areas. Where gaps in baseline survey data remain, an alternative survey approach and/or approach to assessment will be discussed with relevant stakeholders. The approach will be designed to ensure that the information and assessments undertaken are robust enough to provide a sufficiently informed view of the potential significant effects of the English Onshore Scheme on biodiversity. This may include, for example, adoption of a “*reasonable worst-case scenario*” and/or

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<sup>1</sup> draft Order Limits for the English Onshore Scheme plus 50 m, as defined within **study area** below.

application of the precautionary principle (Ref 6.1). Where such approaches are to be taken, the Applicant would seek to discuss and agree these with relevant stakeholders.

## Preliminary significance conclusions

- 6.1.9 As detailed within this chapter, baseline biodiversity data collection is ongoing, and data collected to date is limited. As such, as is typical at this stage of the PEIR/EIA process, there is insufficient information to establish the importance of ecological features and determine those that should be included within the impact assessment. In the absence of a full ecological baseline, it is considered too early at this PEIR stage to make meaningful conclusions with regards to biodiversity effects and their significance for most ecological features without heavy reliance on assumption and/or caveats.
- 6.1.10 Where appropriate and where confidence exists at this PEIR stage, a high-level narrative of anticipated biodiversity effects for only a limited number of ecological features is presented within this chapter (see **Section 6.10 Preliminary assessment of biodiversity effects**). A full impact assessment, including appropriate mitigation and compensation proposals, will be presented within the ES.

## 6.2 Relevant technical guidance

- 6.2.1 The legislation and planning policy which has informed the assessment of effects with respect to biodiversity is provided in **Volume 1, Part 1, Chapter 2: Regulatory and Policy Overview**. Relevant technical guidance, specific to biodiversity, that has informed this PEIR and will inform the assessment within the ES is summarised below.

### Technical guidance

- 6.2.2 A summary of the technical guidance for biodiversity is given in **Table 6-1**. In relation to specific species or receptors, key guidance associated with impact assessment has been included although a full list of survey guidance is not presented within this PEIR. Those relevant to the survey methods that have informed the baseline data collection within this PEIR are referenced in **Section 6.4 Data Gathering Methodology**. All relevant survey guidance will be presented within baseline reports that are to support the ES.

**Table 6-1 – Technical guidance relevant to the biodiversity assessment**

Technical guidance document	Context
<b>GENERAL</b>	
Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 (Ref 6.1)	Provides guidance that is relevant to the assessment of potentially significant effects on biodiversity.

Technical guidance document	Context
CIEEM (2017) Guidelines for Preliminary Ecological Appraisal: Second Edition (Ref 6.2)	Provides guidance that is relevant to the assessment of potentially significant effects on biodiversity.
BS 42020:2013. Biodiversity: Code of practice for planning and development (Ref 6.3)	British Standard 42020 “ <i>gives recommendations and guidance for those in the planning and development and land use sectors whose work might affect or have implications for the conservation or enhancement of biodiversity. As such it is applicable to professionals working in the fields of ecology, land use planning, land management, architecture, civil engineering, landscape architecture, forestry, arboriculture, surveying, building and construction.</i> ” It provides guidance on how to produce ecological information to accompany planning applications. It recommends that ecological impacts should be assessed and recommendations for mitigation, compensation and enhancement should be made in accordance with the Guidelines for Ecological Impact Assessment, and provides guidance on the mitigation hierarchy.
Institute of Air Quality Management (IAQM) (2014) Guidance on the assessment of dust from demolition and construction (Ref 6.4)	Provides guidance that is relevant to the zone of influence and assessment of potentially significant effects on biodiversity associated with dust.
<b>KEY SPECIES/RECEPTOR SPECIFIC GUIDANCE</b>	
UK Habitat (UKHab) classification guidance (Ref 6.5)	Provides guidance on habitat classification.
A method for assessing the ornithological interest of sites for conservation (Ref 6.6)	Provides guidance associated with the impact assessment and importance valuation of bird assemblages.
Bat Surveys for Professional Ecologists, Good Practice Guidelines (Ref 6.7)	Provides guidance in relation to impact assessment, habitat suitability, survey methods, survey effort and data interpretation for bats.
Valuing Bats in Ecological Impact Assessment (Ref 6.8)	Provides guidance relating to determining the value of a bat assemblage for the purpose of an ecological impact assessment.
Bats and Artificial Lighting in the UK, Guidance Note 08/23 (Ref 6.9)	Provides guidance relating to impacts of lighting on bats and advice on appropriate lighting design.
Badger Protection: Best practice guidance for developers, ecologists and planners (England) (Ref 6.10)	Provides guidance relating to surveys, impacts, licensing and potential protection measures for badgers.

Technical guidance document	Context
The Water Vole Mitigation Handbook (Ref 6.11)	Provides guidance in relation to impact assessment, habitat suitability, survey methods and survey effort for water vole.
Great crested newt mitigation guidelines (Ref 6.12)	Provides guidance in relation to impact assessment, habitat suitability, survey methods, survey effort and data interpretation for great crested newts.
Great crested newt conservation handbook (Ref 6.13)	Provides guidance on the ecology, impacts and appropriate management and restoration practices relating to great crested newts.

## 6.3 Consultation and engagement

### Overview

6.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Section 5.9 of Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**.

### Scoping Opinion

6.3.2 A Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 05 September 2024. A summary of the relevant responses received in the Scoping Opinion in relation to biodiversity and confirmation of how these have been addressed within the assessment to date is presented in **Table 6-2**.

6.3.3 Since issue of the Scoping Opinion changes to the Projects design has resulted in Fenland District Council and Cambridgeshire County Council falling within the draft Order Limits. Whilst the preliminary assessment has taken account of the relevant baseline information for these local planning authorities, the scope of the assessment remains unchanged.

6.3.4 The information provided in the PEIR is preliminary and not all of the Scoping Opinion comments have been addressed at this stage, however, all comments will be addressed within the ES.

**Table 6-2 – Summary of EIA Scoping Opinion responses for biodiversity**

Consultee	Consideration	How addressed in this PEIR
Planning Inspectorate	The Scoping Report scoped out Willoughby Wood Site of Special Scientific Interest (SSSI), Candlesby Hill SSSI, The Shrubberies Local Nature Reserve (LNR), Willoughby Branch Line LNR, Hoplands SSSI and Claxby Chalk Pit SSSI due to their distance from the Projects (over 380 m from the Scoping Boundary) and with the	These designated sites are scoped into the PEIR and the Applicant has revisited the assessment made with reference to updated design information (including the draft Order Limits <sup>2</sup> ).

<sup>2</sup> Draft Order Limits refers specifically to the English Onshore Scheme draft Order Limits.

Consultee	Consideration	How addressed in this PEIR
	<p>implementation of design and control measures relating to dust and pollution prevention. The Planning Inspectorate commented that <i>“in the absence of information about other potential impact pathways which would extend beyond the site boundary (e.g. emissions to water, noise, etc) and potential mitigation measures the Planning Inspectorate is unable to scope these receptors out at this stage.”</i></p>	
Planning Inspectorate	<p>The Planning Inspectorate noted that any maintenance activities would be temporary and localised in nature and the potential impacts pathways (e.g. lighting, noise, dust, etc) are not predicted to give rise to significant effects. The Inspectorate agreed that the maintenance activities are unlikely to lead to likely significant effects and can be scoped out.</p>	<p>The Applicant acknowledges the agreement of this element of the assessment, which has been scoped out of this PEIR.</p>
Planning Inspectorate	<p>The Scoping Report stated that vehicle trips associated with operation and maintenance of the Projects are anticipated to be below screening criteria and impacts are not likely to lead to significant effects. As such, the Scoping Report proposed to scope this matter out of further assessment.</p> <p>The Planning Inspectorate agreed that the Projects are unlikely to result in likely significant effects during operation and this matter can be scoped out.</p>	<p>The Applicant acknowledges the agreement of this element of the assessment, which has been scoped out of this PEIR.</p>
Planning Inspectorate	<p>The Scoping Report proposed to scope out the potential risk of bird strike/collision (operational effect) on the basis that proposed overhead line works are to the existing 400 kV route and the potential risk to bird flight during operation would remain the same as the current baseline and as such significant effects are not likely. The Planning Inspectorate agreed and is content for this matter to be scoped out.</p>	<p>The Applicant acknowledges the agreement of this element of the assessment, which has been scoped out of this PEIR.</p>
Planning Inspectorate	<p>The Scoping Report proposed a 10 km and 2 km study area for international and national designated sites, respectively. The Planning Inspectorate advised that the ES should ensure the study area for each ecological receptor reflects the Projects’</p>	<p>The Applicant can confirm that the ZOI for the English Onshore Scheme was considered when identifying the proposed study areas detailed in the Scoping Report.</p>

Consultee	Consideration	How addressed in this PEIR
	<p>Zone of Influence (Zol) rather than being based on a fixed distance. The impact assessment should be based on the Zol from the Projects and any sensitive receptors. Clear justification should be provided to support any distances applied. In relation to internationally designated sites, the ES should consider the potential for effects to occur beyond 10 km, particularly where sites are designated for mobile species such as birds and bats. Efforts should be made to agree the study area(s) with relevant consultation bodies.</p>	<p>The Applicant also confirms that the study areas are revisited and justified within this chapter in response to further design information and assessment, with reference to Zol (see <b>Section 6.7 Scope of the Assessment</b>).</p> <p>The Applicant confirms that they are engaging with Natural England and other relevant stakeholders regarding study areas and survey effort in preparation for the ES. The Applicant has agreed the appropriate study areas for internationally designated sites with Natural England, as presented within this chapter (see <b>Paragraph 6.3.4</b>).</p>
<p>Planning Inspectorate</p>	<p>The Planning Inspectorate raised that impacts from invasive non-native species (INNS) are not identified in the Scoping Report to be assessed in the ES. The ES should assess potential impacts from INNS where significant effects are likely to occur. Where mitigation measures are relied on to avoid significant effects, the ES should describe these measures and signpost how they would be secured through the DCO.</p>	<p>The Applicant confirms that INNS were considered within the Scoping Report; Section 6.4 (Baseline conditions) and 6.6 (Scope of Assessment, under 'Potential sensitive receptors') include 'notable terrestrial or aquatic plant species (including INNS). Table 6-7 also included preliminary mitigation to avoid or reduce impacts from INNS, including the risk of spreading INNS.</p> <p>The Applicant confirms that an impact assessment in relation to INNS, including design, control and construction measures and how they are secured (if required), will be presented within the ES.</p>
<p>Planning Inspectorate</p>	<p>The Planning Inspectorate raised that the Scoping Report states that Horizontal Directional Drilling (HDD) may be utilised for construction. The ES should confirm where HDD would be employed and should this have potential to impact sensitive ecological receptors (e.g. designated sites), appropriate mitigation, such as measures to be included in a drilling fluid breakout plan, should be described in the ES and appropriately secured.</p>	<p>The Applicant acknowledges this comment and confirms that the ES will confirm where HDD, or other trenchless techniques, would be employed, present an impact assessment in relation to sensitive ecological features and will also detail appropriate mitigation measures. Where the type of cable installation (trench or trenchless) is unknown or unconfirmed, an assessment will be undertaken on a</p>

Consultee	Consideration	How addressed in this PEIR
		reasonable worst-case basis. Full details and justification for the assessment approach taken will be presented in the ES.
Planning Inspectorate	The ES should assess the impact of construction and decommissioning of the Projects on fish and other freshwater species and should be supported by desk study information and surveys as necessary. The assessment should include impacts on migratory species such as European eel <i>Anguilla anguilla</i> and sea trout <i>Salmo trutta</i> and cross reference should be provided to offshore fish and shellfish aspect chapter. Effort should also be made to agree the methodology with the relevant consultation bodies.	<p>The Applicant confirms that a desk study and surveys shall be undertaken to inform the impact assessment of the English Onshore Scheme on freshwater species. The assessment of aquatic receptors will include fish (including migratory) species as well as other notable freshwater species and assemblages (such as macroinvertebrates and macrophytes). Full details are to be presented within the ES.</p> <p>The Applicant acknowledges the comment about cross reference to the offshore fish and shellfish aspect chapter. Further collaboration with the Offshore team in relation to baseline data collection (see <b>paragraph 6.11.3</b>) and impact assessment will be undertaken, with full details to be presented in the ES.</p> <p>The Applicant is engaging with key stakeholders, notably Natural England and the Environment Agency, to agree the methodology of the proposed survey effort.</p>

## Technical engagement

6.3.5 Technical engagement with consultees in relation to biodiversity is ongoing. A summary of key technical engagement undertaken to date (25 February 2025) is outlined in **Table 6-3**.

**Table 6-3 – Technical engagement on the environmental aspect assessment**

Consultee	Consideration	How addressed in this PEIR
Natural England	<b>Birds</b> – Bird Survey Methodology document issued to Natural England for comment in September 2024. The document outlines the proposed survey methods and survey effort specifically for the English Onshore Scheme, in	This PEIR outlines bird survey effort to date and further survey proposed, in addition to further engagement with Natural England.

Consultee	Consideration	How addressed in this PEIR
	<p>addition to data provision from other neighbouring projects (Grimsby to Walpole Project) and sources.</p> <p>The Applicant and Natural England held a meeting on 13 February 2025 to discuss bird survey methods and effort further. During the meeting, the survey methodology (transects along the cable route and vantage point at the landfall) were agreed. Provisional agreement was also reached relating to survey effort (single year of monthly surveys for the English Onshore Scheme) pending details of all data available to inform the impact assessment. Discussions remain ongoing between the Applicant and Natural England.</p>	
Natural England	<p><b>Great Crested Newt (GCN) <i>Triturus cristatus</i></b> – a technical note outlining the proposed approach to assessment (desk-based and field survey) for GCN was issued to Natural England for comment on 14 February 2025. The Applicant continues to engage with Natural England regarding the approach to assessment.</p>	<p>This PEIR outlines GCN survey effort to date and further survey proposed, in accordance with the technical note issued to Natural England.</p>
Natural England	<p><b>Bats</b> – a technical note outlining the proposed approach to assessment (desk-based and field survey) for bats was issued to Natural England for comment on 14 February 2025. The Applicant continues to engage with Natural England regarding the approach to assessment.</p>	<p>This PEIR outlines bat survey effort to date and further survey proposed, in accordance with the technical note issued to Natural England.</p>
Natural England	<p>Email correspondence from the Applicant to Natural England to confirm the proposed study area(s) for internationally designated sites and a list of internationally designated sites that would therefore be included within the assessment.</p>	<p>Natural England confirmed agreement with the proposed study areas for internationally designated sites within an email to the Applicant on 11 March 2025. These include a 10 km study area, extended to 30 km for sites designated for bats and extended to include those with migratory qualifying species that have a relevant hydrological connection (as detailed in <b>Section 6.4 Data Gathering Methodology</b>).</p>

Consultee	Consideration	How addressed in this PEIR
		The Applicant issued a list of internationally designated sites to Natural England for inclusion within this chapter, based on the agreed study areas, on 18 March 2025. Natural England confirmed they were happy with the list of internationally designated sites, as presented within this chapter.

## 6.4 Data gathering methodology

### Study areas

6.4.1 The study area encompasses the area over which all desk-based data was gathered to inform the biodiversity assessment presented in this chapter. Due to the presence of multiple ecological features<sup>3</sup> and many potential effects, the level and type of data collection varies across the study area. The study area comprises:

- land within the draft Order Limits (as shown on **Volume 3, Part 2, Figure 6-1 Internationally Designated Sites for Nature Conservation**);
- the desk study areas (known as “*areas of search*”) for sites designated for their nature conservation interest at the international, national and local levels (as described in **Table 6-5**);
- the area of search for legally protected and notable ecological features; and
- the area of search for any legally controlled species (i.e. INNS).

6.4.2 The extent of the desk study areas of search was determined based on best practice guidance (**Table 6-4**) and a high-level overview of the types of ecological features present and the potential effects that could occur. The study area was defined on a precautionary basis to ensure that the Zol relevant to all ecological features were covered during baseline data collection activities. Zol are the areas within which a potentially significant effect associated with the English Onshore Scheme may be identified for a particular ecological feature and vary from feature to feature (Zol for the purpose of the impact assessment detailed further within **Section 6.7 Scope of Assessment** section).

6.4.3 Within the draft Order Limits, consideration has been given to the indicative footprint of the English Onshore Scheme. The English Onshore Scheme is described in detail within **Volume 1, Part 1, Chapter 4: Description of the Projects**.

6.4.4 The study area will be reviewed and amended in response to such matters as refinement of the English Onshore Schemes’ design, the identification of additional

<sup>3</sup> The Chartered Institute for Ecology and Environmental Management (CIEEM) refer to biodiversity receptors within technical guidance (Ref 6.1) as ‘ecological features’. This term is used throughout this chapter.

impact pathways and where appropriate in response to feedback from consultation, to ensure that there is sufficient data on which to conduct the assessment. These refinements are expected to reduce the extent of the study area as the English Onshore Scheme progresses, whilst still reflecting recognised good practice. A full and final account of the study area will be presented within the ES.

## Desk study

6.4.5 An initial desk study was carried out in July 2024 to inform the Scoping stage, when the study area was based on the Scoping Boundary. The English Onshore Schemes' design has since been developed and refined, with the draft Order Limits replacing the Scoping Boundary. An updated data gathering exercise was undertaken in January 2025 to reflect this change and inform this PEIR. This involved obtaining information relating to relevant statutory and non-statutory sites designated for nature conservation, Habitats of Principal Importance (HPIs), Species of Principal Importance (SPIs)<sup>4</sup>, legally protected and controlled species and other conservation notable habitats or species<sup>5</sup> that have been recorded within the relevant areas of search.

6.4.6 The desk study areas of search are defined as the following:

- International Designated Sites: draft Order Limits plus 10 km:
  - extending to 30 km for bats; and
  - as required, extended<sup>6</sup> to include those with migratory and/or aquatic qualifying species that have a relevant hydrological connection.
- National and Local Statutory Designated Sites: draft Order Limits plus 2 km;
- Non-Statutory Designated Sites: draft Order Limits plus 2 km; and
- Protected, notable and controlled species records: draft Order Limits plus 2 km (approximately, and from the past 20 years only).

6.4.7 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 6-4** below.

**Table 6-4 – Data sources used to inform the Biodiversity assessment Desk Study**

Organisation	Data source	Data provided
Multi Agency Geographic Information for the Countryside (MAGIC) (Ref 6.14)	<a href="https://magic.defra.gov.uk/">https://magic.defra.gov.uk/</a>	Statutory sites, HPIs and SPIs, Ancient Woodland Inventory <sup>7</sup> , network enhancement and expansion zones, habitat waterbody locations and European Protected Species

<sup>4</sup> As defined under the NERC Act 2006 (Ref 6.9).

<sup>5</sup> A conservation notable species is one that has some form of conservation designation (for example it is present on a red list) but has no specific legal protection.

<sup>6</sup> Extension distance of the study area is dependent on a variety of factors, including the type of hydrological connection and migration distance/home range of the qualifying species. The study area for this criterion is being reviewed by the Applicant and may be defined on a species-by-species or site-by-site basis. A full justification and explanation will be presented in the ES.

<sup>7</sup> Areas of Ancient Woodland are listed under the Ancient Woodland Inventory (AWI)

Organisation	Data source	Data provided
		(EPS) mitigation and class licence and survey data.
Google Earth	A review of aerial photography	Indicative habitat data and waterbody locations.
Remote sensing habitat data	Various sources including BlueSky	High level habitat mapping using aerial imagery datasets, categorised broadly into UKHab classifications. Used as an early stage indicative habitat map dataset.
Norfolk Biodiversity Information Service (NBIS) (Ref 6.15)	<a href="http://www.nbis.org.uk/">http://www.nbis.org.uk/</a>	All non-statutory designated sites, protected and notable species records.
Cambridgeshire and Peterborough Environmental Records Centre (CPERC) (Ref 6.16)	<a href="https://www.cperc.org.uk/our-services/">https://www.cperc.org.uk/our-services/</a>	All non-statutory designated sites, protected and notable species records.
Greater Lincolnshire Nature Partnership (GLNP) (Ref 6.17)	<a href="https://search.glnp.org.uk/">https://search.glnp.org.uk/</a>	All non-statutory designated sites, protected and notable species records.
Environment Agency	Ecology and Fish Data Explorer <a href="https://environment.data.gov.uk/ecology/explorer/">https://environment.data.gov.uk/ecology/explorer/</a>	Fish, aquatic macroinvertebrate and macrophyte records
Environment Agency/The Rivers Trust (TRT) /AMBER International (Adaptive Management of Barriers in European Rivers)	Environment Agency - Asset Management <a href="https://environment.data.gov.uk/asset-management/index.html">https://environment.data.gov.uk/asset-management/index.html</a> TRT - <a href="https://river-obstacles-therivertrust.hub.arcgis.com/">https://river-obstacles-therivertrust.hub.arcgis.com/</a> AMBER International- <a href="https://amber.international/european-barrier-atlas/">https://amber.international/european-barrier-atlas/</a>	Location of barriers and/or obstacles to fish and eel passage.
District Level Licensing (DLL) data for Lincolnshire	Natural England	Data set contained Risk Zones and Strategic Opportunity Area maps for great crested newts within Lincolnshire.

Organisation	Data source	Data provided
Wetland Bird Survey (WeBS) data	British Trust for Ornithology (BTO)	WeBS data requested for relevant sectors across the Projects, including the landfall.

## Survey work – English Onshore Scheme

6.4.8 The following sections detail the survey work undertaken to date, to inform the English Onshore Scheme and this PEIR. This survey work commenced in August 2024 and is currently on-going. Further baseline surveys for the English Onshore Scheme to inform the ES, including the applicable survey areas with relevance to the draft Order Limits, are detailed in **Section 6.11 Further work to be undertaken**.

### *Preliminary Ecological Appraisal (PEA)*

6.4.9 Habitat mapping (in accordance with UKHab guidance (Ref 6.5)) and protected species assessments have been undertaken, to date, as part of PEA walkover surveys. These surveys have been undertaken within areas which have been granted land access permission to date. Prior to the release of the draft Order Limits and in the absence of such a boundary, PEA walkover surveys were undertaken along an indicative route alignment of the cable provided by the appointed Front End Engineering Designers (FEED) in 2024. The survey area was represented by the indicative route alignment, plus a buffer of 125 m either side, creating an approximately 250 m wide assessment corridor. This was extended to 250 m either side for assessment relating to great crested newt (creating an approximately 500 m wide corridor). Similar buffer distances were also applied to siting zones for permanent infrastructure (Walpole converter station and Walpole B Substation) at the southern end of the English Onshore Scheme.

6.4.10 The PEA walkover surveys involved habitat mapping (UKHab), alongside condition assessments of these habitats relating to Biodiversity Net Gain (BNG), and aquatic habitat assessments. These surveys were combined with protected species habitat suitability assessments, including consideration for the following species:

- birds;
- bats (including Daytime Bat Walkover (DBW), Ground Level Tree Assessments (GLTA) and Preliminary Roost Assessment (PRA)<sup>8</sup>);
- badgers *Meles meles*;
- otter *Lutra lutra*;
- water vole *Arvicola amphibius*;
- GCN and other amphibians (such as common toad *Bufo bufo*, a SPI);
- Reptiles;
- other notable species such as brown hare *Lepus europaeus* or hedgehog *Erinaceus europaeus*;
- Aquatic species (including fish); and
- notable terrestrial or aquatic plant species (including invasive, non-native species).

<sup>8</sup> Survey methodology terminology from good practice guidelines for bats (Ref 6.7).

## *Bird Surveys*

- 6.4.11 A total of thirteen bird transects covering a range of inland (largely agricultural) habitats and a single coastal vantage point survey (at the Anderby Creek Landfall) were designed. The survey locations were initially based on the Scoping Boundary and potential Zol of the English Onshore Scheme for breeding, wintering, passage and intertidal bird species. These were scheduled to be repeated monthly, commencing in September 2024 and are currently ongoing.
- 6.4.12 Some of these surveys have been unable to be completed due to unforeseen circumstances, including land access and health and safety limitations. However, a considerable (yet proportionate) dataset is being gathered, and these surveys remain on-going.

## *Aquatic Ecology Surveys*

- 6.4.13 Twenty eDNA samples have been collected from twenty Water Framework Directive (WFD) recognised waterbodies to identify the presence of fish, macroinvertebrate, and bivalve species. Concurrently, qualitative aquatic habitat data were recorded at each survey location. Sampling locations were selected based on the Scoping Boundary, hydrological connectivity, representative habitat characteristics, and proximity to previously existing or relevant datasets. An additional nine eDNA samples are scheduled for collection in spring 2025 as land access constraints prevented collection in autumn 2024. Results from the eDNA analysis are expected to be returned in spring 2025.

## **Survey work – Grimsby to Walpole**

- 6.4.14 The biodiversity baseline is also informed by data collected by the Applicant's neighbouring project; the Grimsby to Walpole Project. The proposed Grimsby to Walpole Project is an overhead line scheme and seeks to establish a new 400 kV transmission connection between five new substations. One of these substations is the new Walpole B Substation, which is a common connection point for both the EGL 3, EGL 4 and the Grimsby to Walpole Project. The English Onshore Scheme runs parallel to the Grimsby to Walpole Project for the majority of its length, with overlaps and crossovers at locations along their route.
- 6.4.15 It has been agreed that the Projects and the Grimsby to Walpole Project will share ecological survey data. This provides a cost benefit to the Applicant (to avoid duplication of surveys in each locality) but also avoids potential impacts on the species being surveyed from duplication of survey efforts.
- 6.4.16 To date, this has involved ad hoc data sharing when data has become available and following appropriate quality control and analysis. The data received to date from the Grimsby to Walpole Project (dating from 2024 to present) has been included in the **Current baseline Section** below alongside the data obtained specifically for the English Onshore Scheme, where relevant and useful.

## 6.5 Overall baseline

### Current baseline

#### *Designated Sites for Nature Conservation*

##### *Statutory Designated Sites - International*

- 6.5.1 A total of five international designated sites for nature conservation have been identified within the 10 km study area. This is comprised of two Special Areas of Conservation (SAC), two Special Protection Areas (SPA) and one Ramsar site. In addition, four further international designated sites (Humber Estuary SAC and Ramsar, Nene Washes SAC and Baston Fen SAC) are also included as part of the assessment. Whilst beyond 10 km of the draft Order Limits, the SACs and Ramsar are hydrologically connected to the English Onshore Scheme and designated for migratory and/or aquatic species<sup>9</sup> that may also occur within a Zol of the English Onshore Scheme. For reference, the Ramsar designations share boundaries with their respective SPAs. Only one of these designated sites is located within the draft Order Limits although adjacent to the English Onshore Scheme, the Greater Wash SPA. No SACs designated for bats were identified within the 30 km study area.
- 6.5.2 Full details of the internationally designated sites are provided in **Volume 2, Part 2, Appendix 2.6.A** and are displayed on **Volume 3, Part 2, Figure 6-1 Internationally Designated Sites for Nature Conversation**.

##### *Statutory Designated Sites - Local and National*

- 6.5.3 A total of seven locally and nationally designated sites for nature conservation have been identified within the 2 km study area. This included six Sites of Special Scientific Interest (SSSI) and a single Local Nature Reserve (LNR). Full details of these designated sites are provided in **Volume 2, Part 2, Appendix 2.6.B** and displayed on **Volume 3, Part 2, Figure 6-2 National and Local Statutory Designated Sites for Nature Conservation**.
- 6.5.4 The closest of these is Willoughby Meadow SSSI, which is located marginally within the draft Order Limits; the edge of the SSSI falls within the draft Order Limits. This designated site is a species rich neutral grassland containing two small ponds. The grassland is managed traditionally (taking a hay crop, followed by grazing).

##### *Non-statutory Designated Sites*

- 6.5.5 A total of 60 non-statutory designated sites for nature conservation have been identified within the 2 km study area. This included 56 Local Wildlife Sites (LWS) and four County Wildlife Sites (CWS). Full details of these designated sites are provided in **Volume 2, Part 2, Appendix 2.6.C** and displayed in **Volume 3, Part 2, Figure 6-3 Non-Statutory Designated Sites for Nature Conservation**.

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<sup>9</sup> **Humber Estuary SAC/Ramsar:** sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis* and grey seal *Halichoerus grypus*; **Nene Washes Sac and Baston Fen SAC:** spined loach *Cobitis taenia*.

6.5.6 A total of sixteen non-statutory designated sites are located within the draft Order Limits, designated for a range of habitats and species (including floral species, birds, fish and invertebrates) comprising the following (north to south):

- Marsh Yard to Anderby Creek Dunes LWS;
- Moggs Eye Sea Bank LWS;
- Willoughby Meadow West LWS;
- River Lymn LWS;
- Hobhole Drain, Boston Corporation Farm to Station Cottages LWS;
- Hobhole Drain, Simmon House Bridge to Benington Bridge LWS;
- Frith Bank Drain LWS;
- Witham Way, Anton's Gowt to Boston LWS;
- South Forty Foot Drain LWS;
- South Bank Fosdyke LWS;
- Moulton River LWS;
- Tydd Gote Bank LWS;
- Nene Bank Road Verges LWS;
- North Level Main Drain at Tydd Gote CWS;
- River Nene CWS;and
- Honington House Farm CWS.

6.5.7 There are also twelve Lincolnshire Wildlife Trust (LWT) reserves within 2 km of the draft Order Limits. None of these are located within the draft Order Limits, although two are located directly adjacent. Three of the LWT reserves also share geographical boundaries with a LWS.

### *Habitats and Species*

6.5.8 **Table 6-5** below provides a summary of desk study and field survey results to date, relating to protected and/or notable species relevant to the English Onshore Scheme. A large number of protected species records within the past 20 years<sup>10</sup> were returned from the 2 km data search.

6.5.9 A summary of protected species records returned from the data search is provided in **Volume 2, Part 2, Appendix 2.6.D**. Distance and direction for records has been calculated approximately from the draft Order Limits, using grid references provided by local record centres. In some cases, these grid references cover a large area (for example 1 km or 10 km grid square), therefore, the distance measurement is an approximation and should be considered as such.

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<sup>10</sup> Restricted to 10 years for the purposes of the aquatic species desk study analysis.

**Table 6-5 – Summary of Protected and/or Notable Habitats and Species**

Receptor	Desk Study	Field Survey
Habitats	<p>The following HPI are located within the draft Order Limits:</p> <ul style="list-style-type: none"> <li>• Coastal and Floodplain Grazing Marsh;</li> <li>• Deciduous Woodland (which may qualify as Lowland Mixed Deciduous Woodland HPI);</li> <li>• Lowland Meadow;</li> <li>• Mudflats;</li> <li>• Lowland calcareous grassland; and</li> <li>• Coastal saltmarsh.</li> </ul> <p>In addition to the above, the following additional HPIs were also present within 2 km:</p> <ul style="list-style-type: none"> <li>• Coastal sand dunes;</li> <li>• Lakes;</li> <li>• Traditional orchard;</li> <li>• Wood-pasture and parkland;</li> <li>• Open mosaic habitats on previously developed land;</li> <li>• Rivers; and</li> <li>• Ponds.</li> </ul> <p>Several areas of Ancient Woodland are also located within the 2 km study area. None of these areas of habitat are located within the draft Order Limits itself.</p>	<p>The majority of the landscape is arable cropland, interspersed with other habitats such as other neutral grassland. Field boundaries largely comprise ditches including several larger drains and a number of Main Rivers. There are relatively few ponds overall in the landscape and largely limited areas of scrub and woodland cover. Further field surveys are anticipated to potentially identify additional smaller areas of habitats such as those HPI identified through the desk study, for example saltmarsh and lowland meadow.</p>

Receptor	Desk Study	Field Survey
Birds (wintering, breeding, passage and intertidal)	<p>Records for a total of 71 Schedule 1<sup>11</sup> bird species were provided; 67 of which lie within the draft Order Limits.</p> <p>Large numbers of records of SPA/Ramsar<sup>12</sup> qualifying species were returned, which included (but not limited to) the following qualifying species (full list in <b>Volume 2, Part 2, Appendix 2.6.D</b>):</p> <ul style="list-style-type: none"> <li>• Bewick’s swan <i>Cygnus columbianus</i>;</li> <li>• Black-tailed godwit <i>Limosa limosa</i>;</li> <li>• Common scoter <i>Melanitta nigra</i>;</li> <li>• Goldeneye <i>Bucephala clangula</i>;</li> <li>• Little gull <i>Hydrocoloeus minutus</i>;</li> <li>• Little tern <i>Sternula albifrons</i>.</li> <li>• Pintail <i>Anas acuta</i>; and</li> <li>• Red-throated diver <i>Gavia stellata</i>.</li> </ul> <p>A summary for the WeBS site Anderby (Location Code 35S01), covering the intertidal habitats at the proposed landfall, is presented in <b>Volume 1, Part 3, Chapter 21 Intertidal and Offshore Ornithology</b>.</p>	<p>The largely agricultural landscape supports a range of waders, geese, other waterbirds and birds of prey (including SPA/Ramsar species) during the winter and will likely support a range of farmland breeding bird species. The coastal vantage point location supports a range of birds on the relatively narrow area of intertidal habitats (and out to sea) as well as on fields immediately inland, including waders, geese, ducks, other waterbirds and birds of prey.</p> <p>Species recorded on surveys to date (which were focused on waterbirds and raptors for the autumn/winter period) including the following SPA/Ramsar qualifying and Schedule 1 species.</p> <p><u>Transect SPA/Ramsar species:</u></p> <ul style="list-style-type: none"> <li>• black-headed gull <i>Chroicocephalus ridibundus</i>;</li> <li>• cormorant <i>Phalacrocorax carbo</i>;</li> <li>• curlew <i>Numenius Arquata</i>;</li> <li>• gadwall <i>Mareca strepera</i>;</li> <li>• golden plover <i>Pluvialis apricaria</i>;</li> <li>• goldeneye;</li> <li>• lapwing <i>Vanellus vanellus</i>;</li> <li>• lesser black-backed gull <i>Larus fuscus</i>;</li> <li>• pink-footed goose <i>Anser brachyrhynchus</i>;</li> <li>• redshank <i>Tringa totanus</i>;</li> <li>• teal <i>Anas crecca</i>; and</li> <li>• wigeon <i>Anas Penelope</i>.</li> </ul> <p><u>Transect Schedule 1 species:</u></p>

<sup>11</sup> Schedule 1 bird species are afforded additional legal protection under the Wildlife & Countryside Act 1981 (as amended).

<sup>12</sup> Listed on any SPA and/or Ramsar citation within 10 km i.e. Greater Wash SPA and Wash SPA & Ramsar

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**Receptor****Desk Study****Field Survey**

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- kingfisher *Alcedo atthis*;
- marsh harrier *Circus aeruginosus*; and
- peregrine *Falco peregrinus*.

Coastal vantage point (VP) species<sup>13</sup>:

- black-headed gull;
- curlew;
- golden plover;
- knot *Calidris canutus islandica*;
- lapwing;
- mallard *Anas platyrhynchos*;
- oystercatcher *Haematopus ostralegus*;
- pink-footed goose;
- sanderling *Calidris alba*;
- teal; and
- wigeon.

(Plus marsh harrier, a Schedule 1 species).

A number of barn owl *Tyto alba* boxes and other artificial bird boxes have been identified along the English Onshore Scheme. The use of these features has not been investigated at this stage.

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<sup>13</sup> Excluding species only recorded on the sea, beyond the intertidal zone down to mean low water springs. However, including species visible in fields immediately inland from the VP.

Receptor	Desk Study	Field Survey
Bats	<p>There are no national statutory sites (e.g. SSSIs) designated for bats within 2 km and no international SAC sites designated for bats within 30 km.</p> <p>Records for three EPS licence applications were returned within 2 km of the draft Order Limits, related to common pipistrelle <i>Pipistrellus pipistrellus</i> and brown long-eared bat <i>Plecotus auritus</i>. The closest of these were two granted mitigation licences pertaining to both species, located approximately 0.6 km east of the draft Order Limits.</p> <p>A single record for barbastelle bat <i>Barbastella barbastellus</i> (species listed under Annex II of The Habitats Directive), was recorded approximately 0.2 km north of the draft Order Limits in 2015. Whilst outside the 2 km protected species area of search for the data records, a known barbastelle breeding colony is located approximately 27 km from the draft Order Limits (professional knowledge).</p> <p>Records for a further ten species of bat, some of which were for roosts, were returned within 2 km, comprising:</p> <ul style="list-style-type: none"> <li>• pipistrelle bat species <i>Pipistrellus</i> spp.;</li> <li>• common pipistrelle;</li> <li>• soprano pipistrelle <i>Pipistrellus pygmaeus</i>;</li> <li>• noctule <i>Nyctalus noctula</i>;</li> </ul>	<p>Bat survey including DBW, GLTA and PRA (Ref 6.7) have been carried out to date. A number of trees have been recorded with potential roost features (PRF-I<sup>14</sup> and PRF-M<sup>15</sup> (Ref 6.7)) and further assessment required (FAR) to determine their roosting suitability. In addition, a relatively low number of buildings have been recorded as having Low roost suitability to support bat roosts (with further buildings to be assessed to establish their roosting suitability).</p> <p>Habitats across the English Onshore Scheme are considered to represent primarily Negligible and Low suitability for foraging and commuting bats (in accordance with definitions detailed within good practice (Ref 6.7)). Some isolated areas may qualify as Moderate suitability where the density of linear connective corridors increases. However, as is the case across the English Onshore Scheme, the habitats largely comprise open agricultural (arable) fields, with boundary features that are most commonly managed ditches. There are occasional hedgerows across the landscape which provide connectivity to the wider landscape including areas of woodland habitat. Therefore, contextually for a Lincolnshire landscape, the habitats are likely to represent Low to Moderate suitability for the local bat population.</p>

<sup>14</sup> Suitable for individual or very small numbers of bats either due to size or lack of suitable surrounding habitats

<sup>15</sup> Suitable for multiple bats and may therefore be used by a maternity colony

Receptor	Desk Study	Field Survey
	<ul style="list-style-type: none"> <li>• brown long-eared bat;</li> <li>• natterer's bat <i>Myotis nattereri</i>;</li> <li>• myotis bat species <i>Myotis</i> spp.;</li> <li>• Daubenton's bat <i>Myotis daubentonii</i>;</li> <li>• nathusius' pipistrelle <i>Pipistrellus nathusii</i>; and</li> <li>• whiskered/Brandt's bat <i>Myotis mystacinus/brandtii</i>.</li> </ul>	
Badgers	<p>A total of 482 records of badger setts have been recorded within 2 km of the draft Order Limits, with the closest within the draft Order Limits.</p>	<p>To date, a total of 76 potential or confirmed badger setts have been recorded within the draft Order Limits plus 50 m during the PEA walkover surveys.</p> <p>Further assessment is anticipated, as required, to confirm the use of these features by badger and, where confirmed as a sett, establish the type and level of use of the sett. A total of seven candidate main setts have been recorded to date, however, further surveys are required to confirm the sett classification.</p> <p>Surveys undertaken for the Grimsby to Walpole Project are also known to have recorded additional potential badger setts, within the draft Order Limits. This survey data is currently being analysed.</p>
Otter	<p>Field observations of otter have been recorded within the draft Order Limits.</p>	<p>Otter are likely to be present foraging and commuting through the study area (and draft Order Limits) and have been confirmed as present (based on field signs such as spraint identified during the English Onshore Scheme and/or Grimsby to Walpole Project field surveys) in a number of locations to date, including the River Witham, Steeping River and watercourses north of Willoughby.</p> <p>Limited secure and sheltered resting places have been recorded to date across the largely open arable landscape. However, areas of denser vegetation cover and other features</p>

Receptor	Desk Study	Field Survey
Water vole	<p>Water vole have been recorded within 2 km of the draft Order Limits, with the closest records approximately 0.9 km south of the draft Order Limits.</p> <p>Mink <i>Neovison vison</i> (a key predator of water vole) were recorded within the draft Order Limits.</p>	<p>may provide sheltering opportunities such as more mature river corridors including the River Witham near Boston.</p> <p>Watercourses, drains and ditches that have been surveyed (for suitability only) to date include a range of suitability to support water vole. The majority of the linear features are agricultural drains or otherwise modified watercourses. The proportions of linear features falling under different habitat suitability<sup>16</sup> categories, recorded to date, are as follows:</p> <ul style="list-style-type: none"> <li>• 13% Negligible;</li> <li>• 60% Suitable but Poor;</li> <li>• 26% Good; and</li> <li>• 1% Optimal.</li> </ul>
Amphibians	<p>Records for four species of amphibian were returned from the data search within the draft Order Limits, including:</p> <ul style="list-style-type: none"> <li>• GCN (also an EPS);</li> <li>• Common frog <i>Rana temporaria</i>;</li> <li>• Common toad; and</li> <li>• Smooth newt <i>Lissotriton vulgaris</i>.</li> </ul> <p>The abundance of ponds/standing waterbodies (potential GCN breeding and/or aquatic habitat) along the length of the English Onshore Scheme is relatively</p>	<p>The habitats crossed by the underground cable routes of the English Onshore Scheme comprise predominantly open arable land (approximately 90% of the draft Order Limits), which is sub-optimal for GCN. The arable fields are typically bordered by a network of drainage ditches, drains, hedgerows and tree lines.</p> <p>Presence/absence surveys in the form of eDNA sampling to inform the Grimsby to Walpole Project have, so far, found GCN presence in ponds/waterbodies in a number of locations including close to: Gipsey Bridge, Burgh Le Marsh and Stickney.</p>

<sup>16</sup> Based on Dean, M. 2021 (Ref 6.18). These are habitat suitability categories only and therefore do not link directly to water vole presence or absence.

Receptor	Desk Study	Field Survey
	<p>low, whilst ditches represent the primary habitat found along most field margins.</p> <p>Approximately 106 ponds have been identified within 250 m of the draft Order Limits (from a preliminary review of aerial imagery) with a relatively high density of ditches, which form the majority of field boundary features.</p>	
Reptiles	<p>Records for two species of reptile were returned from the data search, both recorded within the draft Order Limits:</p> <ul style="list-style-type: none"> <li>• Common lizard <i>Zootoca vivipara</i>; and</li> <li>• Grass snake <i>Natrix helvetica</i>.</li> </ul>	<p>No reptile incidental sightings have been recorded to date. Parts of the draft Order Limits provide suitable habitat to support reptile such as field margins comprising longer and more varied vegetation including ditch and hedgerow boundaries. From surveys undertaken to date, potential sheltering habitat for reptiles is relatively localised and not extensive in size.</p>
Brown hare	<p>Brown hare have been recorded within the draft Order Limits.</p>	<p>Brown hare have been recorded in fields across the draft Order Limits. The habitats across the draft Order Limits are largely agricultural (including arable fields), which provide suitable habitat to support this species including open farmland as well as field margins comprising longer and more varied vegetation including ditch and hedgerow boundaries.</p>
Hedgehog	<p>Hedgehog have been recorded within the draft Order Limits.</p>	<p>No hedgehog incidental sightings have been recorded to date, however some of the habitats within the draft Order Limits provide suitable habitat to support this species, such as field margins comprising longer and more varied vegetation including ditch and hedgerow boundaries.</p>
Harvest mouse	<p>Harvest mouse <i>Micromys minutus</i> have been recorded approximately 1.4 km west.</p>	<p>No harvest mouse incidental sightings have been recorded to date, however some of the habitats within the draft Order Limits provide suitable habitat to support this species such as field margins comprising longer and more varied vegetation</p>

Receptor	Desk Study	Field Survey
Polecat	No records of polecat <i>Mustela putorius</i> were returned. Polecat have been anecdotally sighted by a landowner near Little Steeping, including video footage from within a shed. The polecat was foraging on a rat caught in a trap. This video footage is said to have been verified by the Vincent Wildlife Trust.	including ditch and hedgerow boundaries, and limited areas of woodland edge.  No polecat incidental sightings have been recorded to date, however some of the habitats within the draft Order Limits provide suitable habitat to support this species including lowland farmland with varied field boundaries and pockets of woodland.
Terrestrial invertebrates	Records for a total of 51 species of invertebrates classed as SPI were returned from the data search, several of which were from within the draft Order Limits.	No notable invertebrates incidental sightings have been recorded to date, however parts of the landscape provide suitable habitat to support a range of invertebrates including fields and boundaries comprising more varied vegetation structure and floral species and limited areas of woodland.
Fish	Records for four notable species of fish were provided from the data search, including brown/sea trout, European eel, smelt <i>Osmerus eperlanus</i> and spined loach <i>Cobitis taenia</i> . Both European eel and spined loach records were present within the draft Order Limits.	Habitats suitable for a variety of fish species, including notable migratory species, exist within the draft Order Limits. These include Main Rivers, drains and minor watercourses, in addition to potential presence (depending on habitat suitability and connectivity) within connected ditches.  20 fish eDNA samples have been collected to date, with an additional 9 scheduled for spring 2025. eDNA results are currently being analysed and thus have yet to be returned.
Aquatic macroinvertebrates	Records for a total of 28 notable species of aquatic macroinvertebrates were returned from the data searches, several of which were from within the draft Order Limits.	Similar to fish, habitats suitable for aquatic macroinvertebrate species exist within the draft Order Limits associated with the range of aquatic habitats, including both lotic and lentic habitats.  20 aquatic macroinvertebrate eDNA samples have been collected to date, with an additional nine scheduled for spring 2025.  eDNA results are currently being analysed and thus have yet to be returned.

Receptor	Desk Study	Field Survey
Macrophytes	Records for a total of two notable species of macrophytes were returned from the data searches, needle spikerush <i>Eleocharis acicularis</i> , and field woundwort <i>Stachys arvensis</i> (near threatened). Both of which located within hydrologically connected waterbodies.	Macrophyte species may be present and associated with the range of aquatic habitats within the draft Order Limits, including both lotic and lentic habitats. No macrophyte surveys have taken place to date. Macrophyte surveys are scheduled for the summer of 2025.
Notable plant species (including terrestrial INNS).	<p>A number of INNS were recorded within 2 km of the draft Order Limits including:</p> <ul style="list-style-type: none"> <li>• Himalayan balsam <i>Impatiens glandulifera</i> (within)</li> <li>• Japanese knotweed <i>Reynoutria japonica</i> (within); and</li> <li>• Giant hogweed <i>Heracleum mantegazzianum</i> (0.2 km west).</li> </ul>	Field surveys have so far recorded terrestrial INSS within the surveyed area, including small areas or numbers of Himalayan balsam and <i>Cotoneaster</i> species plants.

## Future baseline

- 6.5.10 It is not clear whether any changes would occur to the current baseline in the future in the absence of the English Onshore Scheme. However, as the majority of the draft Order Limits comprises agricultural land, it is reasonable to assume management of such habitat would continue (in the absence of the English Onshore Scheme or other development) and this baseline habitat would remain comparable.
- 6.5.11 Due to climate change, it is possible that in the medium to long term the range of some species may be altered. Any potentially relevant changes to the baseline would be reviewed during the EIA process and, should any likely instances be identified, the implications will be considered on a case-by-case basis within the EIA. A description of the potential future baseline will also be provided in the ES.
- 6.5.12 It is recognised that there are a number of other proposed and committed developments within the surrounding area that could alter the future baseline in the absence of the English Onshore Scheme. The potential for cumulative effects will be considered as part of the ongoing and future EIA and reported in the ES, in accordance with the approach and guidance outlined within **Volume 1, Part 4, Chapter 28: Cumulative Effects**.

## 6.6 Environmental measures

- 6.6.1 As set out in **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**, the environmental measures are characterised as design measures or control and management measures. A range of environmental measures would be implemented as part of the English Onshore Scheme and will be secured in the DCO as relevant.
- 6.6.2 **Table 6-6** outlines how these design and control measures will influence the biodiversity assessment. In addition to the measures listed in Table 0-6, standard mitigation measures, comprising management activities and techniques, would be implemented during the construction of the Projects to limit effects through adherence to good site practices and achieving legal compliance. These are listed in **Volume 2, Part 2, Appendix 1.4.B: Outline Code of Construction Practice** and are not repeated below. Measures listed in Table 6-6 – Summary of the environmental measures have been assigned references, for example (GG01). These align with the references provided in **Table 3.1 of Appendix 1.4.B: Outline Code of Construction Practice** for ease of cross-reference. Any references identified with ID MT (for example, MT01) include measures which may also be listed in other aspects considered as part of this PEIR therefore, have been identified as measures which apply to multiple aspects.
- 6.6.3 In addition, design measures identified through the EIA process have been applied to avoid or reduce potential significant effects. Design measures included that a relevant to biodiversity receptors are included in **Table 6-6** below under Design and Operation and are also included in **Volume 2, Part 1, Appendix 1.4.A: Register of Design Measures**
- 6.6.4 Given the current position in relation to baseline data collection, with much of the ecological field surveys to be undertaken during 2025, the environmental measures presented are preliminary only and it is anticipated that further additional measures will be added and/or refinement of existing measures will be made in response to further baseline data collection.

**Table 6-6 – Summary of the environmental measures**

Receptor	Potential changes and effects	Embedded measures	ID reference
<b>Construction</b>			
All ecological receptors	N/A	<p>Prior to construction, a suitably qualified and experienced (or team of suitably qualified and experienced) Ecological Clerk of Works (ECoWs) would be appointed to support the Contractor with implementation of ecological mitigation. The ECoW will:</p> <ul style="list-style-type: none"> <li>a. Provide ecological advice to the Contractor over the entire construction programme, at all times as required.</li> <li>b. Undertake or oversee pre-construction surveys for protected species in the areas affected by the Projects.</li> <li>c. Monitor ecological conditions during the construction phase to identified features that may arise as a result of natural changes to the ecological baseline overtime.</li> <li>d. Provide an ecological toolbox talk(s) to site personnel to make them aware of ecological features and information, identify appropriate mitigation to minimise impacts and make site personnel aware of their responsibility with regards to wildlife.</li> <li>e. Monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the Outline Code of Construction Practice (CoCP).</li> </ul> <p>The ECoW will have previous experience in similar ECoW roles, be approved by the Applicant and be appropriately qualified/experienced for the role.</p>	B01
All ecological receptors	Potential changes to baseline	<p>Prior to any works commencing at a given location, a pre-commencement walkover survey would be completed by the ECoW of the works area plus a zone of influence (as determined by the ECoW) to confirm that baseline conditions remain accurate and relevant.</p> <p>The zone of influence is anticipated to be a minimum of 30 m (related to badger setts and excavation works) but would be extended as appropriate to</p>	B02

Receptor	Potential changes and effects	Embedded measures	ID reference
All ecological receptors	Disturbance impacts from noise and vibration	<p>account for relevant ecological features and construction activities at the locality.</p> <p>Best Practicable Means (BPM) as defined under Section 72 of the Control of Pollution Act (CoPA) (1974) (e.g. screening, alternative plant, working methods etc) (Ref 6.19) would be employed during the construction phase to reduce noise and vibration nuisance respectively from potentially significant construction activities. Implementation of BPM measures as defined in Section 72 of the CoPA (1974) and Section 79 (9) of the Environmental Protection Act (1990) (Ref 6.20) would include measures such as, but not limited to:</p> <ul style="list-style-type: none"> <li>● Use of temporary noise screens to disrupt line of sight between activities and receptors.</li> <li>● Plant to consist of modern, well-maintained machinery fitted with efficient silencers, where possible, designed to minimise noise levels that are generated during operations.</li> <li>● All compressors and generators to be ‘sound reduced’ models.</li> <li>● Ancillary pneumatic percussive tools to be fitted with mufflers or suppressers.</li> <li>● Machines in intermittent use shall be shut down between work or, where this is impracticable, throttled down to a minimum.</li> <li>● Where practicable, plant with directional noise characteristics to be positioned to minimise noise at nearby properties.</li> <li>● Static equipment and machinery to be sited as far as is practicable from inhabited buildings.</li> </ul>	MT12
Designated sites and ancient woodland	Changes in air quality and impacts from nitrogen deposition	Construction traffic routes would be selected to avoid impacts on sensitive receptors and communities through routeing plans, restrictions and vehicle choices. Good practice measures outlined within the Outline CoCP and Outline Construction Traffic Management Plan (CTMP) would be	MT13

Receptor	Potential changes and effects	Embedded measures	ID reference
	and ammonia concentrations.	implemented in order to avoid conflict with local residents, nearby businesses, and other community or tourist users, etc.	
Habitats	Direct habitat loss	<p>The Contractor would retain vegetation where practicable and in accordance with Landscape and Ecological Management Plan (LEMP). Where sections of hedgerow would be removed, and are ecologically worth preserving, they would be removed in sections, retaining intact root balls where possible and maintained accordingly to prolong longevity and viability (for example through watering). This would speed up the restoration process.</p> <p>Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, suitable native planting approved by NGET would be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP. Where possible, replacement tree planting would be undertaken at the closest suitable location to area of loss.</p>	MT02
Habitats – trees	Potential damage to retained trees from construction activities	<p>The Contractor would apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition, and construction (Ref 6.21), and the UK government ‘Standing Advice’ for ancient woodland, ancient trees and veteran trees (Ref 6.22). This would be applied to trees within the draft Order Limits, which would be preserved through the construction phase, and to trees outside of the draft Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, would be undertaken, or supervised by a suitably qualified arboriculturist. Details of such measures would be included in a method statement and within the Outline CoCP.</p>	MT03
Habitats	N/A	<p>A representative from the relevant planning authority would be present at the final inspection of reinstatement and mitigation planting prior to handover to the landowner, unless agreed otherwise with the relevant planning authority. Where applicable, remedial measures would be agreed between the Applicant and relevant planning authority during the site visit in accordance with the Development Consent Order.</p>	MT04

<b>Receptor</b>	<b>Potential changes and effects</b>	<b>Embedded measures</b>	<b>ID reference</b>
Habitats	N/A	An approach to monitoring would be designed and adhered to, to be detailed within the LEMP. The results of baseline vegetation surveys and post-construction vegetation (aftercare monitoring) surveys would be provided to the relevant planning authority.	MT05
Habitats - watercourses	Loss of watercourse habitat during construction	<p>Where watercourses are to be crossed by construction traffic, measures to be applied include the use of temporary culverts or temporary spanned bridges.</p> <p>Temporary culverts would be sized appropriately to ensure the watercourse's capacity is maintained and to prevent any local constriction of the flow, and maintain natural riverine connectivity throughout the year, at both high and low flows and kept free from debris. The inlets and outlets of culverts would be designed such that there is no ledge or disruption to flow into or out of the culvert. They would also be designed to maintain natural slope/water velocities and have buried inlet/outlets. For crossings of smaller ditches, these culvert design criteria may be varied, in agreement with the relevant authority (Internal Drainage Board - IDB/Lead Local Flood Authority - LLFA).</p> <p>Once the temporary culvert is installed, the area above the temporary culvert would be backfilled and construction mats placed over the backfilled area to permit the passage of plant, equipment, materials, and people.</p> <p>Temporary bridges, which are expected to be used to cross EA main rivers/IDB main drains and designated WFD waterbodies, will be designed specifically to consider the span length and the weight and size of plant and equipment that would cross the bridge.</p>	MT06
Habitats – woodland, hedgerows and field boundaries	Damage to habitats	Removal of existing pylons, which includes 'felling' would be directional and away from woodland, hedgerows and field boundaries.	B03
Habitats	Temporary loss during construction	Areas of temporary habitat loss would be reinstated, wherever practicable, following the completion of construction in each area. Wherever possible,	MT08

<b>Receptor</b>	<b>Potential changes and effects</b>	<b>Embedded measures</b>	<b>ID reference</b>
		reinstatement would be back to the type and condition of habitat affected (unless specified otherwise in landscape plans, as informed by the BNG assessment (where habitat improvements may be proposed)).	
Habitats	Damage of habitats	Plant, personnel and site traffic would be constrained to a prescribed working corridor through the use of temporary barriers, where practicable, to minimise damage to habitats, encroachment of the working width, potential direct mortality and disturbance of fauna located within and adjacent to the working width.	B04
Habitats – watercourses	Accidental damage of habitats.	Where appropriate, stand-off distances around watercourses and other sensitive habitats (such as woodland) would be implemented prior to commencement of works and clearly demarked on site through the use of physical barriers (fencing, tape or similar). A minimum of 10 m would be implemented for watercourses. The buffer around trees, woodland and hedgerows would be in accordance with BS 5837:2012: Trees in relation to design, demolition, and construction (Ref 6.21), to take into account root protection zones.	B05
Protected species, likely relevant to bats, great crested newts, badger and water vole	Potential changes to baseline.	Given the time that will elapse between the baseline surveys, commencement of construction and the duration of the construction programme, updated species surveys would likely to be required, notably to inform protected species licencing. Depending on the approach to licencing, to be agreed with Natural England, update surveys may be anticipated for roosting bats, GCN, badger and water vole.	B06
Protected species, likely relevant to bats, great crested newts, badger and water vole	Loss or damage of habitat that supports protected species; disturbance to protected species.	The Contractor would comply with relevant protected species legislation. Appropriate licences will be obtained where necessary from Natural England for all works affecting protected species as identified by the ES and through pre-construction surveys. All applicable works would be undertaken in accordance with the relevant requirements and conditions set out in those licences.	B07

<b>Receptor</b>	<b>Potential changes and effects</b>	<b>Embedded measures</b>	<b>ID reference</b>
Species (general) – primarily mammals	Risk of killing or injury due to entrapment of wildlife in voids	Where possible, excavations would be created and backfilled within the same working day. Where excavations are proposed to be unfilled overnight, and there would be a risk of animal entrapment, the void would be securely covered, or a means of escape would be installed. This would comprise a suitable ramp at no greater than a 45-degree angle, with a textured surface to allow animals to grip. Where linear excavations of over 50 m are anticipated, a means of escape would be provided at, at least, 50 m intervals.	B08
Species – sheltering, including amphibians, reptiles, hedgehog and other mammals	Killing and injury as a result of site/vegetation clearance works.	A Precautionary Working Method Statement (PWMS) would be prepared to inform habitat and vegetation clearance. The PWMS would outline the measures and protocols to be implemented on site to avoid or reduce the risk of impacts to wildlife. For example, site clearance of dense vegetation would be undertaken carefully using hand tools and by experienced Contractors to reduce the risk of mortality to wildlife. Care would be afforded to dense stands of bramble or similar vegetation, which may be used by sheltering hedgehog or other wildlife, particularly during the winter months. Where contradicting seasonal or other time constraints occur for different ecological features at a given location, the ECoW shall advise the appropriate approach on a case-by-case basis.	B09
Species - badgers, otters, bats and barn owls	Vehicle collision risk along haul roads.	Speed limits would be imposed on all construction haul roads and access tracks to minimise the risk of road traffic collisions with fauna such as badgers, otters, bats and barn owls.	B10
Birds - nesting birds	Damage and/or loss of bird nests or nesting habitat.	Vegetation clearance would be kept to a minimum and vegetation retained where possible. Where possible, clearance of vegetation with the potential to support nesting birds would be undertaken outside of the nesting bird season, which is typically taken to be March to August, inclusive (although can be extended (at the beginning and end) for certain species).  In the event that vegetation with the potential to support nesting birds is required to be removed during the nesting bird season, works would be preceded by an inspection by a suitably experienced ecologist and may be	B11

Receptor	Potential changes and effects	Embedded measures	ID reference
Birds – qualifying species of SPA and Ramsar sites	Disturbance of qualifying bird species of coastal SPA and Ramsar designations during construction.	<p>supervised by an ECoW. If an active nest is identified, a suitable exclusion zone (minimum of 5 m, but may be increased at the advice of the ecologist depending on species) would be implemented and remain in place until the ecologist confirms the nest is no longer active.</p> <p>The ECoW shall undertake monitoring pre-construction and during construction for the presence of qualifying bird species of the relevant coastal SPA/Ramsar sites (Greater Wash SPA and The Wash SPA and Ramsar).</p> <p>Where qualifying species were found within a ZoI of construction relative to potential disturbance impacts, as determined by the ECoW, and in numbers in excess of 1% of their SPA/Ramsar populations during baseline surveys and/or the construction monitoring surveys, visual and/or acoustic screening would be deployed, where appropriate. In addition, further monitoring would be undertaken by the ECoW to verify the effectiveness of the mitigation, determine the need for further mitigation measures and to confirm at what point any mitigation measures may be removed.</p>	B12
Bats	Loss of roosting resource	<p>In relation to roosting bats and trees, the results of GLTAs alongside the use of Licensing Policy 4 would be used to inform a principled approach to mitigation/compensation design; roost resource approach. This would include compensation ratios for disturbance, loss of confirmed roosts and loss of trees identified as PRF-M.</p> <p>It is envisaged the all PRF-Is would be covered via a PWMS, rather than licensing approach, with compensation provided in advance of impacts. Roosting compensation would likely take the form of:</p> <ul style="list-style-type: none"> <li>● alternative roost features via provision of bat boxes, mounted on retained trees, pole mounted or with a pole integrated into the design;</li> <li>● retention and mounting of PRF from felled trees;</li> <li>● installation of monoliths; and</li> <li>● creation of veteran features within retained trees.</li> </ul>	B13

Receptor	Potential changes and effects	Embedded measures	ID reference
Bats	Temporary fragmentation and severance through removal of linear habitat features along the cable route.	<p>The Applicant is engaging with Natural England to discuss the approach to bat licensing and mitigation/compensation for the Projects. Further information will be presented in the ES.</p> <p>For linear habitat features (such as hedgerows, tree lines and woodland strips/edges) where bat numbers during the two baseline Department for Environment, Food and Rural Affairs Local Scale (Ref 6.23) bat surveys are in excess of the threshold criteria, mitigation would be designed and further assessment will be taken. This includes completing the remaining four surveys per feature recommended within the DEFRA guidelines, which would be completed as pre-commencement surveys to inform mitigation approach only.</p> <p>Mitigation would include compensation planting of the feature and may involve the installation of temporary flight lines (TFL), reinstated each night during the construction period to maintain connectivity along the linear feature.</p> <p>Precise mitigation at a given location would be dependent on the Department for Environment, Food and Rural Affairs pre-commencement survey results, with a principled approach implemented for those features that have a consistent or “<i>higher</i>” level of activity (definition of “<i>higher</i>” to be informed by all surveys undertaken across the Projects and a threshold or criteria agreed with Natural England).</p> <p>The Applicant is engaging with Natural England to discuss the approach to mitigation for commuting bats. Further information will be presented in the ES.</p>	B14
Badger	Potential impacts to badger setts (if present but disused)	<p>If present, badger setts within the draft Order Limits that are confirmed as disused would either be left in-situ with the entrance holes ‘hard stopped’ (e.g. with wooden stakes) or destroyed under the supervision of a suitably experienced ecologist to prevent badgers from taking residence in them during the construction period.</p> <p>Evidence would be recorded of the survey and/or monitoring activity that was undertaken to conclude that there were no signs of use by badger.</p>	B15

Receptor	Potential changes and effects	Embedded measures	ID reference
Water vole	Disturbance and displacement during construction.	Hard-stopped entrances would be re-opened on completion of construction works at that location. A licence would not be required for these activities.  Unless ground conditions prevent, where watercourses/drains were to be crossed and a trenched installation for the cable is proposed, the watercourse would be blocked at either end of the works area and dewatered where water vole are known to be present. This is to support the approach of displacement of water vole.	B16
Reptiles	Potential killing and injury of common reptiles from site/vegetation clearance works.	All habitats suitable for common reptiles would be subject to two-stage habitat manipulation, that would take place between mid-March and mid-October, where possible (notably where habitat has the potential to support hibernating or sheltering reptiles over the winter months).  Firstly, vegetation would be cut to approximately 150 mm (with the arisings removed) under the supervision of an ECoW and the site left for a minimum of two days to allow reptiles to naturally disperse from the area.  Secondly, vegetation would be cleared down to ground level under the supervision of an ECoW. Vegetation would be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula would be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula would be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.	B17
Terrestrial invertebrates	Loss or damage to habitat	Where important habitats for terrestrial invertebrates are recorded in the draft Order Limits, such as species-rich grasslands, and decaying and dead wood, these habitats would be retained and protected during construction, where possible, with demarcation fencing (or similar). Where loss or removal of these habitats/features is proposed, appropriate mitigation and compensation would be designed and provided.	B18

Receptor	Potential changes and effects	Embedded measures	ID reference
Fish	Potential entrapment of fish within dewatered channels. Killing or injury of fish.	<p>Where pre-construction surveys have identified a likely fish presence and open-cut crossings or similar severance of channel are proposed, over-pumping would be used. The pump would be screened to prevent entrainment or impingement of fish or fish-friendly pumps would be used to facilitate the downstream passage of fish through the pumps. The use of pumps to move water would require 2 mm screening to avoid the impingement of fish and juvenile eels. In addition, a fish rescue exercise would be completed under the supervision of a suitably experienced ecologist, to rescue and relocate fish from the dewatered area.</p> <p>Where a watercourse is to be diverted, the new channel would be constructed first prior to "<i>stopping up</i>" of the existing channel.</p>	MT07
Fish	Disturbance and fragmentation effects	<p>Compliant with the Salmon and Freshwater Fisheries Act (1975) (Ref 6.24), the timing of construction works for the English Onshore Scheme would be considerate of the following restriction periods to avoid adverse effects upon the fish present in watercourses impacted by the English Onshore Scheme:</p> <ul style="list-style-type: none"> <li>• 15 March to 15 June (coarse fish), and</li> <li>• 1 October to 31 May (salmonids).</li> </ul> <p>Deviation from the above restriction periods need to be agreed with the statutory authority (Environment Agency).</p>	MT09
INNS	Potential spread of INNS by construction activities.	<p>In the event that invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) (Ref 6.25) are identified during field survey, desk study analysis and/or on site at the time of construction, a Biosecurity Method Statement shall be prepared and implemented throughout construction. The Biosecurity Method Statement would outline proposed avoidance, mitigation and control measures (as needed) to avoid the spread of invasive species. Where practicable, works areas would be micro-sited to avoid contaminated locations. Measures may include the implementation of washing stations for both people and vehicles within "<i>risk</i>" areas.</p>	B19

Receptor	Potential changes and effects	Embedded measures	ID reference
<b>Design and Operation</b>			
All ecological receptors, notably fish	Potential effects from electro-magnetic fields	The English Onshore Scheme design would be compliant with the guidelines and policies relating to electric and magnetic fields stated in the National Policy Statement (NPS) for Electricity Networks Infrastructure EN-5 (Ref 6.26).	MT01
Designated sites for nature conservation, HPI and ancient woodland	Non-statutory designated sites and HPI located within the draft Order Limits (ancient woodland adjacent). Potential impacts and effects from construction activities, including direct habitat loss and indirect impacts (such as noise, dust, light, air quality, hydrological changes).	Where practical, sensitive habitats including non-statutory and statutory designated sites, ancient woodland and HPI have been avoided by design (siting and alignment) of the English Onshore Scheme. At discrete locations, should these emerge during the design process, avoidance would also be sought when micro-siting the likely working areas. This measure would be updated with specific details, with micrositing or other actions of avoidance (as required) overseen on site by the ECoW.	B01
Habitats - linear habitats (hedgerows, tree lines, woodland strips, watercourses, ditches)	Direct habitat loss of linear habitats along the cable route.	Where a haul road intersects a linear habitat feature (including hedgerows, tree lines, woodland strips, watercourses, ditches), the width of the haul road would be reduced to a width sufficient for a single vehicle, where possible, with passing places either side of the linear feature. This approach will be adopted as part of the haul road design specification.  In addition, where a linear habitat feature is crossed by the English Onshore Scheme, topsoil and subsoil bunds would be placed with the adjacent fields either side of (rather than across) the linear habitat feature to reduce the length of the linear habitat feature impacted by construction. This design principle will be captured within the Soil and Aftercare Management Plan.	B02

Receptor	Potential changes and effects	Embedded measures	ID reference
Habitats – watercourses	Direct and indirect impacts to watercourses, including loss and damage of habitat.	<p>Where appropriate, trenchless crossing methods (such as HDD) would be used at sensitive locations (for example the landfall and main rivers) to avoid or reduce impacts during construction.</p> <p>Where a main river is crossed by a trenchless crossing, the cables would be laid at least 1 m below the hard bed level of the river and would remain at or below this level for a distance of not less than 3 m from the brink of the riverbank before rising at a slope no greater than 1 vertical in 1.5 horizontal. Marker posts shall also be positioned on each bank of the river to indicate the location of the under-crossing and the nature of the works.</p>	MT04
Habitats – watercourses	Diversion of watercourses	<p>Watercourse diversions are proposed to be avoided wherever possible, unless absolutely necessary and agreed with the key stakeholders.</p> <p>Watercourse diversions, where they are unavoidable (namely at the converter station sites), will be designed to mimic natural fluvial form and function and maintain passage/connectivity for aquatic species, where applicable.</p>	MT02
Bats and other nocturnal species	Disturbance from lighting	<p>In relation to design associated with operational lighting at permanent infrastructure, a suitable lighting design will be developed with consideration of best practice guidance on lighting with regards to bats, as published by the Institution of Lighting Professionals (ILP) &amp; Bat Conservation Trust (BCT) (Ref 6.9). This would include:</p> <ul style="list-style-type: none"> <li>• Avoidance of direct lighting of bat roosts (or features that may potentially support a bat roost);</li> <li>• Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees) to ensure there is minimal light spill onto such areas;</li> <li>• Minimisation of light spill using directional and/or baffled lighting;</li> <li>• Reducing the height of lighting columns to reduce light spill onto adjacent habitats, where possible; and/or</li> </ul>	B03

Receptor	Potential changes and effects	Embedded measures	ID reference
Water vole	Fragmentation	<ul style="list-style-type: none"> <li data-bbox="763 233 1760 296">• Avoid use of blue-white short wavelength lights and high ultra-violet content.</li> </ul> <p data-bbox="741 344 1816 632">Where watercourses are to be crossed by construction traffic, measures that would be applied include the use of temporary culverts or temporary spanned bridges. The design (type and size) of any temporary culvert or bridge would be informed by baseline and/or future pre-construction surveys to maintain connectivity for water vole. Where water vole are confirmed as present, a clear span bridge/box-shaped culvert (or similar) would be implemented. The temporary culvert design would be discussed and agreed in advance with the ECoW.</p> <p data-bbox="741 647 1816 791">The haul road design specification would be informed by baseline water vole surveys. It will outline the design principles for the haul road pertaining to water vole presence, which could also be applied reactively in response to the results of pre-construction or construction monitoring surveys.</p>	B04
Fish	Fragmentation and severance (fish passage)	<p data-bbox="741 823 1805 1150">The Projects would be designed to comply with appropriate design specifications. Specifically, at sensitive crossing locations (e.g. main rivers/Water Framework Directive watercourses), temporary bridges would be used in preference to culverts for construction access and any permanent crossings would be bridges. Where temporary culverting of sensitive watercourses would be required, these would either be arch culverts, leaving the natural bed undisturbed, or they would be box culverts, installed with the invert set below the natural bed level for a semi-natural bed to establish within the culvert, where practicable.</p> <p data-bbox="741 1166 1727 1230">Culverts would be orientated to reduce culvert lengths to a practicable minimum.</p> <p data-bbox="741 1246 1805 1348">Roughened beds, baffles, and refuge areas (such as masonry with cavities) would be installed where practicable, to encourage fish movement through long culverts, or over steep gradients.</p>	MT03

Receptor	Potential changes and effects	Embedded measures	ID reference
All ecological features	Potential disturbance, killing and injury, damage of supporting habitat	<p>Where required, culvert design should seek to meet the criteria specified in the Institute of Fisheries Management (IFM) Fish Pass Manual. This is to ensure the culvert could, in theory, be passed by fish known to be present. Where practical, culverts should seek to reduce the impacts on aquatic species by using designs that simulate natural channel conditions, for example, by providing roughened beds, baffles, and refuge areas (such as masonry with cavities) through long culverts, or those with steep (&gt;2) gradients.</p> <p>Culvert design on other watercourses would be subject to the watercourse characteristics and would be agreed with the relevant authority.</p> <p>Repair and maintenance work would be subject to appropriate ecological assessment to safeguard biodiversity. This will involve, as a minimum, engagement with a suitable experienced ecologist in advance to discuss the proposed works and determine the potential need for ecological survey, engagement with third parties (for example where works may be in proximity to a designated site), mitigation and species licensing. The suitably experienced ecologist will then advise the Applicant on the appropriate course(s) of action to follow. Where required, the proposed works would be undertaken under the supervision of an ECoW, employing similar mitigation measures (where relevant and appropriate) to those identified for the construction phase.</p>	B05

## 6.7 Scope of the assessment

### Spatial scope and study area

- 6.7.1 The spatial scope of the assessment of biodiversity covers the area of the English Onshore Scheme contained within the draft Order Limits, together with the study area(s) described as follows. The study areas presented below are for the purpose of the impact assessment and have been informed by the likely Zols for the English Onshore Scheme. Therefore, study areas below have been refined in comparison to those defined for the purpose of data gathering, as detailed in **Section 6.4 Data Gathering Methodology** above.
- 6.7.2 In addition, for the purpose of delineation between the English Onshore Scheme and English Offshore Scheme Biodiversity assessments, this English Onshore Scheme Biodiversity Chapter considers predominantly terrestrial and freshwater aquatic habitats and species<sup>17</sup> and will consider the intertidal zone down to MLWS at the proposed landfall, where there is interaction with the English Offshore Scheme.
- 6.7.3 As detailed within the Scoping Report, which remains valid, potential impacts of the English Onshore Scheme are primarily associated with the construction phase, with operational impacts limited to environmental changes relating to disturbance associated with permanent infrastructure only. In line with the Scoping Report and agreed to by the Planning Inspectorate in the scoping opinion (**see Table 6-2**), impacts associated with maintenance activities are scoped out of assessment. Environmental changes that could significantly affect ecological features are broadly grouped into the following:
- **Temporary land take/land use change** (associated with infrastructure such as the cable routes and construction compounds, resulting in habitat loss, modification and/or degradation, with associated impacts to fauna);
  - **Permanent land take/land use change** (anticipated to be restricted to permanent infrastructure (converter stations and Walpole B Substation) and associated accesses);
  - **Fragmentation of habitats** (resulting in a reduction in connectivity and/or severance);
  - **Direct mortality of species** (as a result of construction activities, such as vegetation clearance, excavation works, vehicular traffic);
  - **Increased noise, vibration, light and movement levels from people and traffic** (resulting in disturbance/displacement);
  - **Changes in hydrology** (resulting in the effects of habitat loss or degradation and/or loss of fauna);
  - **Changes in air quality** (as a result of dust or vehicle emissions (nitrogen deposition and ammonia concentration), leading to habitat damage or degradation);
  - **Pollution events** (including the liberation of sediments and chemicals resulting in habitat loss, modification or degradation and/or loss of fauna); and

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<sup>17</sup> The Onshore Biodiversity Chapter also considers those migratory species present in both onshore and offshore habitats, such as certain species of fish.

- **Introduction or spread of invasive non-native species (INNS)** (resulting in habitat modification or degradation).
- 6.7.4 To understand if an environmental change may give rise to potential significant effects, it is important to establish the Zol for each impact pathway. Zol scan differ depending on the type of environmental change and potentially also the ecological feature being considered (for example, different ecological features may be more or less resilient to a change).
- 6.7.5 The most straightforward Zol to define is the area affected by land-take and direct land use changes associated with the English Onshore Scheme. This Zol is the same for all affected ecological features.
- 6.7.6 By contrast, for environmental changes that can extend beyond the area affected by land-take and land-use change (for example, increased noise associated with construction activities), the Zol may vary between ecological features, dependent upon their sensitivity to the change and the precise nature of the change. For example, a badger might only be disturbed by loud or percussive noise generated close to its sett, while nesting marsh harrier might be disturbed by noise generated at a much greater distance. Other species (e.g. many invertebrates) may be unaffected by changes in noise. In view of these complexities, the definition of the Zol that extends beyond the land-take area was based upon professional judgement informed (as far as possible) by a review of published evidence (e.g. disturbance criteria for various species) and discussions with the technical specialists who are working on other chapters of this PEIR.
- 6.7.7 The Zols for each broad environmental change are specified below. Due to the level of information currently available for this preliminary assessment, the Zols have been applied broadly to be precautionary. Zols defined for the construction phase are as follows:
- **Temporary and permanent land take/land use change** – Zol within the draft Order Limits for habitats and sedentary species; mobile species (such as bats or SPA/Ramsar qualifying bird and migratory/aquatic species) may be affected beyond this if land within the draft Order Limits overlaps their typical home ranges or movement patterns.
  - **Fragmentation of habitats** – Zol within the draft Order Limits for habitats and sedentary species; mobile species (such as bats or SPA/Ramsar qualifying bird and migratory/aquatic species) may be affected beyond that if land within the draft Order Limits overlaps their typical home ranges or movement patterns.
  - **Direct mortality of species** – Zol within the draft Order Limits (more accurately, active construction works areas).
  - **Increased noise, vibration, light and movement levels from people and traffic (disturbance)** – Zol for sensitive species is variable and dependent on the species' tolerance to sources of disturbance. Zol typically up to 300 m from the construction works<sup>18</sup>, noting that for mobile features of designated sites this is related to the species' habitat use and associated home range distance, as opposed to designation boundary. This Zol may be increased on a case-by-case basis

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<sup>18</sup> As informed by the Zol presented in **Volume 1, Part 2, Chapter 13: Noise and Vibration**, Zol for light impacts to be explored further within the ES, although anticipated can be largely mitigated through appropriate design (embedded measure).

dependent on the species being assessed (for example, some wader species may exhibit changes in behaviour to disturbance source up to approximately 800 m).

- **Changes in hydrology** – Zol for sensitive habitats and/or species is up to 500 m from draft Order Limits<sup>19</sup>, noting that for mobile features of designated sites this is related to the species' habitat use and associated home range distance, as opposed to designation boundary.
- **Changes in air quality** – Zol for sensitive habitats and/or species in relation to dust is up to 250 m from the draft Order Limits and for impacts associated with vehicular emissions is 200 m from the affected road network (ARN – preliminary ARN defined for PEIR, but potential to change for ES)<sup>20</sup>.
- **Pollution events** – Zol for habitats and species is up to 500 m from the construction works, principally informed by the Zol for hydrological connection.
- **Introduction or spread of invasive non-native species (INNS)** – Zol is generally within construction areas and up to 500 m (associated with hydrological connectivity).

6.7.8 For the operational phase of the English Onshore Scheme, as detailed within the Scoping Report, environmental changes that could lead to potentially significant effects are anticipated to relate to artificial lighting and noise associated with permanent infrastructure only. The Zol for artificial lighting is to be explored further within the ES, although anticipated can be largely mitigated through appropriate design (embedded measure). The Zol for operational noise associated with the permanent infrastructure is 1 km (in accordance with **Volume 1, Part 2, Chapter 13 Noise and Vibration**).

6.7.9 The Zols presented above have taken account of environmental measures identified to date that are to be implemented to reduce effects, such as the avoidance of potentially significant effects through the design process as well as standard construction best practice measures (as tried and trusted). The Zols will be revisited within the ES to take account of any further design development and/or environmental measures proposed to avoid or reduce the impacts of the English Onshore Scheme.

6.7.10 When scoping in or out ecological features or routes of impact from further assessment, embedded environmental measures (see **Section 6.6 Environmental Measures**) associated with general good practice have been taken into account (e.g. dust suppression, appropriately scheduled vegetation removal and so on).

6.7.11 The following environmental changes are scoped out for all ecological features:

- **Changes in air quality (operation)** – as concluded within the Scoping Report and detailed in **Volume 1, Part 2, Chapter: 14 Air Quality**, vehicle trips associated with the operation and maintenance phase are anticipated to be below screening criteria and therefore impacts are considered to be non-significant. Of relevance to designated sites and ancient woodland habitats.
- **Mortality or injury from construction activities (vegetation clearance and entrapment in excavations)** – these impact pathways can be scoped out on the

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<sup>19</sup> As informed by the Zol presented in **Volume 1, Part 2, Chapter 9: Water Environment** and **Volume 1, Part 2, Chapter 10 Geology and Hydrogeology**.

<sup>20</sup> As informed by the Zol presented in **Volume 1, Part 2, Chapter 14: Air Quality**. Provisional ARN and limitations associated with this are detailed further in **Chapter 14: Air Quality** and **Volume 1, Part 2, Chapter 12: Traffic and Transport**.

basis of implementation of best practice approaches to vegetation clearance and the implementation of embedded measures to avoid or reduce the potential for wildlife to become entrapped in voids (and/or implement protocols should this happen), see **Section 6.6 Environmental Measures** above.

- **Increased movement levels** – death and injury of fauna due to increased movement of traffic of construction and operational vehicles and plant are scoped out based on the implementation of speed limits on all construction haul roads and access tracks that would be employed, and the relatively limited amount of traffic involved (see **Section 6.6 Environmental Measures** above).

## Temporal scope

- 6.7.12 The temporal scope of the assessment of biodiversity is consistent with the period over which the English Onshore Scheme would be carried out. As detailed in **Volume 1, Part 1, Chapter 4: Description of the Projects**, it covers the period 2028 to 2033 for construction, and the lifetime of the Projects for operation (expected to operate for 40 years, although likely extended through replacement and repair).
- 6.7.13 The English Onshore Scheme is expected to have a life span of more than 40 years. If decommissioning is required at this point in time, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works, albeit with a lesser duration of two years. Acknowledging the complexities of completing a detailed assessment for decommissioning works up to 40 years in the future, it is considered that the significance of effects relating to the decommissioning phase would be no greater than those from the construction phase and decommissioning effects are not discussed in detail in this chapter; however, **Table 4.21 in Volume 1, Part 1, Chapter 4: Description of the Projects** provides a high level summary assessment of the likely significant effects associated with decommissioning. Furthermore, should decommissioning take place it is expected that an assessment in accordance with the legislation and guidance at the time of decommissioning would be undertaken.
- 6.7.14 For the purpose of describing impacts and effects, the temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur, and are typically defined as either being:
- Permanent - these are effects that would remain even when the Projects are complete, although these effects may be caused by environmental changes that are permanent or temporary.
  - Temporary – these are effects that are related to environmental changes associated with a particular activity and that would cease when that activity finishes.
- 6.7.15 Furthermore, the temporal scope of assessment may also consider the duration of the resultant effect, using the following general categories (noting that professional judgement and available guidance would also be applied on a case-by-case basis):
- Short-term – less than 2 years;
  - Medium-term – between 2 and 10 years; and
  - Long-term – over 10 years.

## Identification of receptors

6.7.16 The principal ecological features that have been identified as being potentially subject to significant effects are summarised in **Table 6-7**. It should be noted that in the absence of a full ecological baseline, some ecological features have been identified on a precautionary basis on the assumption that they are present and/or present in sufficient numbers to the extent that potentially significant effects may occur. Once further baseline surveys are completed, the ecological features for inclusion within the impact assessment will be revisited and refined where appropriate, with a full and final account presented in the ES.

**Table 6-7 – Ecological features subject to potential effects**

Ecological Feature	Reason for consideration
<p>International statutory designated sites for nature conservation and the qualifying features for which they are designated, including:</p> <ul style="list-style-type: none"> <li>• Greater Wash SPA</li> <li>• The Wash SPA/Ramsar</li> <li>• The Wash and North Norfolk Coast SAC</li> <li>• Saltfleetby-Theddlethorpe Dunes &amp; Gibraltar Point SAC</li> <li>• Humber Estuary SAC/Ramsar</li> <li>• Nene Washes SAC</li> <li>• Baston Fen SAC</li> </ul> <p>(see <b>Volume 2, Part 2, Appendix 2.6.A</b> and <b>Volume 3, Part 2, Figure 6-1 Internationally Designated Sites for Nature Conservation</b>)</p>	<p>These designated sites, occurring within the Zol of the Projects and/or with a relevant hydrological connection, are of international importance. Impacts may occur within/directly adjacent to the designated site (restricted to Greater Wash SPA only) or to functionally linked land used by qualifying species of the designated site.</p>
<p>Local and national statutory designated sites for nature conservation (see <b>Volume 2, Part 2, Appendix 2.6.B</b> and <b>Volume 3, Part 2, Figure 6-2 National and Local Statutory Designated Sites for Nature Conservation</b>)</p>	<p>These designated sites, occurring within the Zol of the English Onshore Scheme, are of ecological importance and material consideration.</p>
<p>Non-statutory designated sites for nature conservation (such as County or Local Wildlife Sites) (see <b>Volume 2, Part 2, Appendix 2.6.C</b> and <b>Volume 3, Part 2, Figure 6-3 Local Non-Statutory Designated Sites for Nature Conservation</b>)</p>	<p>These designated sites, occurring within the Zol of the English Onshore Scheme, are of ecological importance and material consideration.</p>
<p>Habitats of Principal Importance (HPI), for example hedgerows and watercourses</p>	<p>Present within the Zols of the English Onshore Scheme and of material consideration under the NERC Act 2006.</p>

Ecological Feature	Reason for consideration
Ground water dependent terrestrial ecosystems (GWDTE)	Presence within the Zols of the English Onshore Scheme for groundwater (500 m) currently unconfirmed and therefore identified for further consideration on a precautionary basis.
Ancient woodland	<p>No ancient woodland sites known to be directly impacted by the English Onshore Scheme (within the draft Order Limits). Single large area of ancient woodland, Welton Low Wood, adjacent to draft Order Limits (grid reference TF 46972 70514) but only for an area of proposed minor highway junction improvement.</p> <p>At present, unknown if any ancient woodland located within a Zol relating to impacts from construction traffic (air quality). Therefore, precautionarily scoped in.</p>
Birds (wintering, breeding, passage and intertidal)	Habitats present that could support bird species year-round. Potential for functionally linked land of qualifying species of the coastal SPA and Ramsar sites within the Zol of the English Onshore Scheme.
Bats	Habitats present that are suitable for roosting, foraging and commuting bats. Potential for loss of roosting resource (primarily relating to loss of trees with bat roosting suitability and/or functional loss of roosts due to fragmentation, in the absence of mitigation) and potential fragmentation or severance impacts to commuting and foraging through loss of linear features, such as hedgerows.
Badger	Habitats present that are suitable to support badger setts and badger identified as widespread across the English Onshore Scheme. Potential impacts to badger setts and badgers occupying setts (disturbance) during construction of the English Onshore Scheme.
Otter	Habitats present that may support otter (resting and foraging). Potential impacts to resting places, if present, and disturbance during construction.
Water vole	Habitats present that may support water vole, including watercourses, drains and ditches. Water vole known to be present. Potential impacts to habitat and disturbance of water vole during construction.

<b>Ecological Feature</b>	<b>Reason for consideration</b>
Amphibians – great crested newt and common amphibians	Habitats present that may support amphibians. Potential impacts from loss of habitat during construction (primarily terrestrial and ditches).
Reptiles	Habitats present that may be suitable for reptiles, although limited and not extensive (based on desk study and field survey data collected to date). Likely that implementation of embedded mitigation measures (for example precautionary methods of work for site clearance, see <b>Section 6.6 Environmental Measures</b> would avoid significant impacts. However, given the current progress of PEA surveys and potential to encounter an area of greater importance for reptiles, reptiles to remain scoped in.
Species of Principal Importance (SPI); including brown hare, hedgehog, harvest mouse and polecat	Habitats present suitable to support the species. Potential impacts from construction, primarily relating to disturbance.
Invertebrates (terrestrial and aquatic)	Habitats present within the draft Order Limits that may support these species. Potential impacts from loss of habitat during construction.
Fish (including migratory species)	Habitats present within the draft Order Limits that may support these species. Potential disturbance and fragmentation effects construction.
Notable terrestrial or aquatic (macrophyte) plant species	Habitats present within the draft Order Limits that may support such species.
INNS	Potential to be supported by the habitats within the draft Order Limits.

### **Potential effects considered within this assessment**

6.7.17 The effects on ecological features which have the potential to be significant and have been taken forward for detailed assessment are summarised in **Table 6-8**. It should be noted that in the absence of a full ecological baseline, some impacts and effects have been identified on a precautionary basis on the assumption that the habitat or species is present and/or present in sufficient numbers to the extent that potentially significant effects may occur. Only where appropriate and where confidence exists at this PEIR stage have potential effects been scoped out from being subject to further assessment (as detailed in **Table 6-9**). Once further baseline surveys are completed, the potential impact pathways and likelihood of potentially significant effects will be revisited and refined where appropriate, with a full and final account presented in the ES.

**Table 6-8 – Ecological features and potential impact pathways scoped in for further assessment**

<b>Ecological Feature</b>	<b>Stage</b>	<b>Potential significant impacts pathways and effects</b>
<p>International statutory designated sites for nature conservation and the qualifying features for which they are designated, including:</p> <ul style="list-style-type: none"> <li>• Greater Wash SPA</li> <li>• The Wash SPA/Ramsar</li> <li>• The Wash and North Norfolk Coast SAC</li> <li>• Humber Estuary SAC/Ramsar</li> <li>• Nene Washes SAC</li> <li>• Baston Fen SAC</li> </ul>	Construction	<p>Temporary direct loss and indirect damage of habitats that may support qualifying species (functionally linked habitat, if present)</p> <p>Temporary hydrological effects of designated sites downstream of the potential works to install, operate and reinstate the River Nene Temporary Quay.</p> <p>Disturbance of qualifying species using functionally linked land (if present)</p> <p>Temporary obstruction of passage of qualifying aquatic species.</p>
<p>International statutory designated sites for nature conservation and the qualifying features for which they are designated, including:</p> <ul style="list-style-type: none"> <li>• Greater Wash SPA</li> <li>• The Wash SPA/Ramsar</li> <li>• The Wash and North Norfolk Coast SAC</li> </ul>	Operation	<p>Disturbance of qualifying species using functionally linked land (if present).</p>
<p>Local and national statutory designated sites for nature conservation</p>	Construction	<p>Temporary indirect impacts (such as noise, dust, light, air quality, hydrological changes; as appropriate).</p> <p>Temporary disturbance of qualifying species.</p>
<p>Non-statutory designated sites for nature conservation (such as CWSs or LWSs)</p>	Construction	<p>Temporary indirect impacts (such as noise, dust, light, air quality, hydrological changes; as appropriate).</p> <p>Temporary disturbance of qualifying species.</p>
<p>HPI, for example hedgerows and watercourses</p>	Construction	<p>Permanent habitat loss, modification, degradation or fragmentation (restricted to permanent infrastructure).</p>



Ecological Feature	Stage	Potential significant impacts pathways and effects
		Temporary disturbance (increased noise, vibration, light and movement levels).
	Operation	Depending on the converter station configuration (relevant to only converter station Options C and D due to proximity to the River Nene). Permanent disturbance (dependent on baseline findings and predicted noise and light* levels of permanent infrastructure).
Notable terrestrial or aquatic plant species	Construction	Permanent (permanent infrastructure only) and temporary habitat loss, modification, degradation (including as a result of hydrological changes).
INNS	Construction	Permanent direct spread of invasive species (in the absence of intervention). Removal/control of invasive species (permanent or temporary beneficial impact).

\* Light levels during operation current screened in on a precautionary basis given that baseline surveys are not yet complete. However, with the embedded mitigation for lighting design that takes ecology into consideration (see **Section 6.6 Environmental Measures**), potential that this could be later scoped out or non-significant effects identified.

6.7.18 The receptors/effects detailed in **Table 6-9** have been scoped out from being subject to further assessment because the potential effects are not considered likely to be significant.

**Table 6-9 – Summary of effects scoped out of the biodiversity assessment**

Receptors/potential effects	Stage	Justification
Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	Construction and operation	Distance to the SAC and none of the qualifying habitats are known to be within a Zol of the English Onshore Scheme. Therefore, impacts and effects to qualifying habitats within the SAC or those that may be functionally linked are not predicted.
Humber Estuary SAC/Ramsar Nene Washes SAC Baston Fen SAC	Operation	As operational potentially significant effects are restricted to sources of light and noise from permanent infrastructure (converter stations and Walpole B Substation), impacts to functionally linked habitats for relevant aquatic qualifying species during operation are not predicted.
Local and national statutory designated sites for nature conservation	Operation	No local or national statutory designated sites within the Zol of the permanent

Receptors/potential effects	Stage	Justification
		infrastructure of the English Onshore Scheme.
Non-statutory designated sites for nature conservation (such CWSs or LWSs)	Operation	Only non-statutory designation within the Zol of the permanent infrastructure of the English Onshore Scheme is the River Nene CWS (approximately 180 m west of a converter station of Option D, 330 m west of a converter station of Option C). The CWS is designated for its river habitat and plant species. Operational light and noise not considered to give rise to potentially significant effects due to distance.
HPI, for example hedgerows GWDTE Ancient woodland	Operation	As operational potentially significant effects are restricted to sources of light and noise from permanent infrastructure, impacts to habitats during operation are not predicted.
Notable terrestrial or aquatic plant species	Operation	As operational potentially significant effects are restricted to sources of light and noise from permanent infrastructure, impacts during operation are not predicted.
SPI – brown hare, hedgehog and polecat; temporary and permanent loss of habitat and disturbance during construction	Construction	Potentially significant effects unlikely with implementation of embedded best practice during vegetation clearance (see <b>Section 6.6 Environmental Measures</b> ).
	Operation	Whilst disturbance from light or noise of permanent infrastructure may occur, this would be localised and unlikely to give rise to potentially significant effects for brown hare, hedgehog or polecat.
INNS	Operation	Operational activities are primarily restricted to activity associated with the permanent infrastructure. Potential to spread invasive species not predicted. Biosecurity embedded measures would also be relevant and implemented during any maintenance activities, therefore avoiding or reducing the likelihood of spread of INNS. Therefore, potentially significant effects are not predicted during the operational phase.

## 6.8 Key parameters for assessment

### Realistic worst-case design scenario

- 6.8.1 The assessment has followed the Rochdale Envelope approach as outlined in **Volume 1, Part 1, Chapter 4: Description of the Projects** and **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology of the PEIR**. The assessment of effects has been based on the description of the Projects and parameters outlined in **Volume 1, Part 1, Chapter 4: Description of the Projects**. However, where there is uncertainty regarding a particular design parameter, the realistic worst-case design parameters are provided below with regards to biodiversity along with the reasons why these parameters are considered worst-case. The preliminary assessment for biodiversity has been undertaken on this basis. Effects of greater adverse significance are not likely to arise should any other development scenario, based on details within the Rochdale Envelope (e.g., different infrastructure layout within the draft Order Limits), to that assessed here be taken forward in the final design of the English Onshore Scheme.
- 6.8.2 In relation to biodiversity, the following assumptions are made regarding the English Onshore Scheme design parameters and commitments in order to ensure a realistic worst-case preliminary assessment has been undertaken.
- The civils works, including habitat clearance, is to occur concurrently for the EGL 3 Project and EGL 4 Project (as detailed in **Volume 1, Part 1, Chapter 4 Description of the Projects; Construction Scenarios**).
  - Whilst parameters are known for construction elements such as the cable working width and permanent infrastructure, it is assumed that the removal of vegetation could occur anywhere within the Indicative zone for underground cable assets, the Indicative zone for converter stations and the Indicative Walpole B Substation. This is to account for potential design change and/or realignment.
  - A haul road is assumed to be installed along the entire length of the English Onshore Scheme and in place and potentially in use for the duration of construction, with the exception of watercourses crossings where no haul road crossing is confirmed (as detailed in **Section 6.6 Environmental Measures**). This scenario is anticipated to represent the greatest extent (in terms of spatial impact) and duration associated with the haul road.
  - Where a haul road intersects a linear habitat feature (such as hedgerows, tree lines, woodland strips, watercourses, ditches), the width of the haul road would be reduced to a width sufficient for a single vehicle, where possible, with passing places either side of the linear feature.
  - Where a linear habitat feature is crossed by the English Onshore Scheme, topsoil and subsoil bunds would be placed within the adjacent fields either side of (rather than across) the linear habitat feature to reduce the length of the linear habitat feature impacted by construction.
  - For ducted cables, upon excavation and installation of the cable ducting, trenches would be backfilled with subsoil. However, topsoil reinstatement is currently anticipated upon completion of construction, cable testing and removal of the haul road. Therefore, habitat loss within the HVDC/HVAC working width is assumed to be up to the duration of construction (approximately 6 years). This scenario represents a reasonable worst-case duration of habitat loss.

- For compounds, it is assumed that eventual siting could be anywhere within the field boundary to which the indicative zone for the construction compounds has been allocated.
- Multiple work-fronts along the cable routes are expected to be constructed concurrently. This represents a reasonable worst-case scenario in terms of cumulative disturbance across the English Onshore Scheme.

6.8.3 As set out in **Volume 1, Part 1, Chapter 4: Description of the Projects**, and specifically in **Section 4.4**, at this stage in the design process, four options have been identified with regards to the proposed siting of the Walpole converter stations. All four options (Options A-D) have been included within the baseline study. At this preliminary stage in the design development, it is considered that there are no clear differences in effects between the four options for the Walpole converter stations with regards to the preliminary assessment of effects on biodiversity receptors, and as such, **Section 6.10** has not made reference to the specific options.

### Consideration of construction scenarios

6.8.4 As detailed in **Volume 1, Part 1, Chapter 4: Description of the Projects**, the timing of construction activities set out within this PEIR is indicative. To allow for any unexpected circumstances and a realistic worst-case assessment, the impact assessment for the English Onshore Scheme considers the potential for elements of the Projects to be constructed concurrently or sequentially.

6.8.5 As civils work, and therefore habitat loss, is anticipated to occur concurrently for the EGL 3 Project and EGL 4 Project (as detailed in **Volume 1, Part 1, Chapter 4 Description of the Projects; Construction Scenarios**), it is the duration and frequency of disturbance that is likely to be the differential factor between elements of the Projects being constructed concurrently or sequentially for biodiversity. For the purposes of assessing a worst-case construction programme, it is therefore assumed that elements of the EGL 3 Project and EGL 4 Project would be constructed sequentially, as this may result in additional periods of activity within a given location.

## 6.9 Assessment methodology

### Overview

6.9.1 The generic project-wide approach to the assessment methodology is set out in **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**, and specifically in **Sections 5.4 to 5.6**. However, whilst this has informed the approach that has been used in this biodiversity assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this biodiversity assessment. Details are provided below.

6.9.2 Following a series of detailed desk and field based ecological assessments, an Ecological Impact Assessment (EclA) will be undertaken to assess the potential impacts of the English Onshore Scheme on biodiversity, once all impact avoidance and mitigation measures have been agreed.

### Receptor sensitivity/value

6.9.3 In accordance with the CIEEM EclA Guidelines (Ref 6.1), a number of characteristics contribute to the importance of an ecological feature. These include for example (but not

exclusively): the rarity of a species or habitat, legal protection/conservation status, ability to resist or recover from environmental change and uniqueness of an ecological feature, whether the species population size is notable in a wider context, the richness of assemblages of plants and animals and the presence of species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.

- 6.9.4 The nature conservation importance of an ecological feature is represented on a geographic scale, as detailed in **Table 6-10** below. Assigning importance to ecological features is also based on professional judgement informed by available guidance and information along with expert advice.
- 6.9.5 CIEEM’s EclA guidelines (Ref 6.1) state that only ecological features which are important and potentially affected by a scheme should be subject to detailed evaluation. For the purposes of this assessment, ecological features of ‘Local’ importance or higher are assessed as being Important Ecological Features (IEFs) and therefore considered with regards to significance of effects. Ecological features of ‘Site’ importance or below are not considered sufficiently important to experience potentially significant effects and are not assessed as being IEFs.

**Table 6-10 – Defining Importance of Ecological Features**

Geographic Context of Importance	Criteria
International or European	<ul style="list-style-type: none"> <li>• European Sites including SPA and SAC.</li> <li>• Ramsar sites (designated under international convention) and proposed Ramsar sites are also considered in the same manner in accordance with national planning policy.</li> <li>• Areas of habitat or populations of species which meet the published selection criteria for designation as a European Site based on discussions with Natural England and field data collected to inform the impact assessment, but which are not themselves currently designated at this level.</li> </ul>
National (relating to the UK, specifically England)	<ul style="list-style-type: none"> <li>• A nationally designated site, including SSSI and NNR.</li> <li>• Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs but which are not themselves designated based on field data collected to inform the impact assessment, and in agreement with Natural England.</li> <li>• SPI and HPI, Red listed and legally protected or notable species that are not addressed directly in Part 2 of the “<i>Guidelines for Selection of Biological SSSIs</i>” (Ref 6.27) but can be determined to be of national importance using the principles described in Part 1 of the guidance.</li> </ul>

Geographic Context of Importance	Criteria
Regional (East Midlands, East of England)	<ul style="list-style-type: none"> <li>• Areas of Ancient Woodland, for example woodland listed within the Ancient Woodland Inventory (Ref 6.28) and ancient and veteran trees.</li> <li>• Regularly occurring HPI or populations of SPI, Red listed and legally protected or notable species may be of regional importance in the context of published information on population size and distribution.</li> </ul>
County (e.g. Lincolnshire, Norfolk, Cambridgeshire)	<ul style="list-style-type: none"> <li>• LNR and non-statutory designated sites including: LWS. Areas which, based on field data collected to inform the impact assessment, meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans) but which are not themselves designated.</li> </ul>
Local (towns, local country area e.g. Fenlands)	<ul style="list-style-type: none"> <li>• HPI and SPI, Red listed and legally protected or notable species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above.</li> <li>• Common and widespread semi-natural habitats occurring within the study area in proportions greater than may be expected in the local context.</li> <li>• Common and widespread native species occurring within the study area in numbers greater than may be expected in the local context.</li> </ul>
Site or Negligible	<ul style="list-style-type: none"> <li>• Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area.</li> <li>• Areas of heavily modified or managed land uses (for example, hard standing used for car parking, as roads etc.)</li> </ul>

### Scope of Ecological Impact Assessment (EclA)

6.9.6 The EclA will consider the potential effects of the English Onshore Scheme upon IEFs identified during the baseline survey and data collection, in accordance with the CIEEM EclA Guidelines (Ref 6.1). This requires the identification of pathways available for an impact, either directly or indirectly, to result in a potential significant effect to the habitat and/or species. IEFs may be located within areas directly impacted by the English Onshore Scheme or the wider areas surrounding this (i.e. the Zol).

### Identification and Characterisation of Potential Impacts

6.9.7 The potential impacts of the English Onshore Scheme during construction and operation and the potential ecological effects arising from them will be identified and characterised, taking into consideration the following parameters:

- **Beneficial or adverse** - whether the impact would result in net loss or degradation of an IEF or whether it would enhance or improve it.
  - **Extent** - the spatial area over which an impact occurs.
  - **Magnitude** - the size or intensity of the impact measured in relevant terms, e.g., number of individuals lost or gained, area of habitat lost or created or the degree of change to existing conditions (e.g., noise or lighting levels).
  - **Duration** - the length of time over which the impact occurs. The duration of the impacts will be described as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 2 years, medium-term is considered to be between 2 and 10 years and long-term is considered to be greater than 10 years.
  - **Reversibility** - the extent to which impacts are reversible either through natural regeneration and succession or through active mitigation.
  - **Timing and frequency** - consideration of the timing of events in relation to ecological change, for example, some impacts may be of greater magnitude if they take place at certain times of year (e.g., breeding season). The extent (see above) to which an impact is repeated may also be of importance.
  - Impacts on IEFs can be permanent or temporary, direct or indirect, and can be cumulative. These factors are brought together to assess the potential impact on the integrity or conservation status of a particularly important ecological feature.
- 6.9.8 Potential impacts are characterised initially in the absence of any mitigation, except where this is integral to the design of the English Onshore Scheme (design measures).
- 6.9.9 Collaboration and data exchange with other relevant disciplines, such as air quality and arboriculture, will be carried out to further inform the EclA and assessment of potential impacts.

## Significance of effect

- 6.9.10 Having characterised importance and potential impacts, the significance of the predicted effects on IEFs arising will be assessed. The assessment of likely potential significant effects as a result of the English Onshore Scheme will be considered for both the construction and operational phases.
- 6.9.11 The CIEEM EclA guidelines (Ref 6.1) define a significant effect in the context of an EclA as *“an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general”*. Significant effects, as defined by the CIEEM EclA guidelines, are determined by assessing any deviation in the baseline conditions of a feature of ecological importance that may occur because of individual and cumulative impacts during the construction and operational phases of a development.
- 6.9.12 These effects will be expressed in terms of geographical scale, using the same scale detailed above to define the importance of an ecological feature. The geographical scale at which an effect is significant can vary from the geographical importance of the ecological feature being assessed and in accordance with the CIEEM EclA guidelines, this will be a function of the assessment. For this assessment, effects at a Local scale or higher are defined as *“significant”*.
- 6.9.13 Where a potential potential significant effect is identified, proposals for mitigation and compensation would be made with the aim of avoiding, preventing, reducing or, if

possible, offsetting any identified significant adverse effects. Following the application of mitigation and compensation, the residual effect is presented within this chapter. Where further assessment or work is required to establish the significance of effect or to identify suitable mitigation and compensation, this has been presented within **Section 6.11 Further work to be undertaken** section.

## Air quality and ecological features

- 6.9.14 An air quality assessment in relation to ecological features will be undertaken for the construction phase of the English Onshore Scheme in accordance with appropriate guidance (as detailed below). Full details of the methodology for the air quality assessment, including modelling, is detailed within **Volume 1, Part 2, Chapter 14 Air Quality**. Methodology for the interpretation of the data and identification of potential impacts and significance of effects for ecological features is detailed below.
- 6.9.15 The air quality assessment will be undertaken in accordance with CIEEM guidance (Ref 6.29) to determine the impact of vehicle emissions at ecological features within 200 m of an affected road link. Ecological features for the air quality assessment include non-statutory (LWS or CWS) and statutory designated sites (LNR, NNR, SSSI, SPA, SAC and Ramsar) for nature conservation and ancient woodland habitats.
- 6.9.16 For ecological features, concentrations of annual mean NO<sub>x</sub> are used as the main basis for evaluating potential significant effects in relation to air quality. Where the annual mean NO<sub>x</sub> concentration is below the 'critical level' of 30µg/m<sup>3</sup> with the English Onshore Scheme, then significant impacts are not anticipated. The Air Pollution Information System (APIS) cites the definition of the critical level as "*concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge*" (Ref 6.30). Furthermore, if the critical level is exceeded with the English Onshore Scheme but the change in concentration is less than 1% of the critical level, the impact is considered imperceptible and unlikely to be significant. However, where the critical level is exceeded and the change is greater than 1%, the impact of nitrogen deposition needs to also be considered to determine the significance of effect.
- 6.9.17 The relevant assessment criterion for nitrogen deposition impacts is the 'critical load'. APIS cites the definition of the critical load as "*a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*" (Ref 6.30). Significance of effects are considered where the change in total nitrogen deposition (kg N/ha/yr.) in comparison to the baseline is greater than 1% of the critical load for the ecological feature (identified from the APIS website).
- 6.9.18 Concentrations of ammonia in the atmosphere can also have a potentially significant effect on ecological features. Similar to the assessment for nitrogen deposition, a 1% threshold will be used to determine the potential for significant effects. Significance of effect will be considered where the change in predicted atmospheric ammonia concentration (µg/m<sup>3</sup>) with the English Onshore Scheme in comparison to the future baseline is greater than 1% (as an absolute number) of the critical level for the site/habitat and the critical level is exceeded. The critical level for a designated habitat will be attributed based on those detailed within published guidance (Ref 6.29). An ammonia concentration critical level of 1µg/m<sup>3</sup> will be set for designated habitats where highly sensitive plant species (i.e. lower plants such as bryophytes and lichen) are a component or qualifying feature. A critical level of 3µg/m<sup>3</sup> ammonia will be used for

designated habitats where only higher plants (vascular plants and trees) are a component or qualifying feature (Ref 6.31).

- 6.9.19 The level at which an impact is deemed significant will be based on professional judgement, in consideration of the magnitude of change in nitrogen deposition or ammonia concentration, the area of the ecological feature adversely impacted by the change in air quality and the potential impact this may have on the integrity of the ecological feature.

### Habitats Regulations Assessment

- 6.9.20 In line with the Planning Inspectorate's Advice on Habitats Regulations Assessment (Ref 6.32), the relevant Secretary of State is the competent authority for the purposes of the Habitats Regulations. The Habitats Regulations require competent authorities, before granting consent for a plan or project, to carry out an Appropriate Assessment (AA) in circumstances where the plan or project is likely to have a potentially significant effect on a Habitats site<sup>21</sup> (either alone or in combination with other plans or projects).
- 6.9.21 As a precursor to the production of an anticipated Habitats Regulations Assessment (HRA) Report, a HRA Screening will be undertaken and, in accordance with the Planning Inspectorate's Advice on Habitats Regulations Assessment, the screening will determine whether the Projects may result in Likely Significant Effects (LSEs) on any Habitats site. A draft HRA Report, outlining the Screening assessment undertaken to date and covering both the English Onshore Scheme and English Offshore Scheme components, is provided as a standalone document alongside the PEIR (**EGL 3 and EGL 4 Draft HRA Report (May 2025)** - document reference EGL-WSP-CONS-XX-RP-Y-001).

### Preliminary assessment of cumulative effects

- 6.9.22 At the current stage of the Projects (PEIR stage), design information for the Projects is insufficient to allow for a robust cumulative assessment to be undertaken. Furthermore, given the current position in relation to baseline data collection, with much of the environmental surveys still to be undertaken during 2025, the baseline identified at this PEIR stage cannot be taken as a complete picture of the potential presence and significance of sensitive receptors. Therefore, a cumulative assessment has not been undertaken at this stage; however, **Volume 1, Part 4, Chapter 28 Cumulative Effects**, presents the long and short lists of 'other developments' which will be considered at the ES stage, and the methodology which allowed for the identification of these other developments, to allow consultation bodies to form a view and provide comment on the other developments included. The long-list will be reviewed and if necessary, updated, in the lead up to the ES, as the Projects design further evolves and in response to any comments raised at statutory consultation.
- 6.9.23 Combined effects (sometimes called intra-project effects) result principally from different types of impacts from one development acting in combination on a specific receptor. In this chapter, the following combined effects on ecological features have been assessed:
- Combined effects arising from hydrology/water; also refer to **Volume 1, Part 2, Chapter 9 Water Environment** and **Chapter 10: Geology and Hydrology**;

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<sup>21</sup> form part of a network of protected sites across the UK known as the 'National Site Network'

- Combined effects to groundwater dependent terrestrial ecosystems specifically; also refer to **Volume 1, Part 2, Chapter 10: Geology and Hydrology**;
- Combined effects arising from noise and vibration; also refer to **Volume 1, Part 2, Chapter 13: Noise and Vibration**;
- Combined effects arising from dust and traffic impacts; also refer to **Volume 1, Part 2, Chapter 14: Air Quality** (with traffic modelling detailed further in **Chapter 12: Traffic and Transport**);
- Combined effects to migratory fish species (such as salmon and lamprey); also refer to **Volume 1, Part 3 Chapter 20: Fish and Shellfish Ecology**; and
- Combined effects to intertidal habitats at the landfall (and species that may be supported, such as birds); also refer to **Volume 1, Part 3 Chapter 19: Intertidal and Subtidal Benthic Ecology, Chapter 20: Fish and Shellfish Ecology and Chapter 21: Intertidal and Offshore Ornithology**.

## 6.10 Preliminary assessment of biodiversity effects

- 6.10.1 As detailed earlier within this chapter, baseline biodiversity data collection is ongoing, and data collected to date is limited primarily to UKHab and protected species habitat suitability assessment information. Further secondary ecological surveys, associated with the presence/absence and distribution of species, are to be undertaken in 2025. As such, there is insufficient information to establish IEF for inclusion within the impact assessment. In the absence of a full ecological baseline, it is considered too early at this PEIR stage to make meaningful conclusions with regards to biodiversity effects and their significance for most ecological features without heavy reliance on assumption and/or caveats.
- 6.10.2 Where appropriate and where confidence exists at this PEIR stage, a high-level narrative of anticipated biodiversity effects for some ecological features is presented below:
- **Candlesby Hill SSSI and Willoughby Wood SSSI:** Candlesby Wood SSSI is designated for its chalk grassland, scrub and woodland habitats and the notable plants and invertebrates supported by these habitats. Willoughby Wood SSSI is designated for its ancient woodland habitat and notable breeding bird assemblage (as detailed in **Volume 2, Part 2, Appendix 2.6.B: National and Local Statutory Designated Sites**). Both SSSIs are not known to have a hydrological connection with the draft Order Limits. Given the distance of the SSSIs from the draft Order Limits (approximately 0.34 km and 0.44 km respectively), no direct impacts within the boundaries of the SSSIs would occur and indirect impacts at this distance are also unlikely to result in potentially significant effects with the implementation of best practice and embedded environmental measures (**Table 6-6**). As such, with the exception of effects associated with air quality (as the affected road network is provisional at this PEIR stage), effects to Candlesby Hill SSSI and Willoughby Wood SSSI associated with construction of the English Onshore Scheme are predicted to be negligible.
  - **Designated sites for nature conservation:** based on the Zols of the English Onshore Scheme, it is anticipated that there would be no significant construction stage effects on local and national statutory and non-statutory designated sites for nature conservation beyond 500 m from the draft Order Limits (with reference to **Volume 2, Part 2, Appendices 2.6.B and 2.6.C**).

- **Reptiles:** based on habitat suitability established from field survey data collected to date and desk study analysis of those land parcels not yet visited, along with the implementation of embedded environmental measures (including precautionary working methods during site clearance; measure ID reference B17, **Table 6-6**), potentially significant effects upon reptiles are not anticipated as a result of construction of the English Onshore Scheme.
- **Terrestrial invertebrates:** based on habitat suitability established from field survey data collected to date and desk study analysis of those land parcels not yet visited, habitats mainly comprise arable farmland (negligible or low importance for terrestrial invertebrate assemblages) with limited distribution of habitats that are likely to support a terrestrial invertebrate assemblage of high value. As such, potential significant effects upon terrestrial invertebrates are not anticipated as a result of construction of the English Onshore Scheme.
- **INNS:** with the implementation of embedded environmental measures (biosecurity controls; measure ID reference B19, **Table 6-6**) during construction, potential significant effects as a result of the spread of INNS are not anticipated.

6.10.3 The statements presented above will be reviewed and a full and final account of the EclA presented within the ES, following completion of baseline data collection and analysis.

## 6.11 Further work to be undertaken

6.11.1 The information provided in this PEIR is preliminary, the final assessment of potentially significant effects will be reported in the ES. This section describes the further work to be undertaken to support the EclA presented in the ES.

### Baseline

6.11.2 As detailed in **paragraph 6.1.7**, this chapter has been informed by preliminary field surveys that have consisted principally of preliminary habitat classification and species suitability assessments only. An extensive programme of further field survey is ongoing that will inform the assessment to be presented in the ES. A summary of the further survey to be completed is detailed below in **Table 6-11**. Surveys associated with the Walpole B Substation are anticipated to be undertaken by the Grimsby to Walpole Project team, with review and analysis of the data to be undertaken as part of the EclA for the English Onshore Scheme.

6.11.3 Further collaboration will be undertaken between the technical teams for English Onshore Scheme and English Offshore Scheme, notably for biodiversity and water, in relation to establishing the biodiversity baseline for the intertidal zone.

6.11.4 Discussions with key stakeholders (principally Natural England and the Environment Agency) regarding the survey programme and methodology are ongoing. The Applicant issued technical notes outlining the proposed approach to assessment (desk-based and field survey) for bats and great crested newts to Natural England on 14 February 2025.

**Table 6-11 – Scope of Further Field Survey to be Undertaken and Completed**

<b>Ecological Feature/Survey Type</b>	<b>Summary</b>	<b>Survey Area</b>	<b>Survey Status</b>
PEA	UKHab, aquatic habitat assessment and protected species habitat suitability assessments	draft Order Limits plus 50 m	Partially complete, approximately 50% of survey area. Commenced August 2024, with survey continuing over the winter months (2024-25). Surveys ongoing to complete land parcels within the survey area and undertaken, where necessary, validation surveys for habitats assessed during winter months and outside the optimal botanical survey season.
Hedgerow Regulations Assessment survey	Assessment of hedgerows against 'biodiversity' criteria, to identify those hedgerows that meet the criteria of 'important' under The Hedgerow Regulations (1997) (Ref 6.33).	Within the draft Order Limits (potentially limited to those hedgerows directly impacted by the English Onshore Scheme)	Completed alongside PEA surveys, ongoing.
Birds (wintering, breeding, passage and intertidal)	Single vantage point at the landfall (through the tide count) and transects along the cable route to provide a representative sampling approach	Within the draft Order Limits (or close to in relation to the transects)	Commenced in September 2024, ongoing and anticipated to be generally completed by August 2025 (with potential "mop-up" surveys in winter 2025/26 due to access issues to date).
Bats – roosting suitability	GLTAs and PRAs of buildings/structures to determine their roosting suitability. Aerial tree climb and inspect, if required, to confirm roosting	Limits of Deviation (LoD) for the cable alignment or permanent infrastructure plus 50 m	Completed alongside PEA surveys, ongoing. To be undertaken in 2025 (if required)

<b>Ecological Feature/Survey Type</b>	<b>Summary</b>	<b>Survey Area</b>	<b>Survey Status</b>
	suitability classification (where this cannot be achieved from ground level).		
Bats – roosting – presence/likely absence (if required)	Limited to buildings/structures directly impacted by the English Onshore Scheme (i.e. demolition) or if the structure is entirely surrounding by construction only.	Within the draft Order Limits	To be undertaken between May and August 2025, if required.
Bats – habitat suitability (foraging and commuting)	DBW surveys to assess habitat suitability. Notably focussed on potential converter station locations (permanent infrastructure).	Within draft Order Limits	Completed alongside PEA surveys, ongoing.
Bats – activity (general)	Static detector deployment across the cable route of the English Onshore Scheme and, if required, Night-time Bat Walkover and/or static detector deployment at converter station locations.	Targeted locations within draft Order Limits (for cable route, approximately every 2 km; pending consultation feedback from Natural England)	To be undertaken between April and October 2025.
Bats – commuting route assessment	To assess potential fragmentation and habitat severance impacts, surveys of linear habitats bisected by the English Onshore Scheme that may be used by commuting bats (hedgerows, treelines and woodland strips/edges) using the Department for Environment, Food and Rural Affairs Local	Targeted locations within draft Order Limits (pending consultation feedback from Natural England)	To be undertaken between May and September 2025.

<b>Ecological Feature/Survey Type</b>	<b>Summary</b>	<b>Survey Area</b>	<b>Survey Status</b>
	Scale methods (Ref 6.18).		
Badger	Daytime walkover for signs of badger activity and any active setts. Where setts are identified, further camera trap and targeted surveys may be undertaken to establish activity and sett type.	draft Order Limits plus 50 m	Completed alongside PEA surveys, ongoing.  Camera traps and targeted surveys to be completed in 2025 (no seasonal restrictions).
Otter	Survey of watercourses and/or potentially suitable habitat for the presence of resting places.	Within draft Order Limits and up to 250 m, in combination with water vole (survey area under assessment at the time of writing and may be refined further)	To be undertaken in 2025 (no seasonal restrictions).
Water vole	Pragmatic and proportionate approach to water vole survey being developed at the time of writing. Anticipated to comprise habitat suitability assessment of watercourses and ditches, plus a sampled approach to presence/likely absence surveying.	Draft Order Limits and up to 250 m (survey area under assessment at the time of writing and may be refined further)	To be undertaken between April and September 2025.
Great crested newt – habitat suitability	Habitat Suitability Assessments (HSI) of ponds/waterbodies and ditches.	draft Order Limits plus 250 m	Completed alongside PEA surveys, ongoing.
Great crested newt – presence/likely absence	Environmental DNA (eDNA) surveys or, where eDNA is inconclusive, conventional presence/likely absence surveys using techniques such	draft Order Limits plus 250 m	To be undertaken between 15 April and 30 June (eDNA) or mid-March to mid-June (conventional surveys) 2025

Ecological Feature/Survey Type	Summary	Survey Area	Survey Status
	as bottle trapping and torchlight survey.		
Fish – eDNA	Environmental DNA (eDNA) surveys analysing for fish communities.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments /water bodies.	Partially complete (20/29). Remainder to be undertaken in March/April 2025.
Fish – Electrofishing	Electrofishing surveys targeting lotic habitats for fish communities and biodiversity.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/ water bodies.	To be undertaken in survey window June-October 2025.
Aquatic macroinvertebrates (general) – eDNA	Environmental DNA (eDNA) surveys targeting a general aquatic macroinvertebrate community.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/water bodies.	Partially complete (20/29). Remainder to be undertaken in March/April 2025.
Aquatic macroinvertebrates (general) – Collection	Aquatic macroinvertebrate survey collects community samples to assess biodiversity.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/ water bodies.	To be undertaken in two survey windows (spring and autumn) March – May 2025, and September – November 2025.
Aquatic Macroinvertebrates (bivalves) – eDNA	Environmental DNA (eDNA) surveys targeting the <i>Bivalvia</i> class.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/ water bodies.	Partially complete (20/29). Remainder to be undertaken in March/April 2025.
Macrophytes	Macrophyte survey to assess biodiversity among aquatic plant communities.	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/ water bodies.	To be undertaken in survey window June - September 2025.

Ecological Feature/Survey Type	Summary	Survey Area	Survey Status
White-clawed Crayfish	Manual search and/or trapping survey targeting White-clawed crayfish <i>Austropotamobius pallipes</i> .	draft Order Limits plus suitable distance based on hydrological connectivity and representative habitats within catchments/bodies.	To be undertaken in survey window July – October 2025.
PSYM (pond survey)	'Predictive system for multimetrics' survey analysing ecological quality of ponds.	draft Order Limits	To be undertaken in survey window June – August 2025.
Rapid Assessment (pond survey)	Methodology for rapid biological quality assessment of ponds	Within the buffer between the draft Order Limits plus 50 m	To be undertaken in survey window June – August 2025.

## Assessment

6.11.5 As detailed earlier in this chapter, a full impact assessment will be presented in the ES and will follow the methodology provided in **Section 6.4 Data gathering methodology**. However, it will be informed by the baseline data collection, evolved design, further stakeholder consultation and detailed analysis from other environmental disciplines. As part of the ecological impact assessment within the ES, the following notable specific assessments will be undertaken:

- identification and assessment of designated sites for nature conservation with a hydrological dependence;
- assessment of impacts to fish (and/or other aquatic ecological features, as required) in relation to electromagnetic fields (as requested in the Scoping Response by the Environment Agency);
- assessment of air quality impacts (nitrogen deposition and ammonia concentration) on ecological features (designated sites for nature conservation);
- assessment of impacts to GWDTE as a result of changes to the physical or chemical properties of groundwater because of thermal effects of the buried cables (in response to a Scoping Opinion response from the Planning Inspectorate, as discussed in **Volume 1, Part 2, Chapter 10: Geology and Hydrogeology**); and
- assessment of 'important' hedgerows in collaboration with the Heritage team.

6.11.6 As design information is currently limited, further assessment will be undertaken in relation to the potential works to install, operate and reinstate the River Nene Temporary Quay as design information becomes available should the temporary quay remain part of the Projects design.

6.11.7 As baseline data collection and analysis progresses, further work will be undertaken to explore opportunities to avoid IEF through design (the first step of the mitigation hierarchy). Where avoidance is not possible, mitigation measures will be identified to reduce the impacts of the English Onshore Scheme on IEF.

- 6.11.8 A HRA Report for the Projects, covering both the English Onshore Scheme and English Offshore Scheme, will also be prepared to sit alongside the ES. A draft HRA Report has been prepared to accompany this PEIR outlining the Screening assessment undertaken to date, although similar limitations to this chapter apply (i.e. prepared in the absence of full baseline survey information). In addition, as identified within the draft HRA Report, the assessment is subject to assumptions. Full details are presented in the **EGL 3 and EGL 4 Draft HRA Report (May 2025)** (document reference EGL-WSP-CONS-XX-RP-Y-001), which forms a standalone document alongside the PEIR.
- 6.11.9 There is a commitment to delivering BNG for the English Onshore Scheme as previously highlighted during scoping. It is anticipated that BNG delivery will become mandatory under the Environment Act (2021) (Ref 6.34) (which requires a 10% increase from the baseline) for DCO applications from November 2025. UKHab surveys and BNG unit calculations are ongoing following a staged approach to assessment in order to inform the design and discussions on ecological compensation in line with the Biodiversity Gain Hierarchy. However, it is acknowledged that the government's consultation on this element has not yet commenced and therefore the approach to BNG assessment and delivery will be kept under review and the final BNG approach for the English Onshore Scheme will be revised in line with the latest guidance.

### Further environmental measures

- 6.11.10 As detailed within **Section 6.6 Environmental Measures**, given the current position in relation to baseline data collection, with much of the ecological field surveys to be undertaken during 2025, it is anticipated that further additional measures will be added and/or refinement of existing measures will be made in response to further baseline data collection. A full account of the impact assessment and proposed mitigation and compensation measures will be presented within the ES.
- 6.11.11 Further consultation with relevant statutory consultees would be undertaken to define the scope and extents of the environmental measures set out in the assessment above. If, following stakeholder consultation feedback, further design refinement and further assessment, it is identified that additional measures are required, these will be detailed as part of the ES.
- 6.11.12 The landfall environment is recognised as a location of heightened sensitivity due to its proximity to the Greater Wash SPA and habitats that may support qualifying bird species (potentially functionally linked land). Further work is to be undertaken to identify appropriate mitigation for birds, as required and in response to the results of further baseline bird surveys and potential impacts and effects. The Applicant is notably engaging with Natural England in relation to identifying potential mitigation opportunities associated with qualifying bird species of the coastal SPA/Ramsar sites both at the landfall and the wider Projects extent.
- 6.11.13 Further refinement of the LoD is anticipated to explore the implementation of appropriate stand-off buffers from sensitive habitats (such as hedgerows, woodland, watercourses and ditches).

6.11.14 Willoughby Meadows SSSI is located adjacent to the draft Order Limits (edge of the SSSI may fall within the draft Order Limits) at a location included for visibility splays related to construction access routes. Additionally, an area of ancient woodland, Welton Low Wood, is located adjacent to the draft Order Limits (grid reference TF 46972 70514) but only for an area of proposed minor junction improvement. Project design requirements and potential impacts to the SSSI and ancient woodland are to be explored further, with steps taken to avoid impacts (where possible) or apply mitigation to reduce potential impacts and effects.

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