Peartree Hill Solar Farm

Environmental Statement

Volume 2

Chapter 7: Biodiversity

Revision 2 (tracked)

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

Application Document Ref: EN010157/APP/6.2

~~February~~ August 2025

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7 Biodiversity

7.1 Introduction

7.1.1 This chapter presents an assessment of likely significant effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development upon biodiversity. The full description of the Proposed Development is provided within **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

7.1.2 This chapter is supported by the following figures presented in **ES Volume 3 [EN010157/APP/6.3]**:

- **Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas**.
- **Figure 7.2: Biodiversity Study Areas**.

7.1.3 This chapter is supported by the following appendices presented in **ES Volume 4 [EN010157/APP/6.4]**:

- **Appendix 7.1: Preliminary Ecological Appraisal Report**.
- **Appendix 7.2: Badger Survey Report (Confidential)**.
- **Appendix 7.3: Breeding Bird Survey Report**.
- **Appendix 7.4: Wintering Bird Survey Report**.
- **Appendix 7.5: Ornithological Survey Report (produced by Avian Ecology)**.
- **Appendix 7.6: Bat Survey Report**.
- **Appendix 7.7: Water Vole and Otter Habitat Suitability Report**.
- **Appendix 7.8: Aquatic Walkover Report**.
- **Appendix 7.9: Passage Bird Survey Report**.
- **Appendix 7.10: Biodiversity Net Gain Assessment**.
- **Appendix 7.11: Aboricultural Impact Assessment**.

7.1.4 This chapter is supported by the following reports:

- **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.
- **Grid Connection Cable Route Bird Survey Report [EN010157/APP/8.4].**

7.1.5 Full details of the study areas, survey methodologies, survey dates and guidance used for each survey are available in appendices detailed above. A summary of survey findings is provided further on in this chapter.

7.1.6 Effects on biodiversity from infrastructure projects can arise from direct and indirect impacts upon designated sites, habitats or species, and be of a temporary or permanent nature. Indirect effects can occur through pollution of air and water and via changes in lighting, noise or hydrology. Therefore, this chapter should be read in conjunction with the following assessment chapters:

- **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**.
- **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]**.
- **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**.
- **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]**.
- **ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]**.

7.1.7 **Habitats Regulations Assessment - Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** has been prepared in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017 **[Ref. 7-1]**. The purpose of the Habitat Regulations Assessment is to provide evidence to determine whether the Proposed Development would result in likely significant effects on European sites (which form part of the National Site Network in the UK) and/or Ramsar sites to enable the competent authority to make the Appropriate Assessment decision.

7.1.8 The Environment Act 2021 **[Ref. 7-2]** makes biodiversity net gain mandatory (for all but small sites and some exemptions) from 12 February 2024 and for Nationally Significant Instructure Projects from November 2025. Developers are now required to provide at least 10% biodiversity net gain for projects **[Ref. 7-3]**. A biodiversity net gain assessment is presented in the **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**.

7.1.9 The following management plans detail and secure additional mitigation to manage any effects on biodiversity caused by the Proposed Development and demonstrate compliance with environmental legislation:

- The **Outline Construction Environmental Management Plan (Outline CEMP) [EN010157/APP/7.2]**, which details and secures mitigation during the construction phase.

- The **Outline Operational Environmental Management Plan (Outline OEMP) [EN010157/APP/7.3]**, which details and secures mitigation, management and monitoring during the operation (including maintenance) phase.
- The **Outline Decommissioning Environmental Management Plan (Outline DEMP) [EN010157/APP/7.4]**, which details and secures mitigation during the decommissioning phase.
- The **Outline Landscape and Ecological Management Plan (Outline LEMP) [EN010157/APP/7.5]**, which details and secures mitigation, management and monitoring of landscape and ecological features for the first five years after construction.
- The **Outline Soil Management Plan (Outline SMP) [EN010157/APP/7.8]**, which details and secures measures to manage any potential impacts to soil (and agricultural land) during and on completion of the construction phase.

7.2 Legislative framework, planning policy and guidance

7.2.1 This assessment has been undertaken in accordance with the following legislation, and with regard to the following planning policy and guidance.

7.2.2 It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an assessment is presented in the **Planning Statement [EN010157/APP/5.5]**.

Legislation

- The Wildlife and Countryside Act 1981 (as amended) **[Ref.7-4]**;
- The Conservation of Habitats and Species Regulations (Habitats Regulations) 2017 (for England and Wales) **[Ref. 7-1**Ref. 7-1**]**;
- The Environment Act 2021 **[Ref. 7-2]**;
- Countryside and Rights of Way Act 2000 **[Ref. 7-5]**;
- The Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**;
- The Hedgerows Regulations 1997 **[Ref. 7-7]**;
- The Protection of Badgers Act 1992 **[Ref. 7-8]**~~: The Protection of Badgers Act 1992. Available online: https://www.legislation.gov.uk/ukpga/1992/51/contents~~
- ~~;~~

- The Wild Mammals (Protection) Act 1996 **[Ref. 7-9]**;
- Invasive Alien Species (Enforcement and Permitting) Order 2019 **[Ref. 7-10]**;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 **[Ref. 7-11]**;
- The Salmon and Freshwater Fisheries Act 1975 **[Ref. 7-12]**~~: Salmon and Freshwater Fisheries Act 1975. London: The Stationary office. Available online: https://www.legislation.gov.uk/ukpga/1975/51#:~:text=1975%20CHAPTER%2051,enactments%20relating%20to%20such%20fisheries.&text=C8Act%20extended%20(1.12.,Water%20Resources%20Act%201991%20(c~~
- ; and
- The Eels (England and Wales) Regulations 2009 **[Ref. 7-13]**.

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023) (designated in January 2024) - Section 5.4 details the planning policy for biodiversity and Environmental Impact Assessment (EIA) requirements **[Ref. 7-14]**;
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023) (designated in January 2024) - Section 2.1 details the planning policy for solar photovoltaic generation in relation to biodiversity **[Ref. 7-15]**;
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023) (designated in January 2024) - Section 2.5 details the planning policy for environmental and biodiversity net gain. Sections 2.9 and 2.10 discuss biodiversity conservation **[Ref. 7-16]**;
- National Planning Policy Framework (NPPF) (2024) - Section 15 specifies the requirements for conserving and enhancing the natural environment through the planning and development process to minimise impacts on habitats and biodiversity **[Ref. 7-17]**; and
- Planning Practice Guidance – Natural Environment - describes key issues to protect and enhance the natural environment, including local requirements and approach to planning. Relevant sections include climate change, biodiversity net gain and EIA **[Ref. 7-18]**.
- A Green Future: Our 25-year plan to improve the Environment. **[Ref. 7-19]**.

- Environmental Improvement Plan 2023. First revision of the 25-year Environment Plan **[Ref. 7-20]**.

Local planning policy

- East Riding Local Plan 2012 – 2029 (adopted April 2016) – specifically Policy ENV4: Conserving and enhancing biodiversity and geodiversity **[Ref. 7-21]**.

Guidance

- The Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine v1.3 (2018, updated September 2024) **[Ref. 7-22]**;
- BS 42020:2013 British Standard Institution: Biodiversity Code of Practice for Planning and Development **[Ref. 7-23]**; and
- Institute of Estuarine and Coastal Studies (IECS) Waterbird Disturbance Mitigation Toolkit (2013) **[Ref. 7-24]**.

7.3 Stakeholder engagement

7.3.1 **Table 7-1** provides a summary of the stakeholder engagement activities undertaken by the Applicant in relation to biodiversity separately from the EIA scoping, non-statutory consultation, statutory consultation and targeted consultation process in support of the preparation of this assessment, as well as detailing the matters raised, how such matters have been addressed, and where they have been addressed within the DCO Application documentation.

7.3.2 **ES Volume 4, Appendix 5.3: Scoping Opinion Response Matrix [EN010157/APP/6.4]** presents the responses received via the Scoping Opinion and the Applicant's response to each matter raised.

7.3.3 The **Consultation Report Appendices [EN010157/APP/5.2]**, which is submitted in support of the DCO Application, sets out the feedback received during non-statutory, statutory and targeted consultation and how the Applicant has had regard to the matters raised by consultees.

Table 7-1: Summary of stakeholder engagement

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
East Riding of Yorkshire Council	24 January 2024 (MS Teams meeting)	Survey methodology must be agreed with Natural England. Review survey methodology of solar farms within proximity to the Proposed Development.	Ornithology survey work has had regard to the survey recommendations produced by Natural England. Where the methodology deviates from the recommendations, justification has been provided. Natural England provided comments on the format of the baseline ornithological reports, and these have been addressed within the baseline reports. No comments were received regarding survey methodology. The survey methodology for solar farms within close proximity were reviewed to ensure that survey effort for the Proposed Development was comparable with other schemes.	**ES Volume 4, Appendix 7.3: Breeding Bird Survey Report [EN010157/APP/6.4]** **ES Volume 4, Appendix 7.4: Wintering Bird Survey Report [EN010157/APP/6.4]** **ES Volume 4, Appendix 7.5: Ornithological Report (produced Avian Ecology) [EN010157/APP/6.4]** **ES Volume 4, Appendix 7.9: Passage Bird Survey Report [EN010157/APP/6.4]**
		Consider in-combination effects with other solar developments.	Cumulative effects with other existing developments and/or approved developments have been assessed.	**ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
				Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]
		Other solar developments in the locality have provided 10-15% of the project land to mitigation areas for Special Protection Areas (SPA) qualifying birds.	Approximately 39 hectares of land, including 16 hectares with scrapes specifically for SPA qualifying species, has been allocated as ~~enhancement~~mitigation areas. In addition, approximate ~~81~~ 116 hectares has been set aside as mitigation for ground nesting birds that will also provide suitable foraging habitat for wintering SPA species. The Land Areas are approximately 891 hectares in total, so in total this equates to 1~~0~~1% set aside as mitigation.	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3] (Figure 4.1)**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
Natural England	08 March 2024 (Email)	The assessment of impacts from loss of functionally linked land in all relevant areas should be informed by relevant bird survey data. Walkover and transect surveys were used rather than vantage point surveys. The surveys do not cover the full wintering period or follow the recommended methodology.	Ornithology survey work has had regard to the survey recommendations produced by Natural England and where methodology deviates from the recommendations, a justification has been provided. Natural England provided no comments regards survey methodology.	**ES Volume 4, Appendix 7.4: Wintering Bird Survey Report [EN010157/APP/6.4]**
		Proximity of the application site to the Leven Carrs Wetland Landscape Recovery area.	Land Area A (close to Leven Carrs) has been removed from the Order Limits.	**N/A**
		There should be an assessment of construction phase impacts on functionally linked land. In the absence of targeted bird surveys, a precautionary approach should be taken for the assessment of impacts and potential mitigation measures.	A precautionary approach has been taken assuming that land is functionally linked and potential impacts on functionally linked land from the cable route have been assessed. Targeted survey work on the grid connection cable route has been undertaken, or is in the process of being undertaken.	**Section 7.9** of **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		All relevant SPA component species present in the passage period should be assessed, not	All relevant SPA component species have been included within the assessment.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		just those set out in the designation as passage species.		**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		Further assessment of potential impacts on passage birds is required. In the absence of passage bird surveys across the entire site, a precautionary approach should be taken.	A precautionary approach has been taken assuming that land is functionally linked and potential impacts on passage species have been assessed. Targeted survey work, including wintering and passage bird surveys on the grid connection cable route, has been undertaken, or is in the process of being undertaken, and the results are expected to be provided in April 2025.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
Natural England	25 April 2024 (Email)	Natural England recommended amendments to the Wintering Bird Report, including the addition of a section focusing on birds associated with the Humber Estuary designated sites to inform the Habitats Regulations Assessment, more detailed survey methodology	The Wintering Bird Survey Report has been amended in light of Natural England's advice. The Information to Inform Appropriate Assessment brings together the results from the four bird survey baseline reports to inform the assessment and has considered all species listed/described in Natural England	**ES Volume 4, Appendix 7.4: Wintering Bird Survey Report [EN010157/APP/6.4]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		and further justification on whether the surveys are considered sufficient to inform the assessment of impacts on functionally linked land.	guidance on the Humber Estuary SPA species as listed in Annex B of the response letter. The Natural England response is outlined in **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.	
Natural England	15 July 2024 Meeting and written response to discuss Natural England's response to the Preliminary Environmental Information Report	Assessment of impacts on the non-breeding waterbird assemblage feature of the Humber Estuary SPA should focus on 'main component species'. Provision of an 'assemblage calculation' would not be considered a sufficient approach to assessing impacts on the non-breeding waterbird assemblage feature in this context.	A response is provided in **Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.	**Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		There is not a definitive list of species that are particularly vulnerable due to declines in the Humber population.	A response is provided in **Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.	**Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		The peak counts of the Humber Estuary Population do not need to be presented in the context of the citation populations.	A response is provided in **Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.	**Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		The assumption should be that land within red line will be functionally linked and the question is what degree of mitigation will be required.	A precautionary approach has been taken and land has been assumed to be functionally linked, reinforced with the results of the survey data. A full response is provided in **Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**.	**Appendix A** of **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		Has land outside the red line boundary been considered for mitigation and enhancement purposes?	Mitigation requirements have been considered, with a clear distinction made between mitigation required for SPA species and other bird species. Mitigation has been accommodated within the Order Limits and therefore there is no requirement to find land outside the Order Limits.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		Mitigation and enhancement has focused on areas where solar is not possible. Look at areas with suitable hydrology, adjacent to areas with biodiversity value.	Mitigation requirements have been considered, with a clear distinction made between mitigation required for SPA species and other bird species. Suitable mitigation land has been accommodated within the Order Limits and therefore there is no requirement to find land outside the Order Limits. The ecological mitigation and enhancement areas are shown in **ES Volume 3, Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas [EN010157/APP/6.3]**.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**
		Mitigation needs to be larger, more joined up and better targeted.	Mitigation requirements have been considered, with a clear distinction made between mitigation required for SPA species and other bird species. Mitigation is spread across the Order Limits, targeted at appropriate locations and as far as is practicable is in individual units larger than 2~~.0~~5 hectares to ensure maximum benefit. The ecological mitigation and enhancement areas are shown in **ES**	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			Volume 3, Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas [EN010157/APP/6.3].	
		Mitigation outlined in the Habitats Regulations Assessment needs to be clear on what would be delivered, by whom and how.	Mitigation requirements have been considered, with a clear distinction made between mitigation required for SPA species and other bird species. The mitigation outlined in **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** is detailed in the **Outline LEMP [EN010157/APP/7.5]**, with a clear distinction made as to what would be delivered by whom and how.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** **Outline LEMP [EN010157/APP/7.5]**
		Progress Habitats Regulations Assessment discussions	Additional engagement with Natural England as regards the outcome of the Information to Inform Appropriate Assessment was held before the DCO Application was submitted. **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment**	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			[EN010157/APP/5.3] has been completed and sent to Natural England for review. See response dated 14 January 2025 below.	
Yorkshire Wildlife Trust	16 July 2024 (MS Teams meeting)	Yorkshire Wildlife Trust reported on research conducted in Suffolk that species that are often suggested to go under solar panels, do not do as well as other documents suggest. Many solar farms have offered big biodiversity net gain uplift but not been pragmatic.	A biodiversity net gain assessment has been undertaken and the Applicant has been pragmatic with habitat creation proposals underneath solar PV modules.	**ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]** **Outline LEMP [EN010157/APP/7.5]**
East Riding of Yorkshire Council	July 2024 (MS Teams meeting)	Battery storage (inverter stations and substations) will need a noise assessment and an assessment of the impacts on wildlife and a fire safety assessment.	An **Outline Battery Safety Management Plan [EN010157/APP/7.6]** has been completed. A noise assessment has been completed. Impacts on wildlife have been assessed. The Proposed Development design will incorporate a minimum offset distance of 10m	**Outline Battery Safety Management Plan [EN010157/APP/7.6]** **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. The Proposed Development design will incorporate a minimum offset distance of 15m from any ancient woodland and veteran trees (from the edge of the canopy), where reasonably practicable. Other than locations where temporary span bridges are required to be installed, the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses and ditches. The above offset distances are considered sufficient to ensure any effect from battery storage on wildlife, including foraging bats, is not significant.	**Outline OEMP [EN010157/APP/7.3]** **Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		Provide information on whether there are any veteran trees on site.	The Applicant can confirm that there are 3 No. veteran trees within the Order Limits.	**ES Volume 4, Appendix 7.11: Aboricultural Impact Assessment [EN010157/APP/6.4]**
		Measures relating to invasive non-native species should be included in the CEMP.	No non-native invasive species have been recorded within the Order Limits. A pre-construction ecological constraints walkover survey will be undertaken and in the event invasive species are found, appropriate measures to restrict the spread and future growth of the plant will be detailed in an invasive species method statement and management plan secured by the **Outline CEMP [EN010157/APP/7.2]**. Standard good practice vegetation and soil management are detailed in and secured by the **Outline SMP [EN010157/APP/7.8]**.	**Outline CEMP [EN010157/APP/7.2]** **Outline SMP [EN010157/APP/7.8]**
		If any significant hedgerow sections are being removed, think about Hedgerows Regulations assessment.	The majority of hedgerows will be retained but some sections will require removal to accommodate the interconnecting cables between Land Areas, the grid connection cable route, access routes and roadside	**Draft DCO [EN010157/APP/3.1]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			visibility improvements. Those sections of hedgerow to be affected have been subject to a Hedgerows Regulations Assessment (where access was permitted) as detailed within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**. Hedgerow removal is shown on the **Tree Preservation Order and Hedgerow Plans [EN010157/APP/2.8]**.	
		Is there any potential for enhancing condition of retained habitats.	Consideration has been afforded to enhancing retained hedgerows, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.	**Outline LEMP [EN010157/APP/7.5]**
		Other schemes have assumed 5% build cover for purposes of biodiversity net gain surface.	The biodiversity net gain assessment has taken into account a 5% build cover.	**ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**
		Number individual fields on master plan so that these can be cross-referenced in the biodiversity net gain metric.	Fields are numbered on habitat figures and the indicative environmental masterplan to enable cross checking in the biodiversity net gain metric.	**ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report (Figure 1) [EN010157/APP/6.4]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
				ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]
		Think about screening of construction noise – Habitats Regulations Assessment and ES.	Appropriate mitigation in relation to noise impacts on biodiversity features has been proposed, including minimum offsets from features such as hedgerows and acoustic fencing. This is outlined in this chapter and the Outline LEMP.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** **Outline CEMP [EN010157/APP/7.2]** **Outline LEMP [EN010157/APP/7.5]**
		Share results of badger survey.	Results of (non-confidential) badger survey were shared with East Riding of Yorkshire Council (07/08/2024).	**ES Volume 4, Appendix 7.2: Badger Survey Report (Confidential) [EN010157/APP/6.4]**
		Hedgerow restoration and enhancement – new planting recommended to include disease resistant elm and alder buckthorn.	Hedgerow restoration and enhancement is proposed, and species mix will include alder buckthorn and disease resistant elm.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
				ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] **Outline LEMP [EN010157/APP/7.5]**
		Grassland restoration should be appropriate to local area.	The grassland creation and enhancement proposed is considered appropriate to the local area.	**ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]** **Outline LEMP [EN010157/APP/7.5]**
		Think about any loss of reeds along ditch edges – hopefully avoid with buffers.	Other than locations where temporary span bridges and culverts are required to be installed, the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses, ditches and ponds.	**ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		Look at what other nearby schemes have done mitigation-wise regarding birds in particular and key areas identified to set Peartree Hill Solar Farm and mitigation proposals in context.	The Applicant has reviewed a number of mitigation measures for other solar schemes and has justified the quantum and type of mitigation required.	**Outline LEMP [EN010157/APP/7.5]**
		Are there proposals for selling biodiversity net gain units over and above the minimum 10%?	The Applicant is not currently considering selling biodiversity net gain units.	N/A
Environment Agency	19 December 2024 Response to the review of the draft Habitats Regulations Assessment	The Habitats Regulations Assessment will require amendments specifically around impacts from Electromagnetic Fields (EMF). Our position on EMF is that in the absence of conclusive evidence of no impact. The Environment Agency adopts the precautionary principle and require that appropriate measures are in place by the developer, and that no detectable EMFs result from the installation of underground cables within the wetted area of an inland waterbody.	The Habitats Regulations Assessment has been updated to consider EMF.	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		The Environment Agency advises that any Horizontal Directional Drilling occurs outside of the sensitive river lamprey freshwater migration period, which normally occurs between October and March. The Environment Agency notes, that during the day lamprey will find sanctuary when not migrating. There is a risk that lamprey will be in the area of the river when Horizontal Directional Drilling is taking place and thus could be disturbed.	The Habitats Regulations Assessment has been updated and the Construction Environmental Management Plan will be updated to consider river lamprey migration timing. The Applicant will make best endeavours to target the Horizontal Directional Drilling works underneath the River Hull between April-September to avoid the peak migration season of River Lamprey Furthermore, the Applicant will make best endeavours to complete the Horizontal Directional Drilling underneath the River Hull during one 24 hour period.	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** Construction Environmental Management Plan
Natural England	14 January 2025 Response to the review of the draft Biodiversity Mitigation Strategy and Habitats	Based on the initial information provided in the Biodiversity Mitigation Strategy (November 2024), Natural England advise that the currently proposed mitigation area is not sufficiently to adequately mitigate for impacts to qualifying SPA bird species using functionally linked land.	The overall mitigation area has been increased from 95 hectares to 116 hectares. It is proposed that approximately 164 hectares (Ecological Mitigation Areas 13 and 11) on the west of the Site will be grassland creation with wetland scrapes, whilst 21.48 hectares (Ecological Mitigation Area 9) in the centre of the Site will be grassland	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
	Regulations Assessment		creation which will also be suitable forging for wintering birds and the bird days calculation outlined below and in the Outline LEMP indicates there is now sufficient quantum of mitigation.	
		Natural England notes the use of the bird days calculation to calculate the amount mitigation in hectares required for wintering bird species. Natural England advises that the figures calculated for lapwing and golden plover should be considered separately, with each figure added together to produce a combined total. Natural England acknowledges that golden plover and lapwing may occur in mixed flocks; however, the mitigation area should be sufficiently large enough to deliver for the combined number of both species recorded. Based on this approach, Natural England notes that the proposed	The Outline LEMP has been updated to include separate calculations for Lapwing and Golden Plover. For Golden Plover (7,740~~37248.8~~ / 1560 = 4.96~~23.8~~ hectares) whilst for Lapwing (9,177.03~~5,555~~/1,000 = 9.19~~4.5~~ hectares). Therefore, the 38.~~1442~~ 76 hectares of grassland and scrape creation detailed and secured in the Outline LEMP will be more than sufficient to mitigate for loss of functionally linked land for Lapwing (requirement (9.18~~4.5~~ hectares) and Golden Plover (4.96~~23.8~~ hectares). It is proposed that approximately 16~~4~~ hectares (Ecological Mitigation Areas 13 and 11) on the west of the Site will be grassland creation with wetland scrapes whilst 21.48 hectares (Ecological Mitigation Area 9) in the	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		mitigation areas fall below the amount detailed in bird days calculation by 11.36 hectares and are thus considered insufficient to mitigate for impacts to qualifying SPA bird species.	centre of the Site will be grassland creation.	
		Natural England advises that the ecological functioning of the proposed mitigation parcels should be assessed in more detail. The application site is described in the *draft Habitat Regulations Assessment* (September 2024) as primarily comprising 'large arable fields'. Golden plover and lapwing rely on open vistas to forage, and the mitigation areas should seek to deliver this site characteristic to ensure suitability for these species.	The Outline LEMP has been updated to include the following text; All three areas are surrounded by proposed solar development on one side only with extensive sightlines across existing arable fields maintaining the open landscape feel that Lapwing and Golden Plover require.	**Outline LEMP [EN010157/APP/7.5]**
		Natural England advise that all core mitigation areas should be surrounded by a buffer of 150m, within which the land use is	The Outline LEMP has been updated to include the following text; All three areas are surrounded by proposed solar development on one side only	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		secured for a purpose which will not affect the integrity of the mitigation area.	with extensive sightlines across existing arable fields maintaining the open landscape feel that lapwing and Golden Plover require. Solar PV modules are located within 150m of Mitigation Area 13, however they are separated from the solar panels by a single lane road and hedgerow including trees. The remaining areas surrounding Ecological Mitigation Area 13 comprise arable and pasture farmland outside the Applicant's control. Solar PV modules are located within 150m of Ecological Mitigation Area 11, however apart from the northern boundary the remaining areas surrounding Ecological Mitigation Area 11 comprise either other mitigation areas or pasture farmland outside the Applicant's control.	

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			Only a small area within the northwestern corner of Ecological Mitigation Area 9 is located within 150m of solar panels. The remaining land within 150m of Ecological Mitigation Area 9 comprises open farmland outside the Applicant's control.	
		Fields E6 (Enhancement Area 16) and E13-14 (Enhancement Area 11) are not currently large enough to meet these requirements, and an extension to these mitigation areas should be considered. Natural England note, the mitigation areas are relatively small in size and fragmented throughout the site. Natural England therefore advises that they not adequately function as feeding areas for waders associated with the Humber Estuary designated sites and cannot be relied upon.	The 38.42 hectares of grassland and scrape creation outlined in the updated Outline LEMP will be more than sufficient to mitigate for loss of functionally linked land for Lapwing (requirement (9.184.5 hectares) and Golden Plover (4.9623.8 hectares). It is proposed that approximately 164 hectares (Ecological Mitigation Areas 13 and 11) on the west of the Site will be grassland creation with wetland scrapes whilst 21.48 hectares (Ecological Mitigation Area 9) in the centre of the Site will be grassland creation.	**Outline LEMP [EN010157/APP/7.5]**
		More detail should be provided in the relevant documents	The Landscape and Ecological Management Plan will include	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		regarding the habitats to be created, and the proposed management of the mitigation areas. Natural England advises that all mitigation areas should be adequately secured, managed and monitored in perpetuity, at least for the lifetime of the project.	detailed habitat management information. The Outline LEMP provides a brief summary of the proposed habitat management and explains how the habitat management measures will be secured and appropriately monitored.	
		Details should be provided of water management for the mitigation areas. Whilst Natural England welcomes that the creation of scrapes is proposed, Natural England advises that the existing drainage regime in the proposed mitigation areas should be considered to determine the ability of the fields to hold sufficient water.	Hydrology studies will be carried out pre-construction. In the unlikely event that the proposed scrapes will not hold water for a sufficient period of time, then the management will be altered to ~~either~~ create grassland habitat ~~or winter stubbles both~~ suitable to support wintering Golden Plover and Lapwing. The final habitat management plan will be detailed in the Landscape and Ecological Management Plan in consultation with stakeholders.	**Outline LEMP [EN010157/APP/7.5]**
		Natural England notes that the *draft Habitats Regulations Assessment* (September 2024) states that the suitability of	The text within the Habitats Regulations Assessment (September 2024) is for ecological context rather than mitigation. There is currently no	**ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		agricultural fields for golden plover changes depending on the 'cropping regimes in place from year to year' and advise that this should be considered further in the design of the mitigation scheme, should arable crop rotation be incorporated into the scheme.	arable crop anticipated within the Proposed Development. This may change if hydrological studies indicate scrape creation is not viable, but final mitigation proposals will be agreed with stakeholders pre-construction.	
		Natural England advises that further assessment is needed regarding the predicted noise levels during construction and operation. Natural England advises that baseline noise levels should be established and compared to the predicted noise levels. The assessment should set the sensitive receptors in the context of the existing noise environment – i.e. how noise levels will change, including the type of noise, such as consistent or sudden loud bangs etc. Bird survey results in proximity to the works should be	The assessment set out in Section 7.3 of the Habitats Regulations Assessment concludes that there was the potential for disturbance/ displacement of SPA/Ramsar site species as a result of construction activities and mitigation has been proposed (as detailed in and secured by the Outline LEMP). However, further information has been added to Section 7.6 of the Habitats Regulations Assessment in relation to the potential noise levels from construction activities and how far these could dissipate.	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** **Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		analysed in this context, including records of birds on adjacent land, who may be disturbed.		
		Natural England advises that it should be confirmed whether above ground cables are required for this project. If required, SPA bird flightlines should be considered in the Habitats Regulations Assessment, including assessment of collision risk.	The Applicant has confirmed there will be no overhead cables required for the Proposed Development.	**ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**
		Natural England welcomes the commitment in the *draft Habitats Regulations Assessment* (September 2024) that Horizontal Directional Drilling will take place at a minimum depth of 6m below the riverbed. Natural England advises, however, that further justification should be projected regarding whether these distances will allow noise/vibration from Horizontal Directional Drilling to	The Applicant will make best endeavours to target the Horizontal Directional Drilling works underneath the River Hull between April-September to avoid the peak migration season of River Lamprey. The Applicant will make best endeavours to target the Horizontal Directional Drilling works underneath the River Hull between April-September to avoid the peak migration season of River Lamprey Furthermore, the Applicant will make	**Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		attenuate to acceptable levels for lamprey species.	best endeavours to complete the Horizontal Directional Drilling underneath the River Hull during one 24 hour period. The risk of vibration/noise causing changes to normal lamprey behaviour is not significant.	
		Natural England advises that further information is required regarding the mitigation measures that would be in place should a 'bentonite breakout occur'. Natural England notes the intention to secure any mitigation measures in the CEMP and will review this document when provided. Please note that Natural England may have additional comments to make following review of this document.	Appropriate mitigation measures are included within the Outline CEMP.	**Outline CEMP [EN010157/APP/7.2]**
		Natural England welcomes that disruption to flight pathways of qualifying bird species as a result of glint and glare has been considered in the	Post-consent monitoring of the potential disruption to flight pathways of qualifying bird species as a result of glint and glare (to help inform future assessments) forms part of the	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		appropriate assessment. Natural England advises that there is insufficient evidence available for us to provide detailed comments on this impact pathway and refer the applicant to our detailed comments regarding post-consent monitoring below.	monitoring strategy outlined within the Outline LEMP.	
		Natural England notes that the survey effort for ground nesting birds falls below the frequency set out in the Common Birds Census method and does not cover the whole application site. Natural England advises that these factors should be considered when evaluating the robustness of the data and designing mitigation measures.	The common bird census is quite a dated methodology not used by the British Trust for Ornithology anymore and is not the ecology consultancy industry standard for conducting breeding bird surveys for development sites. The developing industry standard is the Bird Survey Guidelines (https://birdsurveyguidelines.org/) and the survey effort undertaken is complaint with this. In addition, survey data has been obtained from more than one calendar year. The breeding bird survey methodology is detailed and explained within the Breeding Bird Survey Report.	**ES Volume 4, Appendix 7.3: Breeding Bird Survey Report [EN010157/APP/6.4]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			The 2024 breeding birds surveys were undertaken between March and July 2024 inclusive. The 2022 breeding bird surveys were undertaken between April and June 2022 (inclusive. The data gathered over the two survey seasons provides a detailed understanding of the Site's breeding bird assemblage and territories. The breeding bird survey data is considered sufficient and robust to provide baseline information to inform the appropriate mitigation.	
		A large number of hedgerow species have been recorded on-site, and Natural England therefore recommends that confirmation is provided that hedges would not be removed during the breeding season. Natural England would also encourage the planting of additional hedgerows on site where appropriate.	The Applicant will make best endeavours to reduce hedgerow and vegetation clearance during the breeding bird season. Where this is not possible, nesting bird surveys and work supervision for an appropriately qualified ecologist will be undertaken. The Landscape and Ecological Management Plan will detail and secure measures to mitigate and	**Outline CEMP [EN010157/APP/7.2]** **Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
			enhance the site for nesting birds including hedgerow planting.	
Natural England	02 February 2024	Natural England advises that panels with a built-in white grid should be used, in order to deter birds from landing on them. Natural England advises that post-consent monitoring should occur. It is recommended that this should include consideration of the potential disruption to flight pathways of qualifying bird species as a result of glint and glare, in order to help inform future assessments. There is no established methodology for incorporating such impacts into the monitoring; however, it is suggested that observing bird behaviour around the panels may be appropriate. Natural England is not aware of any monitoring that has previously been undertaken to	The Applicant would welcome further discussion with Natural England on these matters before and/or during the DCO Examination. Post-consent monitoring of the potential disruption to flight pathways of qualifying bird species as a result of glint and glare (to help inform future assessments) forms part of the monitoring strategy outlined within the Outline LEMP.	**Outline LEMP [EN010157/APP/7.5]**

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
		study the effects of glint and glare on birds and is therefore unable to provide examples for reference.		

7.4 Approach to the assessment

Scope of the assessment

7.4.1 The scope of this assessment has been established throughout the EIA process and design of the Proposed Development. Further information can be found in **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**.

7.4.2 This section provides an update to the scope of the assessment from that presented in the EIA Scoping Report which is located in **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and re-iterates/updates the evidence base for scoping matters in or out following further iterative assessment.

Features/matters scoped into the assessment

7.4.3 **Table 7-2** presents the features/matters that are scoped into the assessment reported within this ES, together with appropriate justification.

Table 7--2: Features/matters scoped into the assessment

Feature/matter	Phase	Justification
Humber Estuary SPA/Ramsar site (Loss of functionally linked land for qualifying bird species)	Construction and operation (including maintenance)	This feature is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. Construction activities would not result in direct loss of habitats within the SPA/Ramsar site. However, land within the Order Limits and adjacent habitats have the potential to constitute 'functionally linked land[1]' for SPA/Ramsar qualifying bird species for which the sites are designated. As such, there is potential for loss of functionally linked land under the footprint of the Proposed Development during the construction and operation (including maintenance) phases.

[1] Functionally linked land describes areas of land or sea occurring outside a designated site, which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a SAC/SPA/Ramsar site has been designated. These habitats are frequently used by qualifying species and support the functionality and integrity of the designated sites for these features. The loss of functionally linked land or disturbance/displacement of qualifying species within functionally linked land has the potential to lead to changes in species distribution and, ultimately, prevent the conservation objectives of a SAC/SPA/Ramsar site from being met.

Feature/matter	Phase	Justification
Humber Estuary SPA/Ramsar site (Disturbance/ displacement of qualifying bird species - individual and assemblage)	Construction and decommissioning	This feature is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. There is potential for disturbance/displacement of SPA/Ramsar site qualifying bird species using functionally linked land during the construction and decommissioning phases.
Humber Estuary SPA/Ramsar site/SAC -(Degradation of habitats as a result of changes in water quality/ hydrology)	Construction	This feature is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. During construction, changes in water quality/hydrology resulting from release of breakout contaminants, particularly bentonite, ~~and changes in water supply impacts which may arise due to abstraction,~~ have the potential to lead to degradation of habitats identified as having potential to be functionally linked land for qualifying bird and fish species.
Humber Estuary SAC/Ramsar site (river lamprey only)	Construction	Humber Estuary SAC was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the SAC does not lie within the Site boundary and is a sufficient distance from the Site that no significant effects are considered likely. Furthermore, the SAC will be protected by measures included within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline operational environmental management plan and the outline decommissioning environmental management plan. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of confirmation as to whether the Proposed Development is hydrologically connected to the SAC.

Feature/matter	Phase	Justification
		River lamprey (*Lampetra fluviatilis*) have been assessed as the only qualifying species of the Humber Estuary SAC/Ramsar site which could be affected by the Proposed Development. The Humber Estuary SAC qualifying habitats are a significant distance from the Proposed Development and will remain unaffected by the Proposed Development, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. The Applicant acknowledges that whilst the Proposed Development does not involve works within the European site itself, the River Hull (considered to be functionally linked land for river lamprey associated with the Humber Estuary SAC) will be crossed using Horizontal Directional Drilling. Receptor pits would be located approximately 50m either side of the River Hull and will take place at a minimum depth of 7m below the riverbed. The duration of the Horizontal Directional Drilling under the River Hull is estimated to be completed during one 24 hours period. Furthermore, the Applicant will make best endeavours to target the Horizontal Directional Drilling works underneath the River Hull between April-September to avoid the peak migration for River Lamprey. The aquatic habitat assessment surveys (**ES Volume 4, Appendix 7.8: Aquatic Walkover Report [EN010157/APP/6.4]**) did not identify any suitable lamprey spawning habitat (shallow gravels in flowing water) in the section of the River Hull to be crossed by Horizontal Directional Drilling; with spawning habitats considered likely to be located further upstream in the catchment, in more natural, less managed becks that feed into the River Hull. As such, no adverse effects are anticipated in relation to spawning river lamprey. River lamprey are known to migrate up the River Hull to upstream spawning habitats and

Feature/matter	Phase	Justification
		therefore the potential for disturbance of migration as a result of Horizontal Directional Drilling vibration/noise has also been considered. Mature river lamprey usually migrate from estuaries into fresh water from October to December. During winter and early spring, they continue to migrate upstream (typically at night) when conditions are suitable, often hiding under stones and vegetation during the day. Adults require a migration route free of obstacles in order to reach their spawning grounds with minimum effort and delay. The Applicant will make best endeavours to complete the Horizontal Directional Drilling underneath the River Hull during one 24 hour period. In addition, guidelines from the Acoustical Society of America in relation to sound exposure for fish and sea turtles **[Ref. 7-25]** indicates that fish without a swim bladder (which includes lamprey) have the lowest sensitivity to noise/vibration. As such, no adverse effects are anticipated in relation to disturbance of migrating river lamprey. Juvenile river lamprey may make use of silty habitats within this section of the River Hull. However, given the small-scale of the area affected and the abundance of suitable available habitats downstream of the Horizontal Directional Drilling crossing, even if juveniles were disturbed to the extent that they moved from the area, it is considered unlikely to have an adverse effect on lamprey populations associated with the Humber Estuary SAC. As such, no adverse effects are anticipated in relation to juvenile river lamprey. Furthermore, appropriate mitigation measures will be detailed the Construction Environmental Management Plan will ensure there are no significant effects associated with noise and vibration to river lamprey during the construction phase.

Feature/matter	Phase	Justification
		Notwithstanding the above, there remains a low risk of habitat degradation as a result of changes to water quality due to potential bentonite breakout during the proposed Horizontal Directional Drilling underneath the River Hull. Therefore, Humber Estuary SAC is scoped into the assessment for potential impact to river lamprey only during construction.
Humber Estuary Site of Special Scientific Interest (SSSI) (wintering birds and river lamprey only) (Disturbance/ displacement of qualifying bird species)	Construction, operation and decommissioning	The Humber Estuary SSSI was not included within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** as the SSSI is located greater than 2km from the Order Limits. However, as set out in the **Consultation Report [EN010157/APP/5.2]**, Natural England requested further assessment of the potential impact to the Humber Estuary SSSI features, some of which are additional features to those included within the European designated site citations. The Humber Estuary SSSI has therefore been scoped into this report as a separate ecological feature. The reasons for SSSI designation scoped into the assessment are wintering birds (also a qualifying feature of the Humber Estuary SPA and Ramsar site (see above)) and river lamprey (also a qualifying feature for the Humber Estuary SAC and Ramsar site). The other reasons for the SSSI designation have been scoped out of the assessment (see **Table 7-3** below).
Figham Pastures LWS	Construction	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that this site does not lie within the Site boundary and will be protected by measures within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline operational environmental management plan and the outline decommissioning environmental management plan. However, as set out in **ES Volume 4,**

Feature/matter	Phase	Justification
		Appendix 5.2: Scoping Opinion [EN010157/APP/6.4], the Planning Inspectorate advocated its inclusion, citing an absence of information about potential impact pathways which would extend beyond the site boundary and potential mitigation measures. Since the submission of **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and the receipt of **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the grid connection cable route now passes through Figham Pastures LWS, as shown in **ES Volume 3, Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas [EN010157/APP/6.3]**. The cable would be installed using the Horizontal Directional Drilling method underneath watercourses and open cut trench in all other sections. All works associated with the cable installation works will be retained to within one 30m working width. The installation of the grid connection cable will impact priority habitat coastal floodplain grazing marsh within Figham Pastures LWS. Measures to reduce impact to coastal floodplain grazing marsh are included within the **Outline CEMP [EN010157/APP/7.2]**.
Sections of hedgerow and individual hedgerow trees	Construction	These features were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the Proposed Development will be designed to include an offset distance from solar modules to boundary features including hedgerows and trees and measures in the **Outline CEMP [EN010157/APP/7.2]** will safeguard their protection. Mitigation for any habitat loss will be included within the appropriate anticipated management plans i.e. the outline landscape and ecological management plan. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated their inclusion, citing an absence of

Feature/matter	Phase	Justification
		information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. The Proposed Development design will incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. However, discrete sections of hedgerow and some individual trees would need to be removed to facilitate installation of the grid connection cable, interconnecting cables, highways access and internal access roads. Locations of hedgerows to be directly affected are shown in **ES Volume 2, Tree Preservation Order and Hedgerow Plans [EN010157/APP/2.8]** and **ES Volume 4, Appendix 7.11: Aboricultural Impact Assessment [EN010157/APP/6.4]**. Therefore, these features have been scoped into the assessment for the construction and decommissioning phases only.
Sections of ditches	Construction	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that no ditches will be lost. Furthermore, the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will include standard practice pollution prevention measures to protect the ditches within and adjacent to the Site. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Where reasonably practicable, the Proposed Development design will incorporate a minimum

Feature/matter	Phase	Justification
		offset distance of 10m from all watercourses. The Proposed Development will also incorporate a minimum offset distance of 10m from all ponds. However, ditches would be directly impacted by the installation of new culverts or existing culvert and access route improvements. Temporary span bridges may be used where appropriate, depending on further detailed design. Therefore, these features have been scoped into the assessment for the construction phase only.
Sections of river habitat	Construction	Other than locations where temporary span bridges and culverts are required to be installed, the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses, ditches and ponds. However, two Main Rivers, Meaux and Routh East Drain and Drewery's Sock Dike, are both potentially directly impacted by culverts and Horizontal Directional Drilling will be used under the River Hull to install the grid connection cable to National Grid Creyke Beck Substation. Therefore, these features have been scoped into the assessment for the construction phase only.
Great crested newt	Construction	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. As set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate agreed that great crested newt could be scoped out of the assessment for the Land Areas but advocated its inclusion for the grid connection cable route due to the absence of survey information. There is a risk of great crested newts being present within the un-surveyed pond within Field C4 in Land Area C and within 8No. suitable ponds present within 250m of the grid connection cable route. No ponds will be lost as part of the Proposed Development and the Proposed Development

Feature/matter	Phase	Justification
		design will incorporate a minimum offset distance of 10m from all ponds. The majority of the terrestrial habitat within the Order Limits comprises low value habitat for great crested newts such as open arable farmland. However, suitable habitat such as field margins and hedgerows are to be impacted. This feature has been scoped into the assessment for the construction phase only.
Ground nesting birds	Construction, operation (including maintenance) and decommissioning	Ground nesting birds may be disturbed or displaced during construction and decommissioning. This feature is therefore scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. This feature was proposed to be scoped out of the assessment for the operation (including maintenance) phase, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that biodiversity enhancement measures will sufficiently support ground nesting birds to ensure there are no likely significant effects during operation. In addition, enhancement measures will ensure suitable foraging conditions are maintained. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion. During the operation (including maintenance) phase, the solar PV modules may displace ground nesting birds that require open fields to nest in. Therefore, this feature has also been scoped into the assessment for the operation (including maintenance) phase.
Bats (foraging and commuting)	Construction, operation (including maintenance) and decommissioning	Bats would potentially be affected by fragmentation of foraging and commuting habitat, as sections of several hedgerows would need to be removed for the construction of internal roads, highways access and grid connection cable. Also, potential effects from

Feature/matter	Phase	Justification
		noise and lighting disturbance during construction, operation (including maintenance) and decommissioning could arise, as well as potential effects from habitat change from the installation of solar PV modules. This feature is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.
Bats (roosting)	Construction	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that any impact to roosting bats would be mitigated by the retention of potential roost sites, offset distances around trees and measures within and measures detailed within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline decommissioning environmental management plan and the outline landscape and ecological management plan. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated the inclusion of this feature, citing an absence of information about the extent of potential habitat loss, other potential impact pathways and mitigation measures. Therefore, this feature has been scoped into the assessment for the construction phase only, due to the potential impact to trees and structures suitable for roosting bats.
Water vole and otter	Construction	These features were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that no watercourses will be lost to the Proposed Development. If small sections of watercourses are affected (e.g. culverted to allow for installation of cables), then pre-construction water vole surveys as detailed and

Feature/matter	Phase	Justification
		secured within the **Outline CEMP [EN010157/APP/7.2]** will be undertaken. ~~survey work will be carried out to determine if water voles and/or otters are present.~~ Furthermore, pre-construction surveys for otters will be undertaken as detailed and secured within the **Outline CEMP [EN010157/APP/7.2].** ~~holts and lying up sites will be undertaken on all watercourses assessed providing good suitability for otter, as displayed in **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report (Figure 2) [EN010157/APP/6.4].**~~ If present, standard mitigation measures will be implemented under a licence from Natural England. Furthermore, the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will include standard practice pollution prevention measures to protect the watercourses within and adjacent to the Site. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated their inclusion, citing an absence of information about the extent of potential habitat loss, other potential impact pathways and mitigation measures. Therefore, these features have been scoped into the assessment for the construction phase only, as many of the watercourses and habitats within the Order Limits that are due to be impacted by culverts and crossing points provide suitable habitat for water vole and otter.

Features/matters scoped out of the assessment

7.4.4 **Table 7-3** presents the features/matters that are scoped out of the assessment that are therefore not considered as part of this ES, together with appropriate justification.

Table 7--3: Features/matters scoped out of the assessment

Feature/matter	Phase	Justification
Humber Estuary SPA/Ramsar site (Disruption of flight paths of qualifying bird species as a result of glint and glare)	Construction, operation (including maintenance) and decommissioning	Any effects caused by glint and glare will only potentially occur when the solar PV modules are present during the operation (including maintenance) phase; therefore, no impact is anticipated during the construction or decommissioning phases. As detailed within **Habitats Regulations Assessment - Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**, the infrastructure design and Site layout will reduce the potential level of glint and glare created by the solar PV modules. Furthermore, as set out in **ES Volume 4, Appendix 7.3 Breeding Bird Report; ES Volume 4, Appendix 7.4: Wintering Bird Report** and **ES Volume 4, Appendix 7.9: Passage Bird Survey Report [EN010157/APP/6.4]**, no large flocks of Humber Estuary SPA/Ramsar site qualifying bird species have been recorded moving across the Land Areas during the surveys. In addition, Humber Estuary SPA/Ramsar site qualifying bird species would be more likely to be moving through during the migration/winter period, when light levels would be lower and less likely to experience reflection from the solar PV modules. Based on the configuration of the solar PV modules and lack of large numbers of birds recorded moving through the Land Areas, it is considered that there would be no adverse effects on the integrity of the populations of the qualifying species of Humber Estuary SPA/Ramsar site in relation to disruption of flight paths as a result of glint and glare. Therefore, this matter is scoped out of the assessment.

Feature/matter	Phase	Justification
Humber Estuary SPA/Ramsar (Loss of functionally linked land for qualifying bird species)	Decommissioning	Humber Estuary SPA/Ramsar has been scoped in for loss of functionally linked land for qualifying bird species during construction and operation (including maintenance) (see **Table 7-2** above for justification). As the Site will be re-instated to as found prior to construction, the habitat will return as habitat assessed as functionally linked land for Humber Estuary SPA/Ramsar site qualifying bird species. The ecological mitigation and enhancement areas will be returned to the landowners at decommissioning. Although the landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the possibility of retaining the ecological mitigation and enhancement areas after decommissioning, it is unknown whether the ecological mitigation and enhancement areas will be lost. However, as the Land Areas are due to be re-instated to agricultural use and in turn habitat assessed as functionally linked land for qualifying bird species, the impact of the removal of ecological mitigation and enhancement areas during decommissioning is not considered to be significant. As such, no adverse effects are anticipated in relation to loss of functionally linked land for Humber Estuary SPA/Ramsar site qualifying bird species during decommissioning. Therefore, Humber Estuary SPA/Ramsar site is scoped out of the assessment for loss of functionally linked land for qualifying bird species during the decommissioning phase.

Feature/matter	Phase	Justification
Humber Estuary SPA/Ramsar site (Disturbance/ displacement of qualifying bird species - individual and assemblage)	Operation (including maintenance)	Humber Estuary SPA/Ramsar has been scoped in for disturbance/displacement of qualifying bird species during construction and decommissioning (see **Table 7-2** above for justification). During operation (including maintenance), alternate habitat suitable for use by wintering birds would have been created at the construction stage and during operation (including maintenance), the Proposed Development involves minor human activities such as routine maintenance/replacement work. Furthermore, the infrastructure associated with the Proposed Development will not create noise, light or any other types of pollution in such a manner which will cause significant disturbance to wintering birds. Therefore, disturbance/displacement of qualifying bird species during operation (including maintenance) has been scoped out of the assessment.
Humber Estuary SPA/Ramsar site (Degradation of habitats as a result of changes in water quality/hydrology)	Operation (including maintenance) and decommissioning	Humber Estuary SPA/Ramsar site has been scoped in for degradation of habitats as a result of changes in water quality/hydrology during construction (see **Table 7-2** above for justification). There is no anticipated impact on water quality/hydrology ~~courses~~ during the operation (including maintenance) phase. Only ~~, apart from~~ minor routine drainage network maintenance would be required during this phase. Any work to watercourses will follow measures detailed in the Operational Environmental Management Plan and will not cause such an impact that habitat degradation as a result of changes in water quality/hydrology would occur. No impacts are anticipated from the BESS

Feature/matter	Phase	Justification
		fire-suppression system, which will use a non-water-based aerosol and/or gas clean agent (refer to the **Habitats Regulations Assessment - Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**). Furthermore, the change in agricultural use during operation (including maintenance) would have beneficial effects in terms of water quality/hydrology. The reduction in the application of herbicides and fertilisers, as well as riparian planting, would result in a reduction of pollution of surface water resources. Underground cables and culverts will remain in-situ after decommissioning. There are no works during the decommissioning phase which will cause direct impact to watercourses which are hydrologically connected to the Humber Estuary SPA/Ramsar site. Measures to prevent pollution run-off into the watercourses are detailed in and secured by the **Outline DEMP [EN010157/APP/7.4]**. Therefore, Humber Estuary SPA/Ramsar site is scoped out of the assessment for degradation of habitats as a result of changes in water quality/hydrology during the operation (including maintenance) and decommissioning phases.
Humber Estuary SAC/Ramsar site and Humber Estuary SSSI (river lamprey only)	Operation (including maintenance) and decommissioning	Humber Estuary SAC/Ramsar site and SSSI has been scoped ~~into the~~out of assessment for potential impact to river lamprey ~~only during construction (see **Table 7-2** above for justification).~~ The detailed assessment carried out within the **Habitats Regulations Assessment - Information to Inform the Appropriate Assessment**

Feature/matter	Phase	Justification
		[EN010157/APP/5.3] has concluded no likely significant effects. There are no significant works anticipated to the infrastructure underneath or adjacent to habitat assessed as suitable for river lamprey during the operation (including maintenance) phase. The infrastructure underneath or adjacent to habitat assessed as suitable for river lamprey will remain in-situ after decommissioning. No works which will cause significant noise, vibration or degradation to the habitat assessed as suitable for river lamprey are anticipated during the operation (including maintenance) and decommissioning phases. The potential impact to river lamprey caused by EMF produced by the cable underneath the River Hull is considered to be minimal due to the measures incorporated into the construction design. Therefore, Humber Estuary SAC and SSSI is scoped out of the assessment for potential impact to river lamprey only during the operation (including maintenance) and decommissioning phases.
Humber Estuary SAC (sea lamprey)	Construction, operation (including maintenance) and decommissioning	Humber Estuary SAC has been scoped into the assessment in regard to river lamprey only during construction (see **Table 7.2** above for justification). However, in relation to sea lamprey (a qualifying species of the Humber Estuary SAC/Ramsar site), this species is understood to be restricted to rivers within the Ouse catchment and is considered unlikely to be present in the River Hull. As such, there is considered to be no potential for vibration disturbance from Horizontal Directional Drilling on sea lamprey. Therefore, Humber Estuary SAC/Ramsar site is

Feature/matter	Phase	Justification
		scoped out of the assessment in regard to sea lamprey.
Humber Estuary SAC (all other qualifying features)	Construction, operation (including maintenance) and decommissioning	Humber Estuary SAC has been scoped into the assessment in regard to river lamprey only during construction (see **Table 7-2** above for justification). Due to the significant distance from the Proposed Development to the Humber Estuary SAC, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]** and the pollution control measures detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**, there is no anticipated significant effects on the Humber Estuary SAC qualifying habitats. The Grey seal (*Halichoerus grypus),* a qualifying species of the Humber Estuary SAC), are understood to be restricted to the coastal habitat surrounding the Humber Estuary and although individuals may occasionally swim upstream into the River Hull to feed, there is no anticipated significant effect. Therefore, Humber Estuary SAC/Ramsar site is scoped out of the assessment in regard to all other qualifying features.
Hornsea Mere SPA	Construction, operation (including maintenance) and decommissioning	Hornsea Mere SPA was proposed to be scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. Hornsea Mere SPA is located approximately 7km east of the Order Limits. A small flock of mute swan (*Cygnus olor*) (an individual qualifying species during the breeding/post-breeding season) were recorded on one occasion flying over Land Area D in June 2024 during the breeding bird surveys. A single pair of gadwall (*Anas Strepera*) (an individual winter qualifying species of Hornsea Mere SPA) were recorded

Feature/matter	Phase	Justification
		adjacent to Land Areas B to F, in November 2023 during the winter surveys. No other individual qualifying species of Hornsea Mere SPA were recorded during the surveys. Due to the small numbers of mute swan and gadwall recorded, land within and adjacent to Land Areas B to F is not considered to constitute functionally linked land for these species. However, as detailed within **Habitats Regulations Assessment - Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**, construction activities would not result in direct loss of habitats within Hornsea Mere SPA. Furthermore, the land within the Order Limits and adjacent habitats do not have the potential to constitute 'functionally linked land' for qualifying bird species for which the SPA is designated. As such, there is considered to be no potential for loss of functionally linked land under the footprint of the Proposed Development. Furthermore, there would be no adverse effects in relation to disturbance/displacement of qualifying bird species using functionally linked land and therefore no adverse effects on the integrity of the populations of the species associated with the Hornsea Mere SPA. There would be no significant adverse effects on the populations of species associated with Hornsea Mere SPA in relation to degradation of habitats as a result of changes in water quality/hydrology. Therefore, this feature is scoped out of the assessment.

Feature/matter	Phase	Justification
Greater Wash SPA	Construction, operation (including maintenance) and decommissioning	Greater Wash SPA was proposed to be scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. However, land within and outside of the Order Limits is considered unlikely to be functionally linked land for the qualifying bird species of the Greater Wash SPA. The Applicant has therefore agreed with Natural England that Greater Wash SPA can be scoped out of the assessment.
~~Humber Estuary Site of Special Scientific Interest (SSSI)~~	~~Construction, operation (including maintenance) and decommissioning~~	~~Humber Estuary SSSI was not included within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** as the SSSI is located greater than 2km from the Order Limits. However, as set out in the **Consultation Report Appendices [EN010157/APP/5.2]**, Natural England requested further assessment of the potential impact to the Humber Estuary SSSI features, some of which are additional features to those included within the European designated site citations.~~ ~~The Humber Estuary SSSI is located greater than 2km from the Order Limits, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**, and the qualifying species relevant to the Proposed Development are also included within the Humber Estuary SPA, SAC, Ramsar citation and have therefore been included within the scoped in features associated with the Humber Estuary's European Designations. Therefore, to avoid repetition and duplication, the Applicant considers it unnecessary to scope the Humber Estuary SSSI into the assessment as a separate feature.~~
Humber Estuary SSSI (habitats, breeding bird assemblage,	Construction, operation (including	The Humber Estuary SSSI has been scoped into the assessment in regard to wintering birds and river lamprey only

Feature/matter	Phase	Justification
vascular plant assemblage invertebrate assemblage, -grey seal and sea lamprey)	maintenance) and decommissioning	during construction (see **Table 7-2** above). Due to the large distance from the Proposed Development to the Humber Estuary SSSI, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]** and the pollution control measures detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**, it is anticipated that there would be no significant effects on the Humber Estuary SSSI qualifying habitats, its vascular plant or invertebrate assemblages. Grey seal and sea lamprey (qualifying features of the Humber Estuary SAC and Ramsar site) have also been scoped out of further assessment (see rationale above). The SSSI is also designated for the breeding bird assemblage it supports, including nationally important numbers of bittern (*Botaurus stellaris*), marsh harrier (*Circus aeruginosus*), avocet (*Recurvirostra avosetta*) and bearded tit (*Panurus biarmicus*). The breeding bird assemblage is largely associated with the clay pits, lagoons and reedbeds within the SSSI. As such these species are unlikely to be breeding or foraging within the Order Limits, given the distance and greater habitat suitability within the SSSI and the surrounding area. Therefore, impacts on the SSSI breeding bird assemblage as a result of the Proposed Development have also been scoped out. Refer to the rationale provided above for the Humber Estuary SPA/Ramsar site/SAC in relation to scoping out potential impacts on wintering birds and river lamprey, which are also relevant to the SSSI.

Feature/matter	Phase	Justification
Tophill Low SSSI	Construction, operation (including maintenance) and decommissioning	Tophill Low SSSI was proposed to be scoped into the assessment for construction and decommissioning, but scoped out for operation (including maintenance), as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given for scoping in construction and decommissioning was that Tophill Low SSSI is located 365m north of Land Area A and is designated for wintering wildfowl; potential noise impacts as a result of construction and decommissioning activities therefore require further investigation. The justification for scoping out operation (including maintenance) was that the SSSI does not lie within the Site boundary and any noise emitted during operation would be continuous in nature, leading to minimal disturbance to winter birds and that over time, the birds would habituate to any noise emissions. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information on impact pathways and the extent to which the wildfowl species use the site of the Proposed Development, or their sensitivity to noise. The Applicant can confirm that since **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** was submitted to the Planning Inspectorate, Land Area A has been removed from the Order Limits. Therefore, Tophill Low SSSI is now more than 1km from the Order Limits, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. Furthermore, the Proposed Development is not hydrologically linked to Tophill Low SSSI

Feature/matter	Phase	Justification
		and is separated from the Proposed Development by road infrastructure, agricultural fields and the village of Leven. Therefore, this feature is scoped out of the assessment.
Leven Canal SSSI	Construction, operation (including maintenance) and decommissioning	Leven Canal SSSI was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the SSSI does not lie within the Site boundary and will be protected by measures within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline operational environmental management plan and the outline decommissioning environmental management plan. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about potential impact pathways which would extend beyond the site boundary and potential mitigation measures. Furthermore, **Appendix C** of **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** indicates that the Leven Canal SSSI is situated within the site boundary, in an area marked as a 'cable corridor'. The Applicant can confirm that since **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** was submitted to the Planning Inspectorate, Land Area A and Cable A-B have been removed from the Order Limits. Therefore, Leven Canal SSSI now lies approximately 1km from the Order Limits. Furthermore, the Proposed Development is not hydrologically linked to the Leven Canal and is separated from the

Feature/matter	Phase	Justification
		Proposed Development by road infrastructure, agricultural fields and a country park, as shown in **ES Volume 3, Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas [EN010157/APP/6.3]**. Therefore, this feature is scoped out of the assessment.
Beverley Parks Local Nature Reserve (LNR)	Construction, operation (including maintenance) and decommissioning	Beverley Parks LNR was not referenced within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** as the site is located further than 1km from the Proposed Development design known at the EIA scoping stage. However, due to design refinements since **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** was submitted to the Planning Inspectorate, it is now located 280m west of the Order Limits, but with large open arable fields and an active railway in between, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. Therefore, it is considered that there would be no significant effects on this feature during either construction, operation (including maintenance) or decommissioning.
Figham Pastures LWS	Operation (including maintenance) and decommissioning	This feature is scoped into the assessment for the construction phase (see **Table 7-2** above for justification). However, during operation (including maintenance), any work will be isolated to minor areas of habitat directly above the grid connection cable route and will not constitute as a significant effect on this feature. During decommissioning, the cable will be retained in situ to avoid any unnecessary disturbance. Therefore, this feature is scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Arnold Drain LWS	Construction, operation (including	These features were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix**

Feature/matter	Phase	Justification
Cote Wood LWS (semi-natural ancient woodland) Meaux LWS Tophill Low LWS Watton Carr LWS Easingwold Farm LWS	maintenance) and decommissioning	**5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that these sites do not lie within the Site boundary and will be protected by the measures within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline operational environmental management plan and the outline decommissioning environmental management plan. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated their inclusion, citing an absence of information about potential impact pathways which would extend beyond the site boundary and potential mitigation measures. Arnold Drain LWS lies approximately 50m from the Order Limits as its closest point (Field C7 in Land Area C), as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. The Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses. Arnold Drain LWS is located along Kidhill Lane which a relatively busy road often used by large agricultural machinery. The Proposed Development design has avoided direct impact to Arnold Drain LWS. The potential impact to Arnold Drain LWS from the Proposed Development is no greater than that posed by the existing road use. There is no impact anticipated during construction, operation (including maintenance) or decommissioning, and therefore this feature is scoped out of the assessment.

Feature/matter	Phase	Justification
		Cote Wood LWS borders Field D11 and D17 (abutting the Order Limits), as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**; however, the Proposed Development design will incorporate a minimum offset distance of 15m from any ancient woodland (from the edge of the canopy), where reasonably practicable. Furthermore, the Applicant considers there to be no potential impact pathways. Therefore, this feature is scoped out of the assessment. The northern end of Meaux LWS directly abuts the Order Limits and the southern end of Meaux LWS is 20m north of Field F6 within Land Area F, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. Meaux LWS is located along Meaux Lane, an active busy road linking the A1035 road to North Hull. The Proposed Development design has avoided direct impact to Meaux LWS. The potential impact to Meaux LWS from the Proposed Development is no greater than that posed by the existing road use. There is no impact anticipated during construction, operation (including maintenance) or decommissioning, and therefore this feature is scoped out of the assessment. The Applicant can confirm that due to design refinements that have occurred since **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** was submitted to the Planning Inspectorate, Tophill Low LWS, Watton Carr LWS and Easingwold Farm LWS are now located more than 1km from the Order Limits, as shown in **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. Furthermore, the Applicant considers there to be no

Feature/matter	Phase	Justification
		potential impact pathways. Therefore, these features have been scoped out of the assessment.
Sections of hedgerow and individual hedgerow trees	Operation (including maintenance) and decommissioning	These features are scoped into the assessment for the construction phase (see **Table 7-2** above for justification). During operation (including maintenance), hedgerows and individual hedgerow trees are not anticipated to be significantly impacted. The Proposed Development design will incorporate a minimum offset distance of 10m from any existing hedgerows, where reasonably practicable. Periodic maintenance, such as hedgerow trimming and tree pruning, will be required, but this is considered to be normal practice. During decommissioning, it is anticipated at this stage that underground cabling would be left in-situ to avoid unnecessary ground disturbance. Therefore, there would be no requirement to remove discrete sections of hedgerow or individual hedgerow trees. Therefore, this feature is scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Veteran and ancient trees	Construction, operation (including maintenance) and decommissioning	There are three veteran and/or ancient trees within the Order Limits, specifically along the access route for Land Areas B-D (referenced as T428, T395, T381). **ES Volume 4, Appendix 7.11: Aboricultural Impact Assessment [EN010157/APP/6.4]** and **Outline CEMP [EN010157/APP/7.2]** details and secures measures to minimise effects on these three trees. Therefore, veteran and/or ancient trees will not be affected by the Proposed Development.
Sections of ditches and river habitat	Operation (including	These features have been scoped into the assessment for the construction

Feature/matter	Phase	Justification
	maintenance) and decommissioning	phase only (see **Table 7-2** above for justification). During the operation (including maintenance) phase, maintenance to the drainage network will be required but any potential impacts will be mitigated by measures detailed in the Operational Environmental Management Plan. Furthermore, the likely reduction of agricultural runoff into ditches and rivers would provide a beneficial long term effect (albeit not significant). At decommissioning, culverts and watercourse crossing points which have been reinforced as part of the Proposed Development will be retained. Therefore, these features have been scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Grassland (modified grassland and other neutral grassland)	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that no botanically diverse areas of grassland will be lost to accommodate the Proposed Development. Furthermore, the appropriate anticipated management plans i.e. the outline landscape and ecological management plan will include measures to sufficiently compensate for any minor habitat loss and to protect any retained areas of this habitat during construction. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated their inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures.

Feature/matter	Phase	Justification
		Further habitat surveys undertaken within the Site (**ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**) identified the grassland as either modified or other neutral grassland with low ecological value, which is not considered an important ecological feature. Therefore, this feature is scoped out of the assessment. The loss of land classified as functionally linked land, which may include some areas of grassland, is considered separately as part of the assessment of effects on birds associated with Humber Estuary SPA/Ramsar site (see **Table 7-2**) but again no habitat of botanical value was identified.
Non-ancient woodland within or adjacent to the Order Limits	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the design of the Proposed Development will retain all woodland areas and the appropriate anticipated management plans i.e. the outline landscape and ecological management plan will include measures to protect any retained areas of this habitat during construction. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated their inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Due to design refinements that have occurred since **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** was submitted to the Planning Inspectorate, the Applicant can confirm the Proposed Development

Feature/matter	Phase	Justification
		design will incorporate a minimum offset distance of 10m from all non-ancient woodland. Therefore, this feature is scoped out of the assessment.
Reedbed	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the design of the Proposed Development will not involve any direct loss of ditches or associated reedbed habitat. Furthermore, the appropriate anticipated management plans i.e. the outline landscape and ecological management plan will include measures to sufficiently compensate for any minor habitat loss should this be required and to protect any retained areas of this habitat during construction. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Following receipt of **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, further habitat surveys undertaken within the Site, as detailed within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**, found reedbed habitat to be absent from the Order Limits. Therefore, this feature is scoped out of the assessment.
Ponds	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that no ponds will

Feature/matter	Phase	Justification
		be lost. Furthermore, the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will include standard practice pollution prevention measures to protect the ditches within and adjacent to the Site. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. The Applicant can confirm that no ponds will be lost as a result of the Proposed Development and the Proposed Development design will incorporate a minimum offset distance of 10m from all ponds. Therefore, this feature is scoped out of the assessment.
Scrub	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the design of the Proposed Development will retain scrub, but should any minor habitat clearance be required (considered unlikely), the appropriate anticipated management plans i.e. the outline landscape and ecological management plan will include measures to sufficiently compensate for habitat loss and to protect any retained areas of this habitat during construction. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential

Feature/matter	Phase	Justification
		habitat loss, potential impact pathways and potential mitigation measures. Further habitat surveys undertaken within the Site, as detailed within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**, found significant areas of scrub habitat to be absent from the impacted areas within the Order Limits. Where reasonably practical, areas of scrub within the Order Limits will be retained throughout construction, operation and decommissioning and some for the benefit of wildlife. Therefore, this feature is scoped out of the assessment.
Scarce or notable arable (non-crop) plants	Construction, operation (including maintenance) and decommissioning	Survey work has indicated that the Site contained a fairly ordinary arable-weed flora with only a single notable species identified – a single flower of Night-flowering Catchfly (*Silene noctiflora*), which is a species that is reasonably frequent on the Yorkshire Wolds **[Ref. 7-26]**. As only a single specimen was found, scarce or notable arable (non-crop) plants have been scoped out of the assessment.
Great crested newt	Operation (including maintenance) and decommissioning	Great crested newts have been scoped into the assessment for the construction phase only (see **Table 7-2** above for justification). For the operation (including maintenance) and decommissioning phases, protection measures and the method of works to avoid harm to great crested newts and other amphibians will be detailed in and secured by the Operational Environmental Management Plan and Decommissioning Environmental Management Plan. Furthermore, the Proposed Development design will incorporate a minimum offset distance of

Feature/matter	Phase	Justification
		10m from all ponds. In terms of potential terrestrial habitat, the Proposed Development design will also incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. The creation of flower rich grassland, wetland scrapes (shallow depressions in grassland that fill with water over the winter and dry out slowly during spring) in fields to benefit wildfowl and wading birds, in the ecological mitigation and enhancement areas and improvement of field margins, which would benefit amphibians, is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Bats (roosting)	Operation (including maintenance) and decommissioning	Bats (roosting) have been scoped into the assessment for the construction phase (see **Table 7-2** above for justification). There is not expected to be any loss or disturbance to trees or structures suitable for roosting bats during operation (including maintenance) or decommissioning. Measures detailed in and secured by the **Outline DEMP [EN010157/APP/7.4]** will ensure trees and structures suitable for roosting bats remain undisturbed during decommissioning works. Therefore, this feature is scoped out of the assessment for the operation (including maintenance) and decommissioning phases.
Water vole and otter	Operation (including	These features have been scoped into the assessment for the construction

Feature/matter	Phase	Justification
	maintenance) and decommissioning	phase only (see **Table 7-2** above for justification). During the operation (including maintenance) phase, maintenance to the drainage network will be required but any potential impacts will be mitigated by measures detailed the Operational Environmental Management Plan. At decommissioning, culverts and watercourse crossing points will be retained and any potential impacts will be mitigated by measures detailed in the Decommissioning Environmental Management Plan. Therefore, these features have been scoped out of the assessment for the operation (including maintenance) and decommissioning phases. The 10m offset distance from built infrastructure and watercourses detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]** and **Outline CEMP [EN010157/APP/7.2]** would ensure riparian mammals and aquatic habitat would remain safeguarded by the operation (including maintenance) phase. Any management of watercourses within the 10m offset distance between watercourses and built infrastructure would be sympathetic to wildlife and carried out on an infrequent basis. Appropriate management of watercourses for biodiversity, detailed in secured by the **Outline LEMP [EN010157/APP/7.5]**, as well the likely reduction of agricultural runoff into the watercourses would provide a beneficial long term impact on riparian mammals and aquatic species.
Invasive non-native species	Construction, operation	This feature is scoped out of the assessment, as detailed within **ES**

Feature/matter	Phase	Justification
	(including maintenance) and decommissioning	**Volume 4, Appendix 5.1: Scoping Report** [**EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.
Invertebrates	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was a lack of records of Schedule 5 species together with the lack of high quality habitat within the Site that could support an important invertebrate assemblage. As set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate agreed that invertebrates could be scoped out of the assessment for the Land Areas, but advocated its inclusion for the grid connection cable route due to the absence of survey information. A Preliminary Ecological Appraisal of the grid connection cable route has since been completed, as presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**. No high-quality invertebrate habitats were recorded and therefore this feature has been scoped out of the assessment.
Fish	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that no watercourses will be lost to the Proposed Development. If small sections of watercourses are affected (e.g. culverted to allow for installation of cables), then standard mitigation measures such as fish rescue will be implemented. Furthermore, the appropriate anticipated management plans i.e. the outline

Feature/matter	Phase	Justification
		construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will include standard practice pollution prevention measures to protect the watercourses within and adjacent to the Site. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. The preliminary aquatic surveys, as presented within **ES Volume 4, Appendix 7.8: Aquatic Walkover Report [EN010157/APP/6.4]**, have identified that the network of ditches and drains within the study area may support a population of common and widespread fish species. Only discrete sections of these watercourses will be affected by culverting works, which will aim to maintain connectivity and flow and standard pollution control measures are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**, **Outline CEMP [EN010157/APP/7.2]** and the **Outline DEMP [EN010157/APP/7.4]**. During operation (including maintenance), the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses, ditches and ponds and taking land out of intensive cultivation would likely improve water quality and fish populations. The grid connection cable will be installed using Horizontal Directional Drilling under the River Hull avoiding any direct impacts

Feature/matter	Phase	Justification
		on fish species. Applicant will make best endeavours to complete the Horizontal Directional Drilling underneath the River Hull during one 24 hour period. Therefore, this feature is scoped out of the assessment. Fish species associated with the Humber Estuary SAC and Ramsar site are covered under the assessment of those features.
Other amphibians	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the Site, being mostly arable and improved pasture, is largely unsuitable for amphibians and all ponds will be retained. Furthermore, precautionary measures detailed in the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will safeguard low numbers of amphibians that may be present in the more suitable areas. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Further surveys, as presented within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**, have shown the majority of the habitat within the Order Limits provides sub-optimal habitat for amphibians.

Feature/matter	Phase	Justification
		Protection measures and the method of works to avoid harm to amphibians will be detailed in the Construction Environmental Management Plan, Operational Environmental Management Plan and Decommissioning Environmental Management Plan. Furthermore, the Proposed Development design will also incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. The creation of wildflower grassland, wetland scrapes and improvement of field margins, which would benefit amphibians, is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment.
Reptiles	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the Site, being mostly arable and improved pasture, is largely unsuitable for reptiles. Furthermore, precautionary measures detailed in the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will safeguard low numbers of reptiles that may be present in the more suitable areas. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential

Feature/matter	Phase	Justification
		habitat loss, potential impact pathways and potential mitigation measures. Protection measures and the method of works to avoid harm to reptiles detailed in the Construction Environmental Management Plan, Operational Environmental Management Plan and Decommissioning Environmental Management Plan. Further surveys, as presented within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**, have shown the majority of the habitat within the Order Limits provides sub-optimal habitat for reptiles. Furthermore, the Proposed Development design will also incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. The creation of wildflower grassland, wetland scrapes and improvement of field margins, which would benefit reptiles, is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment.
Non-ground nesting birds	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the retention of boundary hedgerows and trees and implementation of precautionary measures detailed in the appropriate anticipated management plans i.e. the outline construction environmental management plan and outline decommissioning environmental

Feature/matter	Phase	Justification
		management plan will sufficiently safeguard nests during construction and decommissioning. Furthermore, enhancement measures will enhance foraging for all nesting bird species. No significant effects are anticipated during operation. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Other than some small sections of hedgerow and individual hedgerow trees that would need to be removed to facilitate installation of the grid connection cable, interconnecting cables, highways access and internal access roads, hedgerows and trees that could be used by non-ground nesting birds would be retained and enhanced. The Proposed Development design will incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. Furthermore, and where reasonably practicable, existing hedgerows, woodland, ditches and field margins will be retained. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) will be designed to use existing agricultural tracks between fields, where reasonably practicable, and the width of any breaches will be kept to a minimum. Mitigation measures to further safeguard non-ground nesting birds are detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**. Measures to enhance hedgerows and field margins for non-ground nesting birds are detailed in

Feature/matter	Phase	Justification
		and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment.
Wintering and passage birds not cited as interest features of the Humber Estuary SPA/Ramsar site	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that the implementation of precautionary measures detailed in the appropriate anticipated management plans i.e. the outline construction environmental management plan and the outline decommissioning environmental management plan will sufficiently safeguard birds during construction and decommissioning. There is not expected to be loss of foraging habitat as boundary features will be enhanced and other habitat creation and enhancement works secured through appropriate anticipated management plans i.e. the outline landscape and ecological management plan is likely to benefit wintering birds. No effects are anticipated during operation. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Survey work has identified a moderately diverse assemblage of wintering birds, but wintering birds are mobile and range widely during the winter months, so the Site is unlikely to represent key foraging habitat. Where reasonably practicable, existing hedgerows, woodland, ditches and field margins will be retained and work within specific areas will be

Feature/matter	Phase	Justification
		undertaken outside the wintering and passage bird seasons, as detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) will be designed to use existing agricultural tracks between fields, where reasonably practicable, and the width of any breaches will be kept to a minimum. Furthermore, the Proposed Development design will create suitable habitat for wintering birds such as flower rich grassland, legume rich sowing, hedgerows, and field margin sowing, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment.
Barn owl	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that any disturbance will be mitigated by offset distances between the solar modules and boundary features. There is not expected to be loss of foraging habitat as boundary features will be enhanced and other habitat creation and enhancement works secured through the appropriate anticipated management plans i.e. the outline landscape and ecological management plan is likely to benefit foraging barn owl (*Tyto alba*). There are not expected to be any significant effects during operation. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures.

Feature/matter	Phase	Justification
		Further surveys, as presented within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**, have not identified any structures or trees within the Order Limits which are suitable for nesting barn owl. Barn owl are not anticipated to be disturbed by the Proposed Development as a 50m offset distance has been created around all barns suitable to support nesting pairs (within Land Areas D, E and F). No trees with barn owl suitability have been identified within the Order Limits. Mitigation measures to avoid disturbance to nesting barn owl during construction is detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**. Where reasonably practicable, existing hedgerows, woodland, ditches and field margins will be retained. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) will be designed to use existing agricultural tracks between fields, where reasonably practicable, and the width of any breaches will be kept to a minimum. Furthermore, the Proposed Development design will create suitable hunting habitat for barn owl such as meadow grassland, legume rich sowing, hedgerows, and field margin sowing, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Therefore, this feature is scoped out of the assessment.
Marsh harrier	Construction, operation (including	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The

Feature/matter	Phase	Justification
	maintenance) and decommissioning	justification given was that any potential disturbance to marsh harrier nesting in wetland vegetation or field margins during construction and/or decommissioning will be mitigated by offset distances and measures detailed within the appropriate anticipated management plans i.e. the outline construction environmental management plan, the outline decommissioning environmental management plan and the outline landscape and ecological management plan. There is not expected to be a loss of foraging habitat and marsh harriers mostly hunt along filed margins. Boundary features will be enhanced and other habitat creation and enhancement works secured through the appropriate anticipated management plans i.e. the outline landscape and ecological management plan is likely to benefit foraging marsh harrier. There are not expected to be any significant effects during operation. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential habitat loss, potential impact pathways and potential mitigation measures. Breeding and non-breeding bird surveys undertaken within the study area (refer to **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report; ES Volume 4, Appendix 7.4: Wintering Bird Survey Report**; **ES Volume 4, Appendix 7.5: Ornithological Survey Report (produced Avian Ecology)** and **ES Volume 4, Appendix 7.9: Passage Bird Survey Report [EN010157/APP/6.4]**) did not identify marsh harriers within the study area. The habitat throughout the Order Limits is not considered important

Feature/matter	Phase	Justification
		for marsh harrier, and no likely significant effects are predicted. Therefore, this feature is scoped out of the assessment.
Peregrine Falcon (*Falco peregrinus*)	Construction, operation (including maintenance) and decommissioning	A pair of peregrine falcon were seen flying over the Site during the breeding bird surveys, although no nest sites have been identified within the study area they have been known to nest on pylons (refer to **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report; ES Volume 4, Appendix 7.5: Ornithological Survey Report (produced by Avian Ecology)** and **ES Volume 4, Appendix 7.9: Passage Bird Survey Report [EN010157/APP/6.4]**). Boundary features will be enhanced and other habitat creation and enhancement works detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]** are likely to benefit foraging peregrine falcon. Furthermore, pre-construction surveys detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]** will ensure that should nesting peregrines be found on any pylons on close proximity, appropriate mitigation is implemented during construction. The **Outline DEMP [EN010157/APP/7.4]** includes measures to reduce the risk of disturbance during decommissioning. No significant effects are anticipated during operation (including maintenance). Therefore, this feature is scoped out of the assessment.
Kingfisher (*Alcedo atthis*)	Construction, operation (including maintenance) and decommissioning	No kingfisher nest sites have been identified within the study area, although the network watercourses do provide suitable forging habitat. Other than locations where temporary span bridges and culverts are required to

Feature/matter	Phase	Justification
		be installed, the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses and ditches. Boundary habitats will be enhanced and other habitat creation and enhancement works detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]** are likely to benefit kingfisher. Furthermore, pre-construction surveys detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]** will ensure that in the unlikely event nesting kingfishers are identified, appropriate mitigation is implemented during construction. The **Outline DEMP [EN010157/APP/7.4]** includes measures to reduce the risk of disturbance during decommissioning. No significant effects are anticipated during operation (including maintenance). Therefore, this feature is scoped out of the assessment.
Badger	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that all known setts will be retained with an appropriate offset distance. Implementation of precautionary measures detailed in the appropriate anticipated management plans i.e. the outline construction environmental management plan, outline operational environmental management plan and outline decommissioning environmental management plan will mitigate for any residual risk. However, as set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate advocated its inclusion, citing an absence of information about the extent of potential

Feature/matter	Phase	Justification
		habitat loss, potential impact pathways and potential mitigation measures. Further surveys have been undertaken on the Site to identify the location of badger setts on Site (see **ES Volume 4, Appendix 7.2: Badger Survey Report (Confidential) [EN010157/APP/6.4]**). All known existing badger (*Meles meles*) setts will be retained with an appropriate offset distance to avoid disturbance or damage to setts. Badgers are not anticipated to be affected during operation (including maintenance) due to the passive nature of works and offset distances from field margins. Field margins will remain as open corridors for animals to disperse. If security fencing would otherwise block access to a badger sett, then the fencing will be designed and micro-sited in those locations to allow access for badger, by ensuring mammal access points are included within the fencing, such as gaps under the fencing to allow badgers to push under the fence at low points to access the setts and foraging habitat. Depending on the results of the pre-construction surveys, mammal gates will be installed at appropriate locations along the fence lines to allow badgers and other small mammals access into fields for foraging. Details of these mammal access points will be provided within the Landscape Ecological Management Plan once the results of pre-construction surveys are known. ~~are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.~~ ~~Details regarding the monitoring of the fencing and mammal access points (if~~

Feature/matter	Phase	Justification
		~~required) are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.~~ Pre-construction surveys will be undertaken to fully review the location of badger setts, and a re-assessment of any activities which might cause impact to setts. Precautionary method statements, and avoidance measures will be implemented where feasible, or if it thought to be required following pre-construction survey work, a Natural England licence will be applied for, where impacts cannot be avoided. Specifications for pre-construction surveys are detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**. Therefore, this feature is scoped out of the assessment.
Hazel dormice	Construction, operation (including maintenance) and decommissioning	This feature was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. The justification given was that there are no known records of hazel dormice within 1km of the Site. Hedgerows within the Site were considered to provide some suitability for hazel dormice, although many were species-poor, and woodland was generally sparse, so foraging opportunities were limited. As set out in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**, the Planning Inspectorate agreed that hazel dormice could be scoped out of the assessment for the Land Areas, but advocated its inclusion for the grid connection corridor route due to the absence of survey information. Further surveys of the grid connection cable route (**ES Volume 4, Appendix 7.1: Preliminary Appraisal Report [EN010157/APP/6.4]**) recorded habitats

Feature/matter	Phase	Justification
		similar to those described above, and there were no additional records of hazel dormouse in this area. Therefore, this feature is scoped out of the assessment.
Deer and brown hare	Construction, operation (including maintenance) and decommissioning	Vegetation underneath the solar PV modules will provide suitable habitat for a range of small mammal species which will be able to push under the security fence at low lying points. Details of the fencing design and any specific mammal access points (if required) are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Note, deer will not be able to push under the fence but can access the wider countryside by moving along the 10m offset distance between the security fence and retained hedgerows and watercourses. Regular checks of fencing and culverts by appropriately trained staff will occur to ensure mammal access points remain operational and no animals become trapped. Details regarding the fence, culvert and mammal access point checks are detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]**. It is anticipated that mammals including badger and brown hare, will benefit from the Proposed Development during the operation (including maintenance) phase due to the increased availability of relatively undisturbed habitat within Land Areas B to F as well the ecological mitigation and improvement areas and ecologically sensitive management of vegetation.

Study/survey areas

7.4.5 The study area varies based on the ecological feature and the area over which the ecological feature may be affected by the biophysical changes caused by the Proposed Development and associated activities (the 'Zone of Influence'), as defined by the CIEEM Guidelines **[Ref. 7-22]**. The defining of individual study areas for individual features has also been based on professional judgement and consideration of the geographic location, nature and scale of the Proposed Development.

7.4.6 The Zone of Influence for each feature has been refined throughout the assessment process. The study area for each feature includes the Zone of Influence, but generally covers a larger area to gather data to inform the determination of the Zone of Influence.

7.4.7 Field surveys have been undertaken to characterise the ecological baseline. Further details regarding the extent of the survey areas and any limitations encountered are presented in the associated survey reports in **ES Volume 4, Appendices 7.1 to 7.9 [EN010157/APP/6.4]** and displayed within **ES Volume 3, Figures 7.2a to 7.2c: Biodiversity Study Areas [EN010157/APP/6.3]**. The scope of surveys and survey areas have been presented to and discussed with consultees (see **Table 7-1**).

7.4.8 The study area includes the area within the Order Limits (as displayed in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**) and appropriate precautionary Zones of Influence, which varies per feature according to each individual feature's best practise guidance, as detailed in **Table 7-4** below and displayed within **ES Volume 3, Figures 7.2a to 7.2c: Biodiversity Study Areas [EN010157/APP/6.3]**.

Table 7-4: Biodiversity study/survey areas

Feature	Study/survey area
Statutory designated sites of international/European importance	Data obtained within 10km of the Order Limits, as displayed within **ES Volume 3, Figure 7.2a: Biodiversity Study Areas [EN010157/APP/6.3]**.
National statutory designated sites	Data obtained within 2km of the Order Limits, as displayed within **ES Volume 3, Figure 7.2a: Biodiversity Study Areas [EN010157/APP/6.3]**.
Non-statutory designated sites, ancient woodland and protected and otherwise noteworthy species	Data obtained within 1km of the Order Limits, as displayed within **ES Volume 3, Figure 7.2a: Biodiversity Study Areas [EN010157/APP/6.3]**.
National Habitat Networks	Surveys have been undertaken within the Order Limits, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.

Feature	Study/survey area
Habitats	Surveys have been undertaken within the Order Limits, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Trees	Surveys have been undertaken within the Order Limits, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Notable arable (non-crop) plants	Surveys have covered targeted areas within Land Areas D and F (these being deemed the most suitable to support arable (non-crop) plants), as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Amphibians	Surveys have been undertaken within Land Areas B to F, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**. An assessment for great crested newt breeding habitat within 250m of the grid connection cable route has been undertaken using the Habitat Suitability Index. Further surveys for great crested newts within 250m of the grid connection cable route have not yet been undertaken. but appropriate surveys will be completed as pre-construction surveys, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Bats	Bat activity surveys have been undertaken within the Order Limits. Preliminary bat roost assessments have been undertaken on trees and the majority of structures within the Order Limits, where access was possible and where it was known if a structure was likely to be directly affected (see limitations), as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Water vole and otter	Habitat suitability assessments for water vole and otter have been undertaken in and adjacent to the watercourses due to be affected by Proposed Development – surveying up to 200m upstream and downstream of impact points such as proposed culvert crossing points, as shown in **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report [EN010157/APP/6.4] (Figure 1)** and as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.

Feature	Study/survey area
Badgers	Surveys have been undertaken within the Order Limits, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Fish	Habitat suitability assessments for fish have been undertaken on the watercourses due be affected by the Proposed Development, surveying up to 200m upstream and downstream from impact points such as proposed culvert crossing points, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**.
Breeding birds	Breeding bird surveys were completed in 2022 before the current configuration of the fields within the Order Limits was confirmed. Approximately half of the Order Limits were included during the 2022 breeding bird surveys. Additional breeding bird surveys within the Order Limits have been completed during 2024 ensuring full coverage of the Land Areas, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**. Breeding bird surveys have not been undertaken for the grid connection cable route, interconnecting cables or access roads. Sufficient information about the breeding bird assemblage of the grid connection cable route can be taken from the breeding bird surveys completed for the Land Areas.
Passage birds	Passage (spring and autumn) bird surveys within Land Areas B to F have been completed during August and September 2024. Wintering and passage bird surveys (but not breeding bird surveys) of the grid connection cable route commenced in September 2024 and are due to be completed in April 2025. The Applicant considers the surveys necessary because the grid connection cable route could comprise functionally linked land for birds associated with the Humber Estuary SPA/Ramsar during the winter and passage periods, but not during the breeding period. –Information on breeding bird assemblage can be taken from the surveys undertaken for the Land Areas.
Wintering birds	Wintering bird surveys were completed between 2021 and 2022 and again between 2022 and 2023 before the current configuration of the fields within the Order Limits

Feature	Study/survey area
	had been determined. Approximately half of the Order Limits were surveyed between 2021 and 2022; however, land within the current Land Areas not surveyed during 2021 and 2022 was surveyed between 2022 and 2023. Wintering bird surveys of the Order Limits, excluding the grid connection cable route, have been completed between November 2023 and February 2024 to ensure full coverage, as displayed within **ES Volume 3, Figure 7.2b: Biodiversity Study Areas [EN010157/APP/6.3]**. Wintering and passage bird surveys of the grid connection cable route commenced in September 2024 and are due to be completed in April 2025.

Establishing baseline conditions

Data sources to inform the EIA baseline characterisation

7.4.9 The following desk study data sources have been used to understand the existing biodiversity baseline conditions (the 'study areas' for data collection are detailed in **Table 7-4** above):

- North and East Yorkshire records centre, which included a search for designated sites (both statutory and non-statutory) and protected species records; and
- British Trust of Ornithology for bird records within and in close proximity to the Order Limits.

7.4.10 Online data resources that have been reviewed comprise:

- Multi-Agency Geographic Information Centre (MAGIC) **[Ref. 7-2]** for the location (and details) of international and national statutory designated sites, ancient woodland and notable habitats; and
- Joint Nature Conservation Committee website **[Ref. 7-28]** for citation details of SACs, SPAs, and Ramsar sites.

Site visits/surveys

7.4.11 The following site visits/surveys have been undertaken to understand the existing biodiversity baseline conditions. All survey work followed relevant best practice guidelines, which are detailed in **ES Volume 4, Appendices 7.1 to 7.10 [EN010157/APP/6.4]**.

Habitat survey

7.4.12 Preliminary Ecological Appraisal surveys were carried out between May and September 2023, with additional Preliminary Ecological Appraisal surveys in August 2024 to encompass the grid connection cable route. Full details of the Preliminary Ecological Appraisal survey and species-specific survey methodology are presented in the **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**. The Preliminary Ecological Appraisal surveys were undertaken to determine the broad habitat types present (following UKHab survey methodology), and to identify the potential for protected and notable species presence.

7.4.13 Between June and September 2024, three LWSs were surveyed. These comprised targeted areas of Meaux LWS, Arnold Drain LWS and Figham Pastures LWS. The purpose of the surveys was to ascertain if the LWSs supported habitat of botanical interest and to inform a subsequent assessment of effects, since the extent of the Order Limits in those areas had not been confirmed at that time. Full details of the surveys are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

7.4.14 Between June and September 2024, an assessment of the hedgerows across the Order Limits was undertaken. The majority of the information regarding hedgerows was gathered during the UKHab survey as detailed above. Additional sample points were located throughout the Order Limits, at locations where hedgerows are likely to be directly impacted. Locations are shown in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report (Figure 5) [EN010157/APP/6.4]**. Sample points comprised a 30m length of hedgerow, where information was collected, relevant to The Hedgerows Regulations 1997, Part II of Schedule 1 **[Ref. 7-7]**, wildlife and landscape criteria for important hedgerow selection. Full details of the hedgerow survey are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

7.4.15 In August 2024, targeted areas within Land Areas D and F were subject to a targeted survey to identify any scarce or notable arable (non-crop) plants that may be present. Full details of the scarce or notable arable (non-crop) plants survey are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

Great crested newts

7.4.16 Habitat Suitability Index and eDNA survey of three ponds and six ditches within Land Areas B to F were undertaken in June 2023. Desktop assessment and Habitat Suitability Index of waterbodies within 250m of the grid connection cable route was undertaken in October 2024. Full details of the survey methodology

are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**.

Fish suitability assessment

7.4.17 All watercourses due to be directly affected by the construction of the Proposed Development (such as proposed culvert crossing points) were assessed in July 2023 for their potential to support river and sea lamprey and other fish species; this comprised a 200m length upstream and downstream from the point of impact. Full details of the survey methodology are presented in **ES Volume 4, Appendix 7.8: Aquatic Walkover Report [EN010157/APP/6.4]**.

Badger

7.4.18 Badger surveys were undertaken during November 2023. Full details of the badger survey methodology are presented in **ES Volume 4, Appendix 7.2: Badger Survey Report (Confidential) [EN010157/APP/6.4]**.

Birds

7.4.19 Breeding bird surveys were undertaken between March and July 2023. Full details of the bird survey methodology are presented in **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report [EN010157/APP/6.4]**.

7.4.20 Wintering bird surveys were undertaken between November 2023 and January 2024. Full details of the survey methodology are presented in **ES Volume 4, Appendix 7.4: Wintering Bird Survey Report [EN010157/APP/6.4]**. Wintering bird surveys of the grid connection cable route commenced in September 2024 and are due to be completed in April 2025.

7.4.21 Passage bird surveys were undertaken within the Land Areas between August 2024 and September 2024. Full details of the survey methodology are presented in **ES Volume 4, Appendix 7.9: Passage Bird Survey Report [EN010157/APP/6.4]**.

Bats

7.4.22 Ground level assessments of trees for their suitability to support roosting bats were undertaken during the Preliminary Ecological Appraisal walkover surveys detailed above.

7.4.23 Bat activity surveys comprising the deployment of static detectors were undertaken in June 2023, September 2023 and April 2024. Full details of the bat

survey methodology are presented in **ES Volume 4, Appendix 7.6: Bat Survey Report [EN010157/APP/6.4]**.

7.4.24 Further targeted ground level tree assessments and preliminary roost assessments for bats were undertaken in May and September 2024 within and directly adjacent to the boundary of the Land Areas where hedgerows and trees are due to be impacted and where surrounding infrastructure such as inverters, substations and culverts would be located. Full details of the bat survey methodology are presented in **ES Volume 4, Appendix 7.6: Bat Survey Report [EN010157/APP/6.4]**.

Water vole and otter

7.4.25 Habitat suitability surveys for water vole and otter surveys of watercourses due to be affected by the Proposed Development were undertaken in August 2024. Full details of the survey methodology are presented in **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report [EN010157/APP/6.4]**.

Brown hare

7.4.26 Specific brown hare surveys have not been undertaken but incidental observations of brown hares were noted during other surveys and survey findings have been used to design the ecological mitigation and enhancement detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

Approach to design flexibility

7.4.27 The design parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and **Design Parameters Document [EN010157/APP/5.8]**, set out the reasonable 'worst-case' parameters for the Proposed Development.

7.4.28 **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]** sets out those elements of the Proposed Development for which optionality is present within the design.

Assessment assumptions

7.4.29 The assessment is based on the design parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and **Design Parameters Document [EN010157/APP/5.8]**, and is based on embedded mitigation and additional mitigation as described in **Sections 7.6 and 7.8** of this chapter.

7.4.30 The exact alignment of the grid connection cable route has not been confirmed, and therefore a worst-case scenario has been assumed. The worst-case scenario assumes a 30m working width within Figham Pastures LWS, within which it is assumed that habitat will be temporarily lost, but which will be reinstated following completion of the cable installation.

7.4.31 It is not yet known how many box culverts as opposed to single span bridges would be used when crossing watercourses, so a worst-case scenario has been assumed. The worst-case scenario assumes nineteen box culverts will be installed. Box culverts provide a higher impact than single span bridges, by impacting the banks and riparian habitats of rivers and ditches, and impacting the bed of the river or ditch.

7.4.32 The exact construction methodology and footprint for Horizontal Directional Drilling works on Figham Pastures LWS has not yet been defined, so a worst-case scenario has been assumed.

Assessment methodology and criteria

7.4.33 This assessment has been undertaken in accordance with CIEEM Guidelines **[Ref. 7-22]**, as summarised below and in accordance with **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**.

7.4.34 This assessment has comprised the following steps:

- Identify relevant ecological features (e.g. designated sites, habitats, species or ecosystems) that may be impacted;
- Determine the ecological importance of features using geographic frames of reference; and
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects. Impacts and effects may be positive or negative.

7.4.35 Criteria that have been taken into account when determining significance comprise:

- Duration (short term, medium term or long term);
- Permanence (permanent or temporary) and changes in significance (increase or decrease); and
- Reversibility - e.g. is the change reversible or irreversible.

7.4.36 The geographic frames of reference used for this assessment to help determine the ecological importance of features in accordance with the CIEEM Guidelines **[Ref. 7-22]** are as follows:

- International (i.e. Ramsar sites, SACs and SPAs) (normally within the geographic area of Europe);
- UK or National;
- Regional;
- County;
- District; and
- Local (within approximately 5km of the Site boundary).

7.4.37 The ecological importance of species populations is based on their size, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection.

7.4.38 When assigning ecological importance to species populations, the following has been considered: legal protection, distribution, rarity, population trends and population size. The assessment of ecological importance relies on the professional opinion and judgment of experienced ecologists, informed by relevant population information and scientific research.

7.4.39 When assigning ecological importance to plant communities, these have been assessed in terms of their intrinsic value, habitat for supporting protected species and for supporting plants species of nature conservation concern.

7.4.40 When describing ecological impacts and effects, reference is made to the following characteristics as required:

- **Positive or negative:** Positive represents a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. This may also include halting or slowing an existing decline in the quality of the environment. Negative represents a change which reduces the quality of the environment e.g. destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution.
- **Extent:** The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g. noise transmission under water).
- **Magnitude:** The size, amount, intensity and volume - this should be described on a quantitative basis where possible.
- **Duration:** Defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes.
- **Frequency and timing:** The number of times an activity occurs.

- **Reversibility:** An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects.

7.4.41 CIEEM Guidelines **[Ref. 7-22]** requires a clear statement as to whether or not an effect is significant and at what geographical scale, for example 'significant at the national level'. In accordance with CIEEM Guidelines **[Ref. 7-22]** a significant effect is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. A significant effect can be either positive or negative. Throughout the assessment regard has been paid to the Biodiversity Mitigation Hierarchy comprising avoid, minimise, mitigate and offset.

7.5 Environmental baseline

Existing baseline

7.5.1 The findings from baseline surveys are detailed in **ES Volume 4, Appendices 7.1-7.9 [EN010157/APP/6.4]**.

Humber Estuary SPA/Ramsar site

7.5.2 The Humber Estuary SPA/Ramsar site is located approximately 8km south of the Order Limits and is considered to be of **International** importance.

7.5.3 In relation to consideration of potential effects on qualifying species of the Humber Estuary SPA, Natural England provided a guidance document on the main component species of the Humber Estuary SPA non-breeding waterbird assemblage 'Annex B: Humber Estuary Special Protection Area: Non-breeding waterbird assemblage (V1.1 June 2023)' (refer to **Table 7-1**). This sets out which species should be considered when assessing the non-breeding waterbird assemblage feature of the Humber Estuary SPA. Natural England recommend focusing on what are referred to as the 'main component species' of the assemblage, categorised as:

- All species listed individually under the assemblage feature on the SPA citation (i.e. the species that qualified in 2007 when the site was designated).
- Species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most

recent Humber Estuary Wetland Bird Survey 5-year average count (currently 2018/19 – 2022/23).

- Species where more than 2,000 individuals are present according to the most recent Humber Estuary Wetland Bird Survey count.

7.5.4 The guidance provides a species list but notes that the assemblage qualification is subject to change as species' populations change; therefore, the appropriate British Trust for Ornithology Wetland Bird Survey data should be considered in any assessment, and the list should be used as a guide only.

7.5.5 Two individual qualifying species of the SPA, and one qualifying species of both the SPA and Ramsar site were recorded during the bird surveys; golden plover (*Pluvialis Apricaria*) (an individual winter qualifying species of the Humber Estuary SPA and an individual winter/passage qualifying species of the Humber Estuary Ramsar site), hen harrier (*Circus Cyaneus*) (an individual winter qualifying species of the Humber Estuary SPA) and marsh harrier (*Circus Aeruginosis*) (an individual breeding qualifying species of the Humber Estuary SPA).

7.5.6 Golden plover were recorded on three occasions within Land Areas D and E. The 800 golden plover recorded in 2021/22 represented 3.78% of the Humber Estuary Wetland Bird Survey population, with the other sighting of less than two individuals equating to 0.01% of the population. Golden plover were also recorded adjacent to the Order Limits on three occasions, with the highest peak count of 60 birds representing 0.28% of the Humber Estuary Wetland Bird Survey population. Although one bird was seen during the autumn passage surveys, no flocks of golden plover were recorded moving through during spring/autumn migration. Although golden plover were only recorded on a small number of occasions across the three years of surveys, given the Wetland Bird Survey Amber Alert and fluctuating population trends, on a precautionary basis land within and adjacent to Land Areas B to F is considered to constitute functionally linked land for this species.

7.5.7 Single sightings of foraging hen harrier were recorded within Land Areas C, D and F during January and February 2024. A single bird represents 12.5% of the Humber Estuary SPA citation population. Although more than 1% of the SPA population has been recorded within Land Areas B to F, given the small number of records of hen harrier during the surveys and the general trend towards an increase in numbers of this species, land within and adjacent to Land Areas B to F is not considered to constitute functionally linked land for this species.

7.5.8 Marsh harrier was the only individual breeding qualifying species of the Humber Estuary SPA recorded during the breeding bird surveys. A single sighting of a male was recorded flying carrying prey north over Land Area D during the July 2024 breeding bird survey. Up to two pairs of marsh harriers are known to nest

at Tophill Low (north of the Order Limits), and it is considered possible that the male could be related to one of those pairs. Given that marsh harrier were only recorded once during the two breeding bird survey seasons, land within and adjacent to Land Areas B to F is not considered to constitute functionally linked land for this species.

7.5.9 Four Humber Estuary SPA (Natural England Annex B category a) bird species were recorded during the surveys; lapwing (*Vanellus vanellus*), mallard (*Anas platyrhynchos*), teal (*Anas crecca*) and curlew (*Numenius Arquata*).

7.5.10 Lapwing were regularly recorded throughout the winter surveys, in particular within the agricultural fields within Land Areas C, E and F. The highest total peak count of 82 birds represented 0.51% of the Humber Estuary population. No large flocks of lapwing were recorded flying across the Land Areas, with a single lapwing recorded flying over during the autumn passage surveys. Lapwing were also recorded during all three years of the winter bird surveys adjacent to Land Areas B to F, and once during the autumn passage surveys. The highest total peak count of 246 birds represented 1.54% of the Humber Estuary Wetland Bird Survey population, although this was the only occasion where more than 1% of the population was recorded. Given the British Trust for Ornithology Wetland Bird Survey Red Alert for this species, population declines and 'unfavourable' condition assessment, land within the Order Limits and immediately adjacent is considered to constitute functionally linked land for this species.

7.5.11 Mallard were recorded throughout the winter period within Land Areas B to F, and during the autumn passage surveys on one occasion. Birds were recorded using the agricultural fields, but were mostly associated with the ditch system around the Site in Land Areas B, C, E and F. All of the records were of less than ten birds, with the exception of the highest total count of 16 mallard in January 2023, which represented 1.29% of the Humber Estuary population. No large flocks of mallard were recorded flying across the Land Areas. Mallard were also recorded during all three years of the winter bird surveys adjacent to Land Areas B to F. The mallard recorded adjacent to Land Areas B to F were also mostly associated with the ditch systems. The highest total peak count of 18 birds represented 1.46% of the Humber Estuary population. Although the numbers of mallard recorded were low, given the vulnerability of the species due to population declines, on a precautionary basis land within the Order Limits and immediately adjacent is considered to constitute functionally linked land for this species.

7.5.12 Teal were recorded during the winter period within Land Areas B to F, and during the autumn passage surveys on one occasion. Birds were recorded using the agricultural fields, but similarly to mallard, flocks of wintering teal were predominately recorded within the ditch system, particularly around Land Area C. The majority of sightings were of less than 30 birds, with the highest total peak count of 64 birds in February 2024 representing 1.12% of the Humber Estuary

population. No large flocks of teal were recorded flying across the Land Areas. Teal were recorded during two of the three years (2022/23 and 2023/24) surveys. The teal were mostly associated with the ditch systems within and adjacent to Land Areas B to F, with high numbers of teal (more than 100 birds) regularly recorded within Dike. More than 1% of the Humber Estuary population was recorded during the November, December and January 2023/24 surveys, with the highest total peak count of 168 birds representing 2.94% of the Humber Estuary Wetland Bird Survey population. Although teal are increasing in numbers (within the Humber Estuary and UK), given that more than 1% of the Humber Estuary Wetland Bird Survey population has been recorded on several occasions, land within the Order Limits and immediately is considered to constitute functionally linked land for this species.

7.5.13 Curlew were recorded within Land Areas B to F during the winter surveys, during only two survey visits, with more than 1% of the Humber Estuary population present on one of those occasions. Although this species is declining within the region, given the small number of records during the three years of surveys, the land within the Order Limits and immediately adjacent is not considered to constitute functionally linked land for curlew.

7.5.14 Four Humber Estuary SPA (Natural England Annex B category b) bird species were recorded within and adjacent to Land areas B to F during the surveys; green sandpiper (*Tringa ochropus*), little egret (*Egretta garzetta*), greylag goose (*Anser anser*) and pink-footed goose (*Anser brachyrhynchus*).

7.5.15 Green sandpiper have been recorded twice during the surveys. Although both records were of more than 1% of the Humber Estuary population; given the small number of records over the three survey years and that the green sandpiper population around the Humber is stable/increasing (following national trends), the land within the Order Limits and immediately adjacent is not considered to constitute functionally linked land for this species.

7.5.16 Small numbers (less than two birds) of little egret and two greylag geese (highest peak counts representing 0.93% and 0.09% of the Humber Estuary populations respectively) were recorded foraging within Land Areas B to F. Pink-footed geese were recorded flying over on two occasions but were not recorded foraging or roosting. Little egret, greylag goose and pink-footed goose were also recorded adjacent to Land Areas B to F. The highest peak counts of little egret (one bird), greylag goose (two birds) and pink-footed goose (six birds) represented 0.47%, 0.09% and 0.04% of the Humber Estuary populations respectively. No Wetland Bird Survey alerts have been triggered for little egret, greylag goose or pink-footed goose on the Humber Estuary. In addition, the numbers of all three species within the Humber have shown increases in their populations in recent years, which follows the national increase in population trends for these species. Given the small number of records of these species across the three years of surveys

and recent increases in their populations, the land within the Order Limits and immediately adjacent is not considered to constitute functionally linked land for little egret, greylag goose or pink-footed goose.

7.5.17 One Humber Estuary SPA (Natural England Annex B category c) bird species was regularly recorded within and adjacent to Land Areas B to F during the winter and on two occasions during the Autumn passage surveys; black-headed gull (*Chroicocephalus ridibundus*). Black-headed gull were regularly recorded foraging within Land Areas B to F. The highest peak count of 110 birds represented 0.79% of the Humber Estuary population. No large flocks of black-headed gull were recorded flying across the Land Areas. Black-headed gull were also recorded adjacent to Land Areas B to F. The highest peak counts of 85 birds represented 0.61% of the Humber Estuary population. Given that black-headed gull have been regularly recorded using the site and their population declines in recent years, the land within the Order Limits and immediately adjacent is considered to constitute functionally linked land for this species.

7.5.18 ~~As identified above, given the similarities in habitats along the grid connection cable route and Land Areas B to F, on a precautionary basis the land within the grid connection cable route could constitute functionally linked land for the same species; golden plover, lapwing, mallard, teal and black-headed gull.~~A similar suite of bird species was recorded along the grid connection cable route to that recorded within/adjacent to Land Areas B to F. ~~Therefore~~Therefore, on a precautionary basis the land along the grid connection cable route would also constitute functionally linked land for the same species; golden plover, lapwing, mallard, teal and black-headed gull.

Humber Estuary SAC/Ramsar Site

7.5.19 River lamprey are a qualifying species of both the Humber Estuary SAC/ ~~(and~~ Ramsar site~~)~~. River lamprey are known to migrate up the River Hull to upstream spawning habitats. The aquatic habitat assessment surveys did not identify any suitable lamprey spawning habitat (shallow gravels in flowing water) in the section of the River Hull to be crossed by Horizontal Directional Drilling; with spawning habitats considered likely to be located further upstream in the catchment, in more natural, less managed becks that feed into the River Hull. Juvenile river lamprey may make use of silty habitats within this section of the River Hull. Mature river lamprey usually migrates from estuaries into fresh water from October to December. During winter and early spring, they continue to migrate upstream at night when conditions are suitable, hiding under stones and vegetation during the day. The River Hull is considered to be functionally linked land for river lamprey associated with the Humber Estuary SAC/ ~~(and~~ Ramsar site~~)~~.

7.5.20 The Humber Estuary SAC and Ramsar site are~~is~~ considered to be of **International** importance.

Humber Estuary SSSI

7.5.21 The Humber Estuary SSSI is located approximately 8km south of the Order Limits and is considered to be of **National** importance.

7.5.22 The SSSI is designated for supporting wintering bird species (avocet, bar-tailed godwit, bittern, black-tailed godwit, brent goose, curlew, dunlin, golden plover, goldeneye, greenshank, grey plover, knot, lapwing, oystercatcher, pochard, redshank, ringed plover, ruff, sanderling, scaup, shelduck, teal, turnstone, whimbrel and wigeon. These species are all also included on the Humber Estuary SPA citation (including NE Annex B guidance), and/or Humber Estuary Ramsar site citation (see baseline descriptions above).

7.5.23 River lamprey are another reason for designation, which are also a qualifying feature of the Humber Estuary SAC and Ramsar site (see baseline descriptions above).

Figham Pastures LWS

~~7.5.21~~7.5.24 Figham Pastures LWS is designated for its mosaic of different habitat types including high botanical diversity within the drains and dykes which intersect the site. The citation of this LWS is provided in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

~~7.5.22~~ Survey work undertaken as part of the Preliminary Ecological Appraisal survey indicates that Figham Pastures LWS meets the local LWS designation criteria and therefore is confirmed as being of County importance.

Sections of hedgerow and individual hedgerow trees

~~7.5.23~~7.5.26 Surveys of hedgerows proposed to be affected by the Proposed Development were carried out in August 2024. Approximately 45km of hedgerows were recorded within and/or adjacent to the Order Limits. These habitats are priority habitats **[Ref. 7-29]** and listed as habitats of principal importance under Section 41 of the Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**.

~~7.5.24~~7.5.27 The majority of the hedgerows surveyed were not species-rich (i.e. had less than four woody species per 30m). A total of 19 hedgerows were considered species-rich under the UKHab criteria **[Ref. 7-31]**. A total of 16 hedgerows within the Order Limits were deemed likely to be 'important' under The Hedgerows Regulations 1997, part 2, 'wildlife and landscape criteria for important hedgerow selection' **[Ref. 7-7]**. These all had four or more species per 30m together with other features indicative of ecological importance such as hedgerow trees, or associated bank or ditch.

~~7.5.25~~7.5.28 The network of hedgerows within the Order Limits are considered to collectively provide an important ecological feature -of at least **District** importance. However, the small discrete sections of hedgerow that will potentially be directly impacted by the Proposed Development would likely be of **Local** importance at most.

~~7.5.26~~7.5.29 Further details regarding hedgerows are provided in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

Sections of ditches

~~7.5.27~~7.5.30 Survey work has established that the majority of ditches supported terrestrial vegetation consisting of grassland species at the base of hedgerows fringing the ditch or the margin of the field. These dry ditches provide some ecological value as part of the wider landscape, (for example providing habitat corridors). In some instances, vegetation within the ditches was dominated by common reed (*Phragmites australis*), bulrush (*Typha latifolia*) and reed sweet-grass (*Glyceria maxima*). These areas are not considered large enough in extent to be classified as reedbed, rather they were classified as aquatic marginal vegetation. The larger watercourses held a more diverse aquatic flora, associated with open water, such as pondweeds (*Potamogeton* spp.) and branched bur-reed (*Sparganium erectum)*. None of these ditch habitats are listed as priority habitats.

~~7.5.28~~7.5.31 The ditch habitats provide ecological value for other species such as fish, water vole, and otter, with the ditch network providing connectivity for those species, and form part of the hydrological functioning of the Site, to ensure that

freshwater habitats are maintained downstream. It is therefore considered that these ditch habitats are of **Local** importance.

~~7.5.29~~7.5.32 Further details regarding ditches are provided in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

Sections of river habitat

~~7.5.30~~7.5.33 The rivers within the Land Areas and the grid connection cable route are heavily modified or straightened. The River Hull is heavily modified in the section that is within the Order Limits, but does still retain a natural meander, all the other rivers present on Site have been straightened, and therefore are not considered 'highly natural' watercourses, as described below.

~~7.5.31~~7.5.34 The rivers are not headwaters, or listed as priority river habitat, in the Natural England Priority Habitat Inventory **[Ref. 7-31]**, and do not meet the criteria for inclusion as 'highly naturally functioning stretches' under Natural England guidelines **[Ref. 7-32]** for the Statutory Biodiversity Metric **[Ref. 7-33]** Following this guidance, the rivers are best described as, 'other rivers and streams, heavily modified', under the UK Habitat classification **[Ref. 7-30]**, which is not listed as a priority habitat.

~~7.5.32~~7.5.35 Under UK Biodiversity Action Plan criteria for priority habitats **[Ref. 7-34]**, the watercourses do not meet the criteria as natural watercourses; however, they may meet criteria 7, by potentially providing habitat to more than six widespread Biodiversity Action Plan priority species (water vole, otter, soprano pipistrelle (*Pipistrellus pygmaeus*), European eel, bullhead and river lamprey). These rivers should therefore be considered habitats of principal importance under Section 41 of the Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**, and priority habitat when considering the requirements of the NPPF **[Ref. 7-17]**. Further details of the assessment of rivers are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

~~7.5.33~~7.5.36 Considering the information listed above, the river habitats are considered to be of **District** importance.

Great crested newt

~~7.5.34~~7.5.37 Desk study records included a record of great crested newt within 1km of the Order Limits.

~~7.5.35~~7.5.38 There are three ponds within the Land Areas and numerous ditches that could potentially support great crested newts. eDNA surveys were carried out on the three ponds together with five ditches within the Land Areas that were

deemed suitable for eDNA sampling; the remaining ditches were assessed as unsuitable either due to water quality or lack of safe access to the water's edge for surveying purposes. All the ponds and ditches returned negative eDNA results, suggesting that great crested newts are not present. However, a further pond suitable for newts was identified late in 2024 within Field C4 in Land Area C and has not yet been subject to eDNA survey.

~~7.5.36~~7.5.39 Desktop assessment and Habitat Suitability Index surveys of waterbodies within 250m of the grid connection cable route have found eight waterbodies which are potentially suitable for great crested newts.

~~7.5.37~~7.5.40 Until eDNA surveys of the un-surveyed pond within Field C4 in Land Area C and 8No. suitable waterbodies within 250m of the grid connection cable route corridor are completed, presence of great crested newts within these ponds has been assumed.

~~7.5.38~~7.5.41 Full details of the survey results are presented in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal [EN010157/APP/6.4]**.

~~7.5.39~~7.5.42 Based on current information, using the precautionary principle, habitats are considered to be of **Local** importance to great crested newt.

Ground nesting birds

~~7.5.40~~7.5.43 The background data search returned records of three bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-4]**, and 11 otherwise notable bird species within 1km of the Order Limits. The full list of species returned from the desk study is detailed in the **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4]**.

~~7.5.41~~7.5.44 A breeding bird survey was undertaken between April and June 2022 (inclusive). Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.5: Ornithological Survey Report (produced by Avian Ecology) [EN010157/APP/6.4]**.

~~7.5.42~~7.5.45 Additional field surveys for breeding birds were undertaken between March and July 2024 inclusive. Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report: [EN010157/APP/6.4]**.

~~7.5.43~~7.5.46 The two surveys recorded a combined total of 51 species of bird breeding or possibly breeding on Site, including 28 specially protected and notable species.

~~7.5.44~~ The seven notable species of ground nesting birds recorded on Site are listed in Table 7-5:

Table 7--5: Notable bird species associated with arable habitats (ground nesting)

Species		Estimated no. breeding territories/pairs
Common name	**Scientific name**	
Grey partridge	*Perdix perdix*	11
Quail	*Coturnix coturnix*	1
Lapwing	*Vaneless vanellus*	12
Skylark	*Alauda arvensis*	65
Yellow wagtail	*Mota Cilla flava ssp. latissimus*	4
Meadow pipit	*Canthus pratensis*	2
Reed bunting	*Emberizine schoeniclus*	45

~~7.5.45~~7.5.48 The Site supports healthy populations of several farmland bird species including skylark (65 territories), grey partridge (11 territories), and reed bunting (45 territories), of which the national and/or county populations are in decline.

~~7.5.46~~7.5.49 Based on the species conservation status, abundance, and diversity of the species assemblage, the breeding bird assemblage of the Site is assessed as being of **County** importance.

Bats (foraging, commuting and roosting)

~~7.5.47~~7.5.50 Desk study records identified a single species of bat (species not specified) within 1km of the Order Limits.

~~7.5.48~~7.5.51 Bat activity surveys, using static bat detector deployments in a variety of locations across the Order Limits, were undertaken in 2023 and 2024. Survey aims were to sample bat activity over as much of the Proposed Development area as possible.

~~7.5.49~~7.5.52 The bat activity surveys recorded a high diversity of species across the Order Limits; with at least six of the 12 species considered to be present within East Yorkshire having been positively identified, including: common pipistrelle (*Pipistrellus pipistrelles'*), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), noctule (*Nyctalus noctula*), and brown-long eared bat (*Plecotus auratus*) as well as species of Myotis.

~~7.5.50~~7.5.53 The Myotis species that were recorded; based on the background data search records, are likely to include Daubenton's bat (*Myotis daubentonii*), and whiskered bat (*Myotis mystacinus*) and/or Brandt's bat (*Myotis Brandtii*). The Auto identification provided by the Kaleidoscope sound analysis software did

suggest some registrations to be Natterer's bat (*Myotis nattereri*); however, the presence of Natterer's bat could not be confirmed during the quality assurance process.

~~7.5.51~~7.5.54 The bat activity peaked during May 2023 and 2024; the higher number of registrations may indicate bats are using the Site more frequently during pre-breeding season (spring). Registrations were dominated by those of common pipistrelle, as this widespread and common species is both easy to detect and identify. No other species/species group was prominent, though it is important to caveat that some species such as brown long-eared bat are almost always under-recorded as their calls are quiet. As there was not an increase of call registrations during the bat breeding season, it is likely this area is more important during the pre-breeding season (spring) rather than the breeding (summer) or mating/transitional seasons (autumn). The most commonly recorded species, common pipistrelle, is more commonly found breeding in buildings. However, none of the species that frequently use trees as maternity roosts were more frequently recorded in the summer period.

~~7.5.52~~7.5.55 In line with the Bat Mitigation Guidelines **[Ref. 7-35]**, the habitats across the Land Areas for all species (excluding Nathusius' pipistrelle) is assessed as being of **Local** importance due to the favourable conservation status of these species and their widespread distribution. Land Areas B to F provide habitat of **Regional** importance for Nathusius' pipistrelle. However, this assessment is based on the number of call registrations and does not take into account that the habitat found within Land Areas B to F is similar to the surrounding agricultural landscape. Therefore, it is likely Land Areas B to F are of **Local** importance only for all recorded species when considering the availability of similar habitat surrounding the Site.

~~7.5.53~~7.5.56 A method of assessing the Site's geographic level of importance for bat assemblage is provided within the Bat Mitigation Guidelines **[Ref. 7-35]**. The Proposed Development is located in Northern England. The maximum theoretical score for the Site, based on the species known to be present in Northern England, is 22. The score based on the results of the static detector surveys and assumptions made from the background data search records is 14. The assemblage score exceeds 63% of the maximum score (22) and therefore is assessed as having **Regional** Importance. However, this score is based on three Myotis *spp*. being recorded on the Site as the bat call registrations have not been separated into individual Myotis species. Given the relatively low number of species recordings (apart from common pipistrelle) and only two Myotis species records provided within the background data search, it is unlikely more than two Myotis species found in the UK are using the Site. Based on species recorded and two Myotis species, the Site score would be 12, and the species assemblage score would be 54% of the maximum score. On this basis, the area would be assessed as having **County** importance for bats.

~~7.5.54~~7.5.57 Approximately 118 individual trees and over 43 groups of trees with bat roosting suitability have been identified within or directly adjacent to the Order Limits. The majority of the trees would remain protected from the Proposed Development, although some may need to be removed for cable installation and access routes.

~~7.5.55~~7.5.58 Two structures within or directly adjacent to the Order Limits have been classified as suitable for roosting bats and a further 11 structures, should they be directly affected, will require further assessment to determine if they are suitable for roosting, prior to construction works commencing.

~~7.5.56~~7.5.59 Detailed bat survey results are provided in **ES Volume 4, Appendix 7.6: Bat Survey Report [EN010157/APP/6.4]**.

Water vole and otter

~~7.5.57~~7.5.60 Desk study records have identified the presence of both otter and water vole within 1km of the Order Limits.

~~7.5.58~~7.5.61 No direct evidence of water vole presence was found during the surveys, but the large drains and ditches provide good habitat for water voles, and given the number of watercourses locally, it is assumed likely that they will be present. The smaller ditches were generally less suitable for water vole. Some areas provided negligible suitability due to the ditches being very shallow or dry and providing no connectivity. A total of six crossing points had optimal suitability, 15 had good suitability, eight were suitable but poor and ten were negligible.

~~7.5.59~~7.5.62 No otter or holts or lying up sites were identified during the surveys. However, the Site is considered to provide suitable habitat for otter, and otters are now widespread in the UK and can be safely assumed to be present even if only passing through as part of a larger home range. The main drains/ditches provide good habitat connectivity to the rest of the Site, where otter may make use of resting places within secluded areas, such as woodlands and scrubs.

~~7.5.60~~7.5.63 Detailed survey results are presented in **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report [EN010157/APP/6.4]**.

~~7.5.61~~7.5.64 The habitats are considered to be of **Local** importance to water vole and otter.

Future baseline in the absence of the Proposed Development

~~7.5.62~~7.5.65 The habitat within the Order Limits is largely arable farmland, cropped on rotation, with some modified grassland and grass leys, bordered by hedgerows,

arable field margins and wet and dry ditches. In the short to medium term, in the absence of the Proposed Development, these habitats will likely continue to be intensively managed as farmland, which would provide potential habitat for species such as ground-nesting breeding birds. The distribution of some species may change in response to cropping patterns, whilst the assemblages will likely remain the same.

~~7.5.63~~7.5.66 In the longer term (equivalent to the 40-year operation (including maintenance) phase), in the absence of the Proposed Development, broad habitat types will likely continue under agricultural management. The majority of existing habitats are likely to continue being present, although some changes in habitat extent, composition and structure will occur as a result of ecological succession, such as the establishment of tree and shrub seedlings. These resultant gradual changes in habitat composition are unlikely to materially alter the ecological baseline and therefore the habitats and species present are very unlikely to undergo significant change.

~~7.5.64~~7.5.67 Long term climatic predictions suggest that warmer, wetter winters and drier summers will become more frequent, with more extreme weather events likely. This may affect the type of crops grown and when combined with climate change may lead to an increase in the population and distribution of some species identified, but conversely a decrease in other species. However, no significant changes to the baseline are envisaged in the short term.

~~7.5.65~~7.5.68 Any changes to the baseline between now and the future scenario have been taken into account in the assessment and when determining mitigation measures.

~~7.5.66~~7.5.69 Irrespective of whether the Proposed Development was to proceed or not, the current trend is for a decline in species diversity and abundance, caused by national trends and in response to intensive agricultural practices and climate change.

7.6 Mitigation embedded into the design

7.6.1 This assessment has been based on the principle that measures have been 'embedded' into the design of the Proposed Development to remove potential significant effects as far as practicable, for example by the considered placement of infrastructure. The **Design Approach Document [EN010157/APP/5.7]** identifies the project design principles and design mitigation that has been embedded into the design of the Proposed Development. The embedded mitigation relevant to this assessment is detailed in **Table 7-6** below.

7.6.2 Note that **Section 7.8** below outlines measures with regards bird species associated with the Humber Estuary SPA/Ramsar site. This is under 'additional

mitigation' rather than 'embedded mitigation'. This is because **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]** cannot take account of such mitigation measures at screening, because they aren't standard mitigation measures which would be implemented irrespective of the presence of the SPA/Ramsar site species. Therefore, to allow this chapter to align with the assessment in the **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**, such measures have been considered as additional mitigation rather than embedded mitigation.

7.6.3 The ecological mitigation and enhancement areas will deliver a minimum 10% net gain in biodiversity in line with the legislative requirement that will be in place from November 2025, and in fact, is expected to substantially exceed this, as set out in **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**.

Table 7-6: Embedded mitigation relevant to biodiversity

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
The two on-site substations will not be located within 250m of environmental designated sites.	No environmental designated sites would be directly impacted during the construction, operation (including maintenance) or decommissioning. No environmental designated sites would be affected by indirect impacts such as noise or lighting.	**Works Plans [EN010157/APP/2.2]**
The Proposed Development design will incorporate a minimum offset distance of 10m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable.	A 10m offset distance is considered sufficient to avoid the root protection area of woodland, hedgerow shrubs and hedgerow trees. It would also provide a 10m wide wildlife corridor across the Order Limits, providing vegetated cover for foraging and dispersal and will allow large mammals such as deer to continue to move through the landscape. The wide offset	**Outline LEMP [EN010157/APP/7.5]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
	distances from linear field boundaries will maintain bat flight lines across the landscape. Nesting birds using the hedgerows or bats roosting in hedgerow trees would have a 10m offset distance, reducing the potential for noise and other disturbance during construction.	
The Proposed Development design will incorporate a minimum offset distance of 15m from any ancient woodland (from the edge of the canopy).	Standing advice recommends an offset distance of at least 15m from the boundary of ancient woodland to avoid root damage.	**Outline LEMP [EN010157/APP/7.5]**
Other than access tracks, the Proposed Development design will incorporate a minimum offset distance of 15m from any veteran trees (from the edge of the canopy).	To avoid root damage.	**Outline LEMP [EN010157/APP/7.5]**
Other than locations where temporary span bridges are required to be installed or where existing crossing points or culverts require upgrading, the Proposed Development design will incorporate a minimum offset distance of 10m from all watercourses, ditches and ponds.	Maintaining a 10m offset distance from ditches will retain vegetation connectivity, help to stabilise ditch banks and help provide protection from pollution such as surface water run-off. It will also maintain the vegetated watercourse corridor habitat for riparian mammals and nesting birds.	**Outline LEMP [EN010157/APP/7.5]**
The Proposed Development design will incorporate ecological mitigation and enhancement areas that will	To provide continued availability of habitat for ground nesting birds, as well as creating suitable habitat for wintering birds	**Outline LEMP [EN010157/APP/7.5]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
remain free of solar PV development.	and a range of other species such as meadow grassland, legume rich sowing, hedgerows, and field margin sowing.	
Where reasonably practicable, existing hedgerows, woodland, ditches and field margins will be retained. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) will be designed to use existing agricultural tracks between fields, where reasonably practicable, and the width of any breaches will be kept to a minimum.	To minimise vegetation loss and to retain connectivity for species across the Site.	**Outline LEMP [EN010157/APP/7.5]**
The Proposed Development design will incorporate a minimum offset distance of 50m from all barns suitable to support nesting pairs of barn owl.	A 50m offset distance would ensure any potential barn owl nest sites are not affected.	**Works Plans [EN010157/APP/2.2]**
Cables will be located in existing gaps in hedgerows, where reasonably practicable.	To minimise vegetation loss and to retain connectivity for species across the Site.	**Outline LEMP [EN010157/APP/7.5]**
On-site lighting will be sensor triggered infrared security lighting, to be located around key electrical infrastructure and will not be continuous.	To reduce light spill across the Site and minimise impact to light sensitive species.	**Outline CEMP [EN010157/APP/7.2]**
Cable ploughing will be utilised where ground conditions and other site factors allow. Where this is not possible, other methods such as open cut trenching or HDD will be used.	To minimise habitat loss and disturbance, particularly to Figham Pastures LWS.	**Outline CEMP [EN010157/APP/7.2]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
HDD will be a minimum depth of 7m below the bed of the River Hull.	To minimise the impact to species the River Hull supports.	**Outline CEMP [EN010157/APP/7.2]** **Design Parameters Document [EN010157/APP/5.8]**
Drilling launch/reception pits will not be located: • within 50m of a bank of a Main River (River Hull, Monk Dike, Meaux and Routh Drain, Holderness Drain and Beverley and Barmston Drain) • within 20m of the bank of all other watercourses under which the HDD will take place.	To retain vegetation connectivity, help to stabilise watercourse banks and help provide protection from pollution such as surface water run-off. It will also maintain the vegetated watercourse corridor habitat for riparian mammals and nesting birds.	**Outline CEMP [EN010157/APP/7.2]** **Design Parameters Document [EN010157/APP/5.8]**
In accordance with Beverley and North Holderness Internal Drainage Board requirements, a minimum easement of 9m will be applied from the top of Ordinary Watercourse banks. The Environment Agency also requires a minimum easement of 8m from the top of the banks of fluvial Main Rivers bank or the 'landward' toe of flood defences under its jurisdiction. This increases to a 16m easement from tidally influenced Main Rivers (i.e. the River Hull) or tidal flood defences. Infrastructure would not be located within these easements, where reasonably practicable.	To retain vegetation connectivity, help to stabilise watercourse banks and help provide protection from pollution such as surface water run-off. It will also maintain the vegetated watercourse corridor habitat for riparian mammals and nesting birds.	**Outline CEMP [EN010157/APP/7.2]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
Riparian planting would be located within the easements.		
Where possible, the Proposed Development will avoid development on Habitats of Principal Importance[2]	Retention of and avoidance of impacts on Habitats of Principal Importance, apart from works within Figham Pastures LWS and a small number of short sections of hedgerows which will be breached to accommodate the grid connection cable route.	**Outline LEMP [EN010157/APP/7.5]**
Where possible, box culverts and single span bailey bridges will be used rather than pipe culverts. Box culverts will include measures such as ledges and a gravel base to encourage use by riparian mammals and fish. Where possible, mammal ledges will be a minimum of 500mm wide, at least 150mm above the highest water level and allow 600mm head room. Ramps must be provided to allow an otter access to the ledge.	Single span bailey bridges are less impactful on the banks than box culverts and less impactful on the bed of a river or ditch. Where single span bridges are not appropriate, box culverts will be used and will be designed to be as ecologically sensitive as possible. Box culverts allow measures such as mammal ledges and gravel beds to be incorporated into the design when compared to pipe culverts. They are also less likely to prevent species movement, when compared to pipe culverts.	**Outline CEMP [EN010157/APP/7.2]**
New culverts excluding those used within watercourses which infrequently contain water will be designed to be as short as possible. Culvert	To encourage use by water vole, otter and other wildlife which inhabit the watercourses and allow wildlife to continue to safely use the	**Outline CEMP [EN010157/APP/7.2]**

[2] As defined under Section 41 of the Natural Environment and Rural Communities Act 2006. Available online: https://www.legislation.gov.uk/ukpga/2006/16

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
diameter should be a minimum of 600mm when under 20m in length and a minimum of 900mm when above 20m in length. Riparian vegetation will be included at the culvert inlet and outlet to provide transitional light levels. New culverts excluding those used within watercourses which infrequently contain water will have inlets depressed at least 150mm below the watercourse bed, baffles built into the culvert base to limit sediment loss during surcharging and improve the design for fish passage. Pools will be incorporated at culvert outlets to limit scour, dissipate energy and maintain channel stability.	watercourses to move across the landscape.	
The Proposed Development has taken into account the utilities present within the Order Limits. Planting and seeding within these areas will be undertaken in accordance with National Grid guidance (Development near overhead lines, 2008) **[Ref. 7-36]** and will consist of hedgerow and lower growing shrub species maintained to ensure statutory safety clearances.	Planting above underground utilities and cables will ensure that seeding and hedgerow planting will be undertaken with suitable species that will not be a risk to buried services due to root damage or soil shrinkage.	**Outline LEMP [EN010157/APP/7.5]**
Where reasonably practicable, construction work will not take place	Badger~~Large main badger~~ setts can extend up to 30m underground. A 30m offset distance from works would	**Outline CEMP [EN010157/APP/7.2]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
within 30m from active ~~main~~ badger setts.	avoid damage to the setts and reduce disturbance during construction.	
Landscaping, including new hedgerow and tree planting is proposed. The planting type will be decided on each species' resilience to the impacts of climate change and comprise of majority native (and of local provenance) species that contribute to biodiversity enhancement.	As well as compensating for any hedgerow loss to accommodate access and cable routes, planting new hedgerow and trees within appropriate locations will improve linear connectivity between existing areas of habitat such as woodland and improve the ecological value of existing low-quality hedgerows. The use of plants which are native and sourced locally will provide biodiversity enhancement and ensure planted species benefit the local ecosystem.	**Outline LEMP [EN010157/APP/7.5]**
The perimeter security fencing will be either wire mesh or deer fence. Depending on the results of the pre-construction surveys as detailed and secured within the **Outline CEMP [EN010157/APP/7.2]**, mammal gates will be installed at appropriate locations along the fence lines to allow badgers and other small mammals access into fields for foraging. Appropriate offset distances (e.g., 10m offset distance from hedgerows/field margins) would be marked by fencing and signage.	Fencing would not be buried, and it is likely that undulations in ground level would enable mammals such as badger and brown hare to push underneath, enabling them to access the fields with solar PV modules for foraging. If required, mammal gates would further allow animals, such as badgers and brown hare, to access fields for foraging. Deer would still be able to move across the landscape using the 10m offset distance between the security fences and retained hedgerows/field margins.	**Outline CEMP [EN010157/APP/7.2]** **Design Parameters Document [EN010157/APP/5.8]**

Embedded mitigation measure relevant to biodiversity	Function	Securing mechanism
Appropriate demarcation fencing will be installed to prevent impact on specific features such as important habitat and badger setts.	Demarcation fencing would be used to prevent construction activity in proximity to important habitats or species (e.g., ponds, badger setts, LWSs) within and adjacent to the Order Limits.	**Outline CEMP [EN010157/APP/7.2]**

7.7 Assessment of likely effects (without additional mitigation)

Construction

Humber Estuary SPA/Ramsar site/SSSI

Loss of functionally linked land for qualifying bird species

7.7.1 During construction, there would be temporary, short term loss of agricultural land, suitable for foraging and roosting birds associated with the Humber Estuary SPA/Ramsar site/SSSI. This would be associated with construction activities, such as laydown areas, site compounds, haul routes, installation of inter-connecting cable routes, and the grid connection cable route. The drainage ditch system has been largely retained as part of the Proposed Development design, with culverting of small sections of ditches to facilitate access and cable routes (c. 4m width).

Individual wintering/passage and breeding species

7.7.2 Agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for golden plover. As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of agricultural land would be functionally linked land for wintering golden plover in any given winter period. In addition, there are large areas of similar habitat suitable in the wider landscape. The change from agricultural use to grassed fields and presence of solar modules (which may reduce sightlines) would reduce the suitability of habitats between and under the solar PV modules for use by golden plover. Therefore, there would be potential for adverse effects on the golden plover population associated with the Humber Estuary SPA/Ramsar site/SSSI.

Humber Estuary SPA (Natural England Annex B category a) - all species listed individually under the assemblage feature on the SPA citation

7.7.3 The agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for lapwing, mallard and teal. The drainage ditch system was also considered to comprise functionally linked land for mallard and teal. As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of the agricultural land would be functionally linked land in any given winter period. In addition, there are large areas of similar habitats suitable in the wider landscape. The majority of the records of both mallard and teal were of birds using the drainage ditch system; these habitats will be largely retained as part of the design of the Proposed Development. The change from agricultural use to grassed fields and presence of solar modules (which may reduce sightlines) would reduce the suitability of habitats between and under the solar PV modules for use by lapwing, mallard and teal. Therefore, there would be potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site/SSSI, of which lapwing, mallard and teal are main component species.

Humber Estuary SPA (Natural England Annex B Category b) - species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population

7.7.4 The land within and adjacent to the Order Limits was not considered to constitute functionally linked land for any Humber Estuary SPA (Natural England Annex B category b) species; therefore, there would be no adverse effects on these species in relation to loss of functionally linked land.

Humber Estuary SPA (Natural England Annex B Category c) - species where more than 2,000 individuals are present according to the most recent Humber Estuary Wetland Bird Survey count

7.7.5 The agricultural land and drainage ditch system within and adjacent to the Order Limits was considered to constitute functionally linked land for black-headed gull. As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of the agricultural land would be functionally linked land in any given winter period. The drainage ditch system will be largely retained as part of the design of the Proposed Development. As noted above, the land under and between the solar PV modules would change from agricultural use to grassed fields. These habitats would remain suitable for use by black-headed gull. Black-headed gull are known to make use of a wide variety of habitats for foraging, and there are large areas of suitable habitats in the wider landscape for this species. Nevertheless, the potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site, of which black-headed gull are a main component species, cannot be ruled out.

Disturbance/displacement of qualifying bird species (individual and assemblage)

7.7.6 The construction works will be phased over an approximate 24 month period. Works in each Land Area are anticipated to take up to 8 months to complete, with a series of overlaps where works would be taking place in two Land Areas simultaneously. Works along the grid connection cable route are anticipated to take approximately 10 months, and would be undertaken at the same time as some or all of construction activities within Land Areas D, E and F. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. The activities generating the loudest noises (refer to **ES Volume 2, ES Chapter 12: Noise and Vibration [EN010157/APP/6.2]**) are anticipated to be from lorries, tracked excavators and bulldozers associated with earthworks and deliveries. A push press piling rig would be used to install the majority of piles for solar PV module support structures. While the noise levels from this are likely to be lower than from other construction activities, they have the potential to disturb/displace birds due to the irregular, unpredictable nature of the sounds generated.

Individual wintering/passage and breeding species

7.7.7 Agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for golden plover (an individual wintering/passage qualifying species of the SPA/Ramsar site/SSSI). As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of the agricultural land would be functionally linked land for wintering golden plover in any given winter period. Birds using habitats within and adjacent to the Order Limits are likely to be habituated to some level of noise and visual disturbance, given the agricultural nature of the landscape and exposure to existing disturbance from farming activities. In addition, based on the approximate 24-month construction period and phased approach, approximately half of the works will be taking place during April to September, when most wintering qualifying bird species will not be present, or in lower numbers and thus less likely to be disturbed. However, where works are scheduled to take place during the winter period, there is potential for visual and noise related disturbance/displacement of wintering golden plover. Disturbance/displacement would be temporary and relatively short term, and there are large areas of similar less disturbed habitat suitable for use by golden plover in the wider landscape. Nevertheless, the potential for adverse effects on the golden plover population associated with the Humber Estuary SPA/Ramsar site/SSSI in relation to disturbance/displacement cannot be ruled out.

Humber Estuary SPA (Natural England Annex B Category a) all species listed individually under the assemblage feature on the SPA citation

7.7.8 The agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for lapwing, mallard and teal. As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of the agricultural land would be functionally linked land in any given winter period. In addition, the drainage ditch system was also considered to comprise functionally linked land for mallard and teal.

7.7.9 As noted above, birds using habitats within and adjacent to the Order Limits are likely to be habituated to some level of noise and visual disturbance. In addition, approximately half of the works will be taking place during April to September, when most wintering qualifying bird species will not be present, or in lower numbers and thus less likely to be disturbed. However, where works are scheduled to take place during the winter period, there is potential for visual and noise related disturbance/displacement of wintering lapwing, mallard and teal. Disturbance/displacement would be temporary and relatively short term, and there are large areas of similar less disturbed habitat suitable for use by these species in the wider landscape. Furthermore, the majority of mallard and teal were recorded using the retained drainage ditch system, which would be less disturbed due to the high, steep banks providing some screening from human activities and construction works. Nevertheless, the potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site/SSSI, of which lapwing, mallard and teal are main component species cannot be ruled out.

Humber Estuary SPA (Natural England Annex B Category b) species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population

7.7.10 The land within and adjacent to the Order Limits was not considered to constitute functionally linked land for any Humber Estuary SPA (Natural England Annex B category b) species; therefore, there would be no adverse effects on these species in relation to disturbance/displacement of qualifying bird species using functionally linked land.

Humber Estuary SPA (Natural England Annex B Category c) - species where more than 2,000 individuals are present according to the most recent Humber Estuary Wetland Bird Survey count

7.7.11 The agricultural land and drainage ditch system within and adjacent to the Order Limits was considered to constitute functionally linked land for black-headed gull. As the agricultural fields change based on the cropping regimes in place from year to year, it should be noted that not all of the agricultural land would be functionally linked land in any given winter period.

7.7.12 As noted above, birds using habitats within and adjacent to the Order Limits are likely to be habituated to some level of noise and visual disturbance. In addition, approximately half of the works will be taking place during April to September, when most wintering qualifying bird species will not be present, or in lower numbers and thus less likely to be disturbed. However, where works are scheduled to take place during the winter period, there is potential for visual and noise related disturbance/displacement of wintering black-headed gull. Disturbance/displacement would be temporary and relatively short term, and there are large areas of similar less disturbed habitat suitable for use by this species in the wider landscape. Nevertheless, the potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site, of which black-headed gull are a main component species cannot be ruled out.

Degradation of habitats as a result of changes in water quality/hydrology

7.7.13 The potential for degradation of habitats as a result of changes in water quality/hydrology during the construction phase has been considered in relation to the Humber Estuary SPA/Ramsar site/SSSI. Although the potential for likely significant effects on the Humber Estuary SPA/Ramsar site/SSSI as a result of changes in water quality has been scoped out (**Table 7-3**), there is potential for degradation of habitats within the River Hull and drainage ditch system which have been identified as functionally linked land for qualifying bird. ~~and fish species~~. Works associated with crossing drainage ditches and watercourses (including the River Hull) would be undertaken using Horizontal Directional Drilling. Receptor pits (where the drilling starts from) would be located a minimum of 10m either side of all watercourses and minimum of 50m for the River Hull and other Main Rivers. The estimated duration of the Horizontal Directional Drilling under the River Hull is one 24-hour period. Drainage ditch crossings would be anticipated to take less than this. There would be a change in agricultural use to grassed fields.

Individual wintering/passage and breeding species

7.7.14 Agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for golden plover. During the construction phase, there is potential for release of breakout contaminants, particularly bentonite during Horizontal Directional Drilling, which could lead to soil degradation and contamination of ground water and surface water within habitats used by golden plover. Therefore, there is potential for adverse effects on the golden plover population associated with the Humber Estuary SPA/Ramsar site/SSSI as a result of changes in water quality/hydrology.

Humber Estuary SPA (Natural England Annex B Category a) all species listed individually under the assemblage feature on the SPA citation

7.7.15 The agricultural land within and adjacent to the Order Limits was considered to constitute functionally linked land for lapwing, mallard and teal. During the construction phase, there is potential for release of breakout contaminants, particularly bentonite during Horizontal Directional Drilling, which could lead to soil degradation and contamination of ground water and surface water within habitats used by these species. Therefore, there would be potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site/SSSI, of which lapwing, mallard and teal are main component species.

Humber Estuary SPA (Natural England Annex B Category b) species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population

7.7.16 Land within and adjacent to the Order Limits was not considered to constitute functionally linked land for any Humber Estuary SPA (Natural England Annex B category b) species; therefore, there would be no significant adverse effects on these species in relation to degradation of habitats as a result of changes in water quality/hydrology.

Humber Estuary SPA (Natural England Annex B Category c) - species where more than 2,000 individuals are present according to the most recent Humber Estuary Wetland Bird Survey count

7.7.17 The agricultural land and drainage ditch system within and adjacent to the Order Limits was considered to constitute functionally linked land for black-headed gull. During the construction phase, there is potential for release of breakout contaminants, particularly bentonite during Horizontal Directional Drilling, which could lead to soil degradation and contamination of ground water and surface water within habitats used by black-headed gull. Therefore, there would be potential for adverse effects on the wintering waterbird assemblages of the Humber Estuary SPA/Ramsar site, of which black-headed gull are a main component species.

Humber Estuary Ramsar site/SAC/SSSI (river lamprey only)

Degradation of habitats as a result of changes in water quality/hydrology

7.7.18 The River Hull is considered to be functionally linked land for the river lamprey populations associated with the Humber Estuary Ramsar site/SAC/SSSI. During the construction phase, there is potential for release of breakout contaminants, particularly bentonite during Horizontal Directional Drilling, which could lead to contamination of the River Hull. Therefore, there would be potential for adverse effects on the river lamprey populations associated with the Humber Estuary Ramsar site/SAC/SSSI.

Figham Pastures LWS

7.7.19 Figham Pastures LWS will be affected by construction works as one of the access pits for the Horizontal Directional Drilling under the River Hull would be located within Figham Pastures LWS. This would involve the temporary loss of coastal floodplain grazing marsh habitat for the duration of the Horizontal Directional Drilling works (estimated 2 weeks) and would also result in damage to vegetation from excavation for entry and exit pits, compacting and shading caused by access tracks and other infrastructure associated with the Horizontal Directional Drilling. A section of open cut trench work within Figham Pastures LWS to facilitate the installation of the grid connection cable route will result in temporary disturbance to the floodplain grazing marsh habitat, although turfs will be placed back in-situ within one week of removal.

Sections of hedgerow and individual trees

7.7.20 Construction of the Proposed Development would require the removal of lengths of existing hedgerows, including some which contain hedgerow trees, as illustrated and tabulated in **Tree Preservation Order and Hedgerow Plans [EN010157/APP/2.8]**. Full details of the hedgerows affected are set out in **ES Volume 4, Appendix 7.11: Arboricultural Impact Assessment [EN010157/APP/6.4]**. Hedgerow planting will comprise 5.44km of re-instated hedgerow and 19.58km of new hedgerow planting.

7.7.21 The approximate total length of hedgerow removal, for the creation of construction passing places, the laying of underground cable and installation of access tracks would be an estimated 5.88km. The hedgerow removal would typically be in sections between 8m to 40m and scattered throughout the Order Limits and be reinstated following construction where feasible. Cable installation would require sections of hedgerows up to 8m wide to be removed while passing places would require up to 40m to be removed. Highways access proposals and visibility splays would require varying lengths of hedgerow removal.

Sections of ditches

7.7.22 A number of ditches will require either a box culvert or a single span bridge to accommodate access routes. This would be a short term impact for the duration of the construction phase and would result in the loss of short sections of ditch and bank habitat.

Sections of river habitat

7.7.23 No direct impacts on the River Hull and other Main River are envisaged as the grid connection cable route would be Horizontal Directional Drilled underneath it.

Great crested newt

7.7.24 Habitat suitable for great crested newt would be temporarily impacted during the grid connection cable route works and potentially works within 250m of the un-surveyed pond within Field C4 in Land Area C, identified in 2024. The impacts would be short term, limited to the duration of the construction phase and as the construction is phased, impacts would only occur within discrete areas at any one time.

Ground nesting birds

7.7.25 Construction works have the potential to cause disturbance and displacement and potential incidental injury and mortality to nesting birds, in particular ground nesting species. This would be a short term effect, limited to the bird breeding season (March to August inclusive) and as the construction is phased, impacts would only occur within discrete areas at any one time.

Bats (foraging, commuting and roosting)

7.7.26 Construction works may involve the removal of a small number of individual trees. If the trees have been identified with potential to support roosting bats, there is the potential for a loss of roosting resource as well as incidental injury and mortality if roosting bats are present.

7.7.27 In addition, the removal of small sections of hedgerow, particularly lengths over 10m, may disrupt the foraging and commuting patterns of some bat species. This would be a short term effect limited to the duration of the construction phase, and as the construction is phased, impacts would only occur within discrete areas at any one time.

Water vole and otter

7.7.28 A number of ditches will require either a box culvert or a single span bridge to accommodate access routes. This would be a short term impact for the duration of the construction phase and would result in the loss of short sections of ditch and bank habitat. Culverting and bridge works also have the potential to disturb or cause incidental mortality to otters and water voles; this would again be a short term impact for the duration of the culverting works.

Operation (including maintenance)

7.7.29 The traffic generated by the Proposed Development during the operation (including maintenance) phase is considered to be less than during the construction phase. There will be a small number of vehicles required to access

the Site for maintenance and other tasks, such as replacement of equipment and management of vegetation and habitat creation.

7.7.30 The land underneath and around the solar PV modules would be managed through a combination of sheep grazing and/or cutting for hay/silage at an appropriate time of year to maintain biodiversity value as well as the height of the vegetation.

Humber Estuary SPA/Ramsar site/SSSI

Loss of functionally linked land for qualifying bird species

7.7.31 The ecological mitigation areas will provide scrape and grassland habitat to compensate for the loss of functionally linked land during the operation (including maintenance) phase. The ecological mitigation areas will be managed throughout the lifespan of the Proposed Development to ensure the habitat remains appropriate for the SPA/Ramsar site/SSSI qualifying species using the Site.

7.7.32 In addition to the scrape habitat creation, the retained and protected field boundaries, watercourses and ecological mitigation and enhancement areas will continue to provide suitable habitat for Humber Estuary SPA/Ramsar site/SSSI qualifying bird species. The grassland underneath and adjacent to the solar PV modules may also provide additional habitat for Humber Estuary SPA/Ramsar site qualifying bird species.

Figham Pastures LWS

7.7.33 Reinstatement of vegetation following the Horizontal Directional Drilling works and access route is expected to take 2-3 years to fully recover. Turfs removed for the section of open cut trench will be reinstated within one week of removal and the habitat condition is not expected to be degraded as a result of the works.

Ground nesting birds

7.7.34 The placement of the solar PV modules is likely to displace ground nesting birds, in particular species such as skylark which like to nest in large open fields. This will be a long term effect for the duration of the operation (including maintenance) phase. Breeding may also be affected due to loss of foraging habitat, if the management of land underneath solar PV modules does not provide an insect rich food source during the breeding season and a source of seed during the winter months.

Bats (foraging and commuting)

7.7.35 There is limited research and mixed opinions on the impacts of solar farms on bats; however, studies in other countries and a more recent UK study by Tinsley *et al.* **[Ref. 7-37, Ref. 7-38** and **Ref. 7-26]** suggest that solar panels can have a displacement effect on foraging bats, although the exact mechanism by how this occurs and over what distance is not readily understood. The study found that, overall, solar developments had an adverse effect on the abundance of some bat species, although the effects differed between bat species and also differed between hedgerow boundaries and open field, and there was no difference in bat species richness (i.e. the number of species) between solar and control sites. Whilst there have been some criticisms of the studies (for example, how sites were matched for pairing and how 'mature' the solar farms were), the findings did suggest there could be an adverse impact of solar farms on bats activity within those farms. This would constitute a long term negative effect for the duration of the operation (including maintenance) phase.

7.7.36 Offset distances would protect hedgerows and watercourses used by foraging bats.

Decommissioning

7.7.37 Decommissioning would involve the removal of all of the solar PV modules s, inverters, battery energy storage systems (BESS) and ancillary infrastructure. Subject to discussion with the Distribution Network Operator, the two on-site substations will be retained.

7.7.38 Temporary decommissioning compounds would be created to house necessary plant and equipment and provide areas for parking for site staff. These would be removed upon completion of the decommissioning phase.

7.7.39 It is assumed that all concrete, hardstanding areas, foundations for the infrastructure and any internal tracks will be removed unless agreed otherwise with landowners as part of the decommissioning phase. It is anticipated that underground cabling would be left in-situ to avoid unnecessary ground disturbance.

7.7.40 Decommissioning would include the removal of any permissive paths and potential reversion of grassland underneath the solar PV modules, unless agreed otherwise with landowners. Any landscape structural planting, such as tree planting, hedgerows, scrub, etc, created to deliver biodiversity mitigation and improvement associated with the Proposed Development would be left in-situ when handed back to landowners.

7.7.41 The effects of the decommissioning phase are often similar to, or of a lesser magnitude than, the effects generated during the construction phase. However, there can be a high degree of uncertainty regarding decommissioning as

engineering approaches and technologies evolve, and assumptions have therefore been made where appropriate.

7.7.42 Habitats and protected or otherwise notable species are likely to be subject to temporary loss of habitat or disturbance during decommissioning activities.

7.7.43 During decommissioning, there is a risk that if the land within the Order Limits is returned to intensively farmed arable land, the biodiversity benefits of the Proposed Development would be reversed.

Humber Estuary SPA/Ramsar site/SSSI

Disturbance/displacement of qualifying bird species (individual and assemblage)

7.7.44 The potential for disturbance/displacement of qualifying bird species using functionally linked land within and adjacent to the Order Limits during the decommissioning phase has been considered in relation to the Humber Estuary SPA/Ramsar site/SSSI. The decommissioning schedule is unknown at this stage, but the duration of works is expected to be similar to the construction phase. The most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of a long duration. The activities generating the loudest noises (refer to **ES Volume 2, ES Chapter 12: Noise and Vibration [EN010157/APP/6.2]**) are anticipated to be from lorries, tracked excavators and bulldozers associated with the removal of infrastructure, earthworks and deliveries. While the noise levels from this are likely to be lower than from construction activities, they have the potential to disturb/displace birds due to the irregular, unpredictable nature of the sounds generated. Potential disturbance/displacement would be temporary and relatively short term. Nevertheless, the potential for adverse effects of disturbance/displacement of qualifying bird species of the Humber Estuary SPA/Ramsar site cannot be ruled out.

Ground nesting birds

7.7.45 Decommissioning works have the potential to cause disturbance and displacement and potential incidental injury and mortality to ground nesting birds. This would be a short term effect limited to the bird breeding season (March to August inclusive) and as the decommissioning is likely to be phased similar to construction, impacts would only occur within discrete areas at any one time.

Bats (foraging and commuting)

7.7.46 The decommissioning phase will involve the modification of the Site's habitat back to agriculture. Although, the boundary habitats across the Site will remain in-situ throughout construction, operation (including maintenance) and decommissioning, the modification of habitat such as the potential removal of habitat with greater invertebrate prey value underneath and adjacent to the solar PV modules is likely to have a negative effect on the bats.

7.8 Additional mitigation

Construction

7.8.1 Pre-construction surveys are required where conditions on site are likely to change prior to the commencement of construction, for example, for mobile species, or where the constraints posed by these species will alter location. The purpose of these pre-construction surveys is to ensure no new legally protected species or other ecological constraints are present. This would also be required for any protected species licensing that may be identified as being necessary. Pre-construction surveys will be undertaken for the following and are detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**:

- National Vegetation Classification for Figham Pastures LWS;
- Barn owl, peregrine falcon and other appropriate Schedule 1 (of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-4]**) bird species;
- Badgers;
- Bats;
- Water vole and otter; and
- Great crested newts.

7.8.2 A suitably qualified ecologist would be appointed during construction to advise on protecting important biodiversity features and provide advice on how to achieve compliance with environmental legislation. Relevant site staff would receive toolbox talks on the ecological risks present, legal requirements and working arrangements necessary to comply with legislation. Toolbox talks would be repeated as necessary over the duration of the relevant works.

7.8.3 As detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**, Species Protection Plans as appropriate will be produced by the principal contractor if required, based on pre-construction surveys. Each Species Protection Plan would be a live document subject to review and updating and would assist site personnel in the protection of species during construction, under the guidance of the suitably qualified ecologist. In the event protected species are found to be a constraint during the pre-construction surveys and if a protected species licence

is deemed by the ecologist to be required, then applications would be submitted to Natural England sufficiently in advance of the works to meet with the optimum time for mitigation and to minimise any changes to the construction programme.

7.8.4 No invasive non-native species have been found or are recorded within the Order Limits. However, to reduce potential for invasive species to be introduced, for example by construction traffic, the **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]** set out and secure biosecurity procedures to ensure that no invasive species are brought onto the Site. In the event that any future infestations of invasive non-native species are identified prior to and or during construction, exclusion zones would be established around them and the suitably qualified ecologist contacted for advice as required.

7.8.5 The **Outline CEMP [EN010157/APP/7.2]** and the **Outline LEMP [EN010157/APP/7.5]** detail and secure methods to protect designated sites (LWSs), priority habitats, protected and notable species, and other areas of biodiversity value from disturbance, damage and accidental pollution (as discussed below).

Humber Estuary SPA/Ramsar site/SSSI

7.8.6 Mitigation for loss of functionally linked land for golden plover, lapwing, teal, mallard and black-headed gull is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. In total, an area of 116 hectares will be created for ground nesting and wintering bird mitigation. This includes 38.42 hectares of grassland and scrape creation comprising 164 hectares (Ecological Mitigation Areas 13 and 11) on the west of the Site will be grassland creation with wetland scrapes, whilst 21.48 hectares (Ecological Mitigation Area 9) will be grassland creation. The wader scrapes will be created close to the River Hull and Figham Pastures LWS where the greatest number of golden plover and have been recorded. The creation of scrapes and surrounding short grassland will also provide suitable permanent resting and feeding opportunities for waders, waterfowl and gulls, thus helping to mitigate for the loss of land for these species. In addition to 116 hectares of mitigation, 9.15 hectares of the land within the Site will be managed as ecological enhancement areas. Although the ecological enhancement areas are not mitigation for SPA bird species, species including SPA birds are likely to benefit from the ecological enhancement areas due to the potential increase in food availability and habitat connectivity.

7.8.7 In addition, the measures to mitigate for loss of ground nesting farmland bird habitat would potentially also be suitable for foraging and roosting Humber SPA/Ramsar site species. The wintering bird habitat within the ecological mitigation and enhancement areas will be created sufficiently in advance of infrastructure work to ensure appropriate habitat is available prior to the beginning of the construction phase. Further information on the design, management and

monitoring of the ecological mitigation and enhancement areas is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

7.8.8 To avoid the potential for disturbance of wintering birds within the mitigation areas, completion of the activities most likely to disturb birds (e.g. piling, installing tracks, laying cables etc.) will be avoided during winter (October to March) within fields adjacent to the mitigation areas (Fields E4, E5 and E15, E17 and D17). Only activities less likely to disturb birds (e.g. commissioning works including panel installation) would take place in these fields during winter, if necessary. Should this not be possible, and as set out below, acoustic barriers would be installed for the construction period to provide a noise and visual barrier, in addition to any hedgerow screening already in place. Mitigation is secured by the **Outline CEMP [EN010157/APP/7.2]**.

~~7.8.7~~7.8.9 The following measures, which are detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**, will also mitigate the effect of visual and noise disturbance on birds:

- Adherence to the guidelines set out in The Code of Practice for Noise and Vibration Control on Construction and Open Sites, 2009 **[Ref. 7-39]** and subsequent updates.
- The use of push-press piling methods.
- Selection of quietest working equipment available.
- Visual and acoustic barriers (typically 3m high) will be installed as required around all Horizontal Directional Drilling, substation work sites, compounds, and noisy equipment.
- Visual and acoustic barriers (typically 3m high) will be installed temporarily between ecological mitigation and enhancement areas and the working areas (if needed) and removed once work is complete.
- Provision of lined and sealed acoustic covers for noisy equipment.
- Directing noise from machinery, including exhausts or engines, away from sensitive locations.
- Ensuring that regularly maintained and appropriately silenced equipment is used.
- Maintaining a no idling policy.
- Unless otherwise agreed with East Riding of Yorkshire Council, there will be no night-time working (19:00 to 07:00) and any artificial lighting will be kept to a minimum and not directed towards habitat suitable for Humber SPA/Ramsar site qualifying bird species.
- Box culverts and single span bailey bridges will incorporate measures to allow species to continue to use the watercourses.

Humber Estuary SAC/Ramsar site/SSSI (river lamprey only)

~~7.8.8~~7.8.10 The **Outline CEMP [EN010157/APP/7.2]** details and secures a specific Horizontal Directional Drilling methodology, as well as a Horizontal Directional Drilling breakout plan specifically to manage the risk of bentonite breakout. This covers the following:

- Reflect known ground conditions to select a specific route and depth through the most homogeneous geological conditions possible.
- Casing of weaker un-cohesive layers to reduce bentonite breakout.
- Use as low a concentration of bentonite as possible.
- Operatives to monitor the drilling for evidence of breakout and cease drilling and seal fissures or voids if applicable, as required.
- Monitoring of drilling fluid returns and volumes to help identify losses.
- Retain a stock of sandbags and pumps on site to contain breakout and dispose accordingly.

Figham Pastures LWS

~~7.8.9~~7.8.11 Pre-construction surveys, as detailed and secured within the **Outline CEMP [EN010157/APP/7.2]**, would include a National Vegetation Classification survey and appropriate protected species surveys of Figham Pastures LWS. The surveys would be used to confirm an accurate pre-construction baseline, but also to microsite and determine the final location of the Horizontal Directional Drilling pits, open trenching areas, compound and access route, thus aiming to avoid the most plant-rich areas.

~~7.8.10~~7.8.12 The Horizontal Directional Drilling pits would be positioned a minimum of 50m from Main Rivers, such as River Hull. The **Outline CEMP [EN010157/APP/7.2]** details and secures measures to protect other ditches and watercourses, such as the methods to determine suitable offsets.

~~7.8.11~~7.8.13 All work, including habitat re-instatement, within Figham Pastures LWS would be completed within six weeks between April and September to avoid the wintering and passage bird season, where reasonably practicable. Unless otherwise agreed with East Riding of Yorkshire Council, no night-time (19:00 to 07:00) working would be undertaken, to reduce disturbance to species including bats, water voles and otters. The impacted area within Figham Pastures LWS and vehicle movements would be kept to one 30m working width to reduce potential impacts on biodiversity.

~~7.8.12~~7.8.14 An appropriate trackway would be installed in all areas due to be impacted, apart from soil storage areas, where an appropriate membrane covering the

ground surface would be used. The trackway would reduce impact to soil and allow the flora to regenerate once work is completed. Prior to the trackway installation, the vegetation would be cut to ground level under the supervision of the suitably qualified ecologist with the arisings removed from site. The trackway would then be placed directly on top of the cut areas rather than over bare soil or excavation. Once work is completed, all temporary infrastructure including cabins would be removed and the trackway would be lifted under the supervision of the suitably qualified ecologist, in case any reptiles or amphibians have crawled underneath any infrastructure.

~~7.8.13~~7.8.15 The installation of temporary trackway is likely to result in soil compaction. Therefore, to reduce the impact of soil compaction, a tractor mounted scarifying rake would be used to aerate compacted areas. Following this, vegetation would be left to regrow from the seedbank, and this would be monitored against the National Vegetation Classification baseline to ensure regrowth is comparable with the baseline and that no injurious weeds such as thistles or docks establish. If injurious weeds become dominant, then remedial management would be put in place.

~~7.8.14~~7.8.16 Where soil needs to be excavated, the turf would be removed in manageable pieces and stored on pallets that are laid on top of the track matting and covered by plastic sheets. Turfs would be a minimum depth of 300mm to ensure sufficient root mass and topsoil are removed. An appropriate automated watering system, such as a sprinkler or irrigation pipe linked to a water sensor controller and water tank, would be used to ensure the turfs are well maintained and do not dry out. To reduce water use, methods to prevent water run-off would be implemented, such as surrounding the turf area with sandbags to ensure shallow standing water remains on top of the plastic sheeting. A suitably qualified ecologist would monitor the turfs and implement measures if the turfs begin to degrade.

~~7.8.15~~7.8.17 Once the turfs are carefully removed, the topsoil would be stored separately to the sub-soil and clearly marked. All excavated material would either be stored on top of an appropriate membrane or taken off-site. Once work is completed, the sub-soil would be placed back followed by the topsoil and then turfs. A suitably qualified ecologist would supervise the reinstatement of the turfs. Soil and turfs removed along the open cut trench section will be placed back within one week of when it was excavated. This will be done in sections within the six week period. The automated watering system would be used for a minimum of two weeks after the turfs are reinstated. Following this, vegetation would be allowed to regrow from the turfs and this would be monitored against the National Vegetation Classification baseline to ensure regrowth is comparable with the baseline and that no injurious weeds such as thistles or docks establish. If injurious weeds become dominant or tufts do not establish, then remedial management would be put in place.

~~7.8.16~~7.8.18 All temporary site cabins would be placed on top of track matting and all generators would be switched off after every shift. Any cabins such as security cabins which are required at night would be placed outside the Figham Pastures LWS boundary. All areas within Figham Pastures LWS would remain unlit and any lighting required for cabins outside the Figham Pastures LWS boundary would be hooded and directed away from Figham Pastures LWS and surrounding hedgerows, tree lines and watercourses.

Sections of hedgerow and individual hedgerow trees

~~7.8.17~~7.8.19 Any hedgerow sections that require removal would be reinstated in the same location. If for any reason this is not possible, the hedgerow will be reinstated elsewhere within the Order Limits, using a mixture of native species appropriate for the local area, as soon as possible. If reinstatement is not possible on the original alignment, then planting a mixture of native species would be undertaken within an appropriate location within the Order Limits as directed by a suitably qualified ecologist. For internal track highways access, new hedgerows would be planted along new highway boundaries and visibility splays as soon as possible after works. Compensatory habitat creation, hedgerow re-instatement and improvement measures (such as tree planting, gapping-up existing hedgerows, improving species diversity) are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

Sections of ditches and river habitat

~~7.8.18~~7.8.20 Impacts to ditches, fringing reeds and river habitat during culvert works and access routes would be kept to a minimum. Any required compensatory habitat creation, habitat re-instatement and improvement measures are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

Great crested newt

~~7.8.19~~7.8.21 Pre-construction surveys to determine whether great crested newts are present will be undertaken to confirm the assumed absence of great crested newts.

~~7.8.20~~7.8.22 Pre-construction surveys will entail a Habitat Suitability Index survey of all ponds within 250m of the grid connection cable route and the pond newly identified in 2024 within Field C4 in Land Area C and a repeat eDNA survey of all previously surveyed ponds.

~~7.8.21~~7.8.23 Should the presence of great crested newt be confirmed, the Proposed Development is likely to make use of either the East Riding of Yorkshire District

Level Licensing Scheme for great crested newt or a low impact class licence from Natural England.

Ground nesting birds

~~7.8.22~~7.8.24 Any vegetation clearance or ground clearance (if suitable for ground nesting birds) during the nesting season (March to August inclusive) would be checked for the presence of nesting birds by a suitably qualified ecologist immediately prior to and during works. In the unlikely event of ground nesting birds being present, then a suitable offset distance would be agreed with the site ecologist and no works undertaken within the offset distance until the chicks have fledged.

~~7.8.23~~7.8.25 Unless otherwise agreed with East Riding of Yorkshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for breeding birds.

~~7.8.24~~7.8.26 116 hectares of ground nesting bird habitat will be created within the Order Limits to provide habitat without solar PV modules for ground nesting birds, as shown in **ES Volume 3, Figure 7.1: Designated Sites and Ecological Mitigation and Enhancement Areas [EN010157/APP/6.3]**. All the mitigation areas are either close to or above 2~~.05~~ hectares in size to ensure the areas have extensive sightlines and the three areas designed for golden plover and lapwing (Ecological Mitigation Areas 9, 11 and 13) have only one boundary adjacent to solar PV modules areas, therefore maintaining the open landscape that these species require. These areas will be sown to a grassland sward and managed with a late summer cut or grazing after the end of the bird breeding season, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

~~7.8.25~~7.8.27 In the period before construction works and prior to the start of the bird breeding season, grass or remnant arable within the fields would be kept low (no higher than 200mm above ground) to reduce the risk of ground nesting birds using the fields as well as improving visibility of any nest sites. The vegetation would be kept low by regular mowing under the supervision of the suitably qualified ecologist until construction works commence.

~~7.8.26~~7.8.28 Measures to repel nesting birds would be implemented if required, such as installing wind powered bird spinners within the centre of fields due to be impacted between the months of March and July. Care would be taken when implementing the measures to prevent impact to other species including, bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-4]**, non-ground nesting birds using undisturbed habitat and otters.

~~7.8.27~~7.8.29 A suitably qualified ecologist would use a bird Species Protection Plan (secured by the **Outline CEMP [EN010157/APP/7.2]**) and other appropriate

documents to ensure all contractors know where any identified active nest sites are and the appropriate offset distances that have been put in place. Monitoring would be undertaken on a regular basis throughout the nesting bird season to ensure all nests are logged and monitored.

Bats (foraging, commuting and roosting)

~~7.8.28~~7.8.30 The **Outline CEMP [EN010157/APP/7.2]** details and secures measures to mitigate effects on bats such as the requirement for generators and/or welfare cabins to be switched off at night and not positioned within 30m of trees or structures suitable for roosting bats. If generators and/or welfare cabins are required at night, then they would be positioned at least 10m from linear features such as ditches and hedgerows, which could be used as potential bat flight lines. Acoustic barriers would also be installed around generators and/or site cabins as necessary.

~~7.8.29~~7.8.31 Where lighting is required, it would conform to best practice guidelines with respect to minimising light spill into adjacent habitats to prevent disturbance to bats. Throughout construction, the use of motion detection or manually operated lighting would be used to avoid constant lighting and the inward/downward direction of light would avoid light spill on to adjacent hedgerows, woodlands, field margins and ditches, which are likely to be used by bats. Infrared sensor triggered security lighting would be used to avoid impacts on bats.

~~7.8.30~~7.8.32 All sections of hedgerow which are to be removed during the bat activity season (April to October) which are 10m long or greater, would have appropriate mitigation to maintain linear connectivity for foraging/commuting bats. This would involve the temporary installation of structures in hedgerow gaps mimicking the hedgerow structure which bats could use for echolocation when commuting e.g. a double row of 'heras' type fencing with camouflage type netting on top or filled with brash. To ensure the temporary structures are moveable, heras gates would be used rather than fencing. This mitigation would be installed immediately after hedge removal (if in the bat activity season of April to October) and left in place until works are completed. If the mitigation needs to be removed for works, such as to allow passage of construction traffic, then the mitigation would be re-instated at the end of each day.

~~7.8.31~~7.8.33 The temporary structures within the hedgerow gaps would be retained until any new or replacement hedgerow is sufficiently established to be used by bats as an effective flightline.

~~7.8.32~~7.8.34 A number of ditches would be crossed by cable or internal trackways (c. 4m width). As these ditch crossings are less than 10m wide, fragmentation of this linear habitat is not likely to impact foraging or commuting behaviour of bats, and no additional mitigation is proposed.

~~7.8.33~~7.8.35 Should any trees identified as being suitable for roosting bats require removal (considered unlikely), then tree climbing or emergence surveys would be carried out prior to construction works to determine if bats are present. In the unlikely event that roosting bats are identified, then works would cease, consultation with Natural England would occur and appropriate licences and mitigation would be agreed.

~~7.8.34~~7.8.36 In addition to any licencing requirements, a variety of bat boxes would be installed in suitable locations on trees within hedges, individual trees or woodland, to improve roosting opportunities. Final types and numbers of bat boxes are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

~~7.8.35~~7.8.37 A suitably qualified ecologist would be responsible for assessing potential disturbance to roosting bats during each work activity.

Water vole and otter

~~7.8.36~~7.8.38 The **Outline CEMP [EN010157/APP/7.2]** details and secures control measures and additional details via a subsequent riparian mammal Species Protection Plan, to be implemented during construction to protect watercourses.

~~7.8.37~~7.8.39 It is anticipated that the majority of works would take place 10m away from watercourses/waterbodies, thus reducing the potential for effects on water vole and/or otter. It is anticipated that a number of watercourses (ditches and rivers) would be crossed by cables and access routes, some of which have been deemed suitable for otter and water vole. Where Horizontal Directional Drilling is not practicable, culverts or single span bridges would be used to allow the cables to be attached to the structures. Where works would be within 10m of a watercourse/waterbody, such as during culvert works, measures detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]** would mitigate potential impacts on water quality.

7.8.40 ~~Pre-construction surveys would be carried out to check for signs of water vole and otter within up to 30m of works on all watercourses assessed providing good suitability for otter, as displayed in **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report (Figure 2) [EN010157/APP/6.4]**.~~ Where land access permits, pre-construction water vole surveys would be undertaken 100m downstream and upstream from proposed culverts and watercourse crossing points which relate to watercourses assessed as 'suitable but poor to optimal suitability' within **ES Volume 4, Appendix 7.7: Water Vole and Otter Habitat Suitability Report (Figure 2) [EN010157/APP/6.4]**.

~~7.8.38~~7.8.41 Where land access permits, pre-construction otter surveys of suitable habitat within 200m of the proposed works would be undertaken.

~~7.8.39~~7.8.42 In the event water vole burrows or an otter holt or resting place is identified, appropriate mitigation would be implemented prior to works. Consultation with Natural England and appropriate mitigation licences would be obtained, if required. This would be in addition to a riparian mammal Species Protection Plan for the Proposed Development.

~~7.8.40~~7.8.43 Unless otherwise agreed with East Riding of Yorkshire Council, no night-time (19:00 to 07:00) work is to take place during the construction phase and where possible, generators would be switched off at the end of each day. Where generators/site cabins are required overnight, then they would be positioned a minimum of 50m from watercourses.

Operation (including maintenance)

~~7.8.41~~7.8.44 The **Outline OEMP [EN010157/APP/7.3]** details and secures measures to mitigate and manage operational related effects on biodiversity, including measures to prevent air, water, light and noise pollution.

~~7.8.42~~7.8.45 Appropriate management and monitoring of created and improved habitats would be required for a period of 30 years (as required by the Environment Act 2021 **[Ref. 7-2]**) to ensure successful establishment and condition. The habitat management and monitoring regime is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. This includes management of ecological mitigation and enhancement areas, hedgerows, grassland, field margins, watercourses and treatments under solar PV modules. As the operation life of the Proposed Development is 40 years, the Landscape and Ecological Management Plan will be reviewed after 30 years to ensure the management prescriptions are still appropriate.

~~7.8.43~~7.8.46 Reasonable avoidance measures, including appropriate offset distances (of up to 30m) around any identified badger setts, or trees with bat roost potential (an offset distance of at least 10m) would be maintained throughout operation (including maintenance).

~~7.8.44~~7.8.47 Regular checks of fencing and culverts during maintenance visits by appropriately trained staff would occur to ensure mammal access points remain operational. Details regarding the fence, culvert and mammal gate checks are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.

Humber Estuary SPA/Ramsar site/SSSI

Loss of functionally linked land for qualifying species and assemblage

~~7.8.45~~7.8.48 The ecological mitigation and enhancement areas will be managed throughout the operation (including maintenance) phase, as detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]**. Appropriate management of the ecological mitigation and enhancement areas with scrapes will allow Humber Estuary SPA/Ramsar site/SSSI qualifying bird species to continue to use the Site.

~~7.8.46~~7.8.49 The ecological mitigation and enhancement areas are outside the main solar PV module areas. There is no work anticipated which will directly impact the mitigation areas for Humber Estuary SPA/Ramsar site/SSSI species apart from habitat management, as detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]** and **Outline LEMP [EN010157/APP/7.5]**. Ecological Mitigation Area 17 within Land Area F will be used as a construction compound during the construction phase but will be converted to flower-rich neutral grassland once construction within Land Area F is completed. There is no work anticipated which will directly impact other areas of ecological mitigation and enhancement areas will be apart from habitat management, as detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]** and **Outline LEMP [EN010157/APP/7.5]**.

Ground nesting birds

~~7.8.47~~7.8.50 During operation (including maintenance), any required management would be undertaken in accordance with legislative requirements to avoid harm to ground nesting birds.

~~7.8.48~~7.8.51 Where possible, livestock will be used to manage vegetation sward height. The use of livestock will reduce the potential risk of disturbance to species which may use the habitat underneath and adjacent to the solar PV modules.

~~7.8.49~~7.8.52 Work within areas assessed as suitable for ground nesting birds will be avoided during the nesting bird season. However, if this is not possible, appropriate surveys (detailed and secured by the **Outline OEMP [EN010157/APP/7.3]**) will be undertaken prior to works to determine appropriate mitigation and precautionary working measures to prevent disturbance to ground nesting birds. Appropriate surveys may include nesting bird checks and supervision by a suitably qualified ecologist.

Bats (foraging and commuting)

~~7.8.50~~7.8.53 During operation (including maintenance), no part of the Proposed Development would be continuously lit; manually operated and motion detection lighting would be used for operational and security purposes. Lighting would be used only at entrances or gates, or within compounds, and would only be operated when required for safe working or security. The use of infrared sensor

triggered security lighting, required around key electrical infrastructure, avoids the need for permanent lighting and the inward/downward direction design of lighting would avoid light spill on to adjacent hedgerows, woodlands, field margins and wet ditches likely to be used by bats.

Decommissioning

~~7.8.51~~7.8.54 The **Outline DEMP [EN010157/APP/7.4]** details and secures measures to mitigate and manage decommissioning related effects on biodiversity, including measures to prevent air, water, light and noise pollution and avoid disturbance to sensitive species.

~~7.8.52~~7.8.55 Prior to decommissioning, updated surveys, where required (for example for badgers), would be undertaken in sufficient time in advance of works to ensure that appropriately timed mitigation can be carried out.

~~7.8.53~~7.8.56 Appropriate mitigation measures would be based on the results of the updated ecology surveys. Many of the mitigation measures required for the construction phase are also likely to be required during the decommissioning phase.

~~7.8.54~~7.8.57 Ecological mitigation and enhancement areas would be handed back to the relevant landowners. Consultation with appropriate stakeholders and landowners would be undertaken in advance of the decommissioning phase to discuss opportunities to maintain and manage the ecological mitigation and enhancement beyond the lifespan of the Proposed Development, as appropriate.

~~7.8.55~~7.8.58 Measures to mitigate the risk of reversing the benefits on water quality/hydrology from the solar farm, should the habitats within the Order Limits be returned to intensively farmed arable land, are detailed in and secured by the **Outline DEMP [EN010157/APP/7.4]**. Such measures include the retention of planted watercourse easements and offset distances, utilisation of good land management practices such as tillage, crop rotation and maximising grass cover to retain good soil health and percolation benefits and minimising the use of artificial fertilisers or pesticides.

Humber Estuary SPA/Ramsar site/SSSI

Disturbance/displacement of qualifying bird species (individual and assemblage)

~~7.8.56~~7.8.59 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented during decommissioning to reduce the potential risk of disturbance and displacement of Humber Estuary SPA/Ramsar

site/SSSI qualifying bird species, such as pre-decommissioning surveys to determine appropriate mitigation.

~~7.8.57~~7.8.60 Based on the results of the pre-decommissioning surveys, work within areas which are likely to cause disturbance/displacement should be undertaken at an appropriate time of year, such as outside the wintering bird season.

~~7.8.58~~7.8.61 Landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the options available to retain the ecological mitigation and enhancement areas. Pre-decommissioning surveys will determine the appropriate mitigation if any of these areas are to be removed and returned to agricultural land.

Ground nesting birds

~~7.8.59~~7.8.62 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented during decommissioning to reduce the potential risk of impact to ground nesting birds.

~~7.8.60~~7.8.63 Work within areas which is likely to cause an impact to ground nesting birds, such as within the ecological mitigation and enhancement areas, will be undertaken outside the nesting bird season whilst also avoiding the peak wintering bird season.

~~7.8.61~~7.8.64 Appropriate pre-decommissioning nesting bird surveys will be undertaken. A suitably qualified ecologist will supervise all work during the nesting bird season and ensure appropriate measures are undertaken to prevent disturbance, injury and/or death to ground nesting birds.

~~7.8.62~~7.8.65 Landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the options available to retain the ecological mitigation and enhancement areas beyond decommissioning.

Bats (foraging and commuting)

~~7.8.63~~7.8.66 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented during decommissioning to reduce the potential risk of impact to foraging and commuting bats. The **Outline DEMP [EN010157/APP/7.4]** includes measures such as no night-time (19:00 to 07:00) working (unless otherwise agreed with East Riding of Yorkshire Council) and directing any lighting away from boundary habitats and areas likely to be used by foraging and commuting bats.

~~7.8.64~~7.8.67 Prior to decommissioning, bat monitoring surveys will be undertaken to determine whether bats are using the solar PV module areas for foraging and commuting. The information gathered from these surveys would be used to determine the level of mitigation required to prevent the decommissioning of the Proposed Development having a significant effect on foraging and commuting bats.

~~7.8.65~~7.8.68 Landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the options available to retain habitats which have been created which are likely to be used by foraging and commuting bats, such as the ecological mitigation and enhancement areas.

7.9 Assessment of residual effects (with additional mitigation)

Construction

Humber Estuary SPA/Ramsar site/SSSI

Loss of functionally linked land for qualifying bird species

7.9.1 With the implementation of additional mitigation measures, any potential residual effects from loss of functionally linked land for qualifying bird species of the Humber Estuary SPA/Ramsar site/SSSI using functionally linked land would be **adverse**, **short term** (for the duration of the construction phase) but **reversible**, **temporary**, **small-scale** and therefore **not significant** at the **District** level.

Disturbance/displacement of qualifying bird species (individual and assemblage)

7.9.2 With the implementation of additional mitigation measures, any potential residual effects from disturbance/displacement of qualifying bird species of the Humber Estuary SPA/Ramsar site/SSSI using functionally linked land would be **adverse**, **short term**, **temporary**, **small-scale** and therefore **not significant** at the **District** level.

Degradation of habitats as a result of changes in water quality/hydrology

7.9.3 With the implementation of mitigation measures, any potential residual effects from changes in water quality/hydrology on habitats used by qualifying bird species of the Humber Estuary SPA/Ramsar site/SSSI would be **adverse**, **short term**, **temporary**, **small-scale** and therefore **not significant** at the **District** level.

Humber Estuary SAC/Ramsar site/SSSI (river lamprey only)

Degradation of habitats as a result of changes in water quality/hydrology

7.9.4 With the implementation of mitigation measures, any potential residual effects from changes in water quality/hydrology on habitats used by river lamprey associated with the Humber Estuary SAC/Ramsar site/SSSI would be **adverse**, **short term**, **temporary**, **small-scale** and therefore **not significant** at the **Local** level.

Figham Pastures LWS

7.9.5 Figham Pastures LWS, which is of **County** importance, would be temporarily impacted by the proposed Horizontal Directional Drilling and open cut trench works and associated temporary compound and access route.

7.9.6 Disturbance and short-term habitat loss is anticipated during the construction phase. The effect would be highly localised but despite the implementation of additional mitigation measures, there will be a residual effect whilst grassland recovers and re-grows following the disturbance works. The residual effect would be **adverse**, **short term**, **small scale** but **reversible**, which is considered to be **not significant** at the **Local** level.

Sections of hedgerow and individual trees

7.9.7 Although the majority of hedgerows and field boundaries would be protected from works, a number of hedgerows would potentially need to be crossed by the grid connection cable route, cable routes and access tracks. Cable installation would require sections of hedgerows 8m wide to be removed. Highways access proposals for visibility splays and passing bays would require varying lengths. Details of lengths of hedgerow removal proposed is shown in **Tree Preservation Order and Hedgerow Plans [EN010157/APP/2.8]**. The total impact to hedgerow across the Order Limits is estimated as *c.* 5.88km comprising 0.44km of permanent loss and 5.44km of reinstated hedgerow. An additional 19.58km of new hedgerow planting will be scattered across the Order Limits.

7.9.8 There would be no long-term net hedgerow loss due to re-instatement and new planting. However, compensatory habitat would take time to develop (*c.* 10 years for new hedgerows to fully mature).

7.9.9 The network of hedgerows is of **District** importance, given the extent of hedgerow within East Riding of Yorkshire. However, only small discrete sections of hedgerow would be affected. Therefore, the residual effect is anticipated to be

adverse, **temporary** and **medium term**, which is considered to be **not significant** at the **Local** level.

Sections of ditches

7.9.10 Although the majority of watercourses would be protected from works, a number of ditches would be impacted by culvert works.

7.9.11 The maximum working width for the culverts would be 4m to reduce impacts to watercourses. As detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**, the culvert design would include a box specification which incorporates measures to allow species to easily pass through them.

7.9.12 Construction work within the watercourses would be temporary and would cause a highly localised and small-scale loss of habitat. The culvert design would allow the habitat to remain functional within the undisturbed sections of watercourse and allow species to continue using the watercourses.

7.9.13 The minor drains/ditches and associated fringing reeds are of **Local** importance. The residual effect is anticipated to be **adverse**, **temporary** and **medium term** on a small discrete amount of watercourse habitat during the construction phase, which is considered to be **not significant** at the **Local** level.

Sections of river habitat

7.9.14 There are nine watercourses within and directly adjacent to the Order Limits which are classified as statutory main rivers according to the Environment Agency. All statutory main rivers (apart from two) would be safeguarded and unaffected during construction, being protected through measures detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]** and **Outline LEMP [EN010157/APP/7.5]**.

7.9.15 Arnold West Carr Drain and Drewery's Sock Dike, both of which are classified as statutory main rivers, would be impacted by proposed culvert works.

7.9.16 The maximum working width for the culverts would be 4m to reduce impact to the watercourses. As detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**, the culvert design would include a box specification which incorporates measures to allow species to easily pass through them.

7.9.17 The work within the watercourses would be temporary and would cause a minor loss of habitat (maximum 4m per culvert). The culvert design would allow the habitat to remain functional within the undisturbed sections of watercourse and allow species to continue using the watercourses.

7.9.18 River habitat collectively is considered to be of **District** importance. Given the small area of river habitat due to be impacted, and that the overall connectivity and functionality of the habitat would be maintained, the residual effect is anticipated to be **adverse**, **permanent** but localised **small-scale**, which is considered to be **not significant** at the **Local** level.

Great crested newt

7.9.19 Should their presence be confirmed, the Proposed Development has the potential to impact great crested newt and associated terrestrial habitat. Prior to construction commencing, Habitat Suitability Index surveys and repeat eDNA surveys will be undertaken on all suitable waterbodies within Land Areas B to F, an additional pond within Field C4 in Land Area C and ponds within 250m of the grid connection cable route, access permitting.

7.9.20 Great crested newts are of **Local** importance. Should the presence of great crested newt be confirmed, the Proposed Development is likely to make use of either the East Riding of Yorkshire District Level Licensing Scheme for great crested newt or a low impact class licence from Natural England. Therefore, the residual effect is anticipated to be **adverse**, **temporary** and **medium term**, which is considered to be **not significant** at the **Local** level.

Ground nesting birds

7.9.21 Taking into account additional mitigation to minimise the adverse effects of construction activities, it is considered that the existing ground nesting bird assemblage would be maintained. The ground nesting bird assemblage is considered of **County** importance. The residual effect of habitat loss and disturbance during construction is considered to be **adverse** but **temporary, short term** and **reversible**, which is considered to be **not significant** at the **Local** level.

Bats (foraging, commuting and roosting)

7.9.22 Any structures due to be impacted by the Proposed Development would be surveyed by suitably qualified ecologists to determine presence/or likely absence of a roost as part of the pre-construction surveys. There would be no effect on the conservation status of bats, as any loss of bat roosts would be mitigated and compensated under a European Protected Species mitigation licence from Natural England.

7.9.23 Construction activities could potentially disturb roosting, foraging and commuting bats, particularly through those activities that emit higher frequency noise. However, noise and vibration from construction activity is not considered likely to

significantly disturb bats due to its temporary nature in any one location, siting distance of compounds, and implementation of minimum 10m offset distance from any woodlands, hedgerows or trees; and because higher frequency noise quickly attenuates over distance.

7.9.24 Habitat loss and fragmentation could have an adverse effect on bats. There would be a loss of sections of hedgerow and field margins for cabling and access works during construction, which would cause a temporary net loss and fragmentation of bat foraging and commuting habitat. The temporary loss of arable and pasture land during construction (during installation of solar PV modules) is not anticipated to have a significant effect on bats as it is relatively poor-quality foraging habitat (although the longer-term effects of habitat change on bats is discussed further below (for the operation (including maintenance) phase)).

7.9.25 Fragmentation of bat habitat resulting from removal of sections of hedgerow 10m wide or more could affect foraging and commuting behaviour of some bat species **[Ref. 7-40]**. This could result in bats expending more energy and potentially reduce their breeding fitness.

7.9.26 The sections of hedgerow to be removed for highways access, internal access tracks and cable installation would all create gaps up to 8m wide during construction (proposals to construct *c.*4m wide culverts across a number of ditches for internal access roads are not anticipated to affect bats, as the width is small and they would still be able to use the watercourse as a linear foraging corridor).

7.9.27 The assemblage of bats within the Order Limits is considered to be of **County** importance. The residual effect on foraging and commuting bats is anticipated to be **adverse**, **short term** and **temporary**, which is considered to be **not significant** at the **Local** level.

7.9.28 The residual effect on roosting bats is anticipated to be **adverse**, **short term** and **temporary**, which is considered to be **not significant** at the **Local** level.

Water vole and otter

7.9.29 A number of watercourses and habitats within the Order Limits which are due to be impacted by the Proposed Development provide suitable habitat for water vole and/or otter. Pre-construction water vole and otter surveys would be undertaken as detailed and secured within the **Outline CEMP [EN010157/APP/7.2]**.~~at each watercourse assessed as suitable for the species.~~

7.9.30 The proposed culvert design, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**, ensure the structures do not cause habitat fragmentation and/or loss of hunting/commuting habitat.

7.9.31 Should the presence of either otter or water vole be confirmed during the pre-construction surveys, loss of habitat and holts/resting places would be safeguarded by appropriate mitigation and compensated as necessary under appropriate licensing from Natural England.

7.9.32 The water vole and otter habitat within the Order Limits is of **Local** importance. Should the presence of either otter or water vole be confirmed during the pre-construction surveys, the residual effect on the small extent of suitable water vole and otter habitat that would be affected is anticipated to be **adverse**, **temporary** and **medium term**, which is considered to be **not significant** at the **Local** level.

Operation (including maintenance)

Humber Estuary SPA/Ramsar site/SSSI

Loss of functionally linked land for qualifying bird species

7.9.33 The land use of the Site will be altered during the construction phase, including the loss or modification of functionally linked land (arable farmland) by the placement of solar PV modules. This will be mitigated through the creation of wader scrapes and grassland providing alternate habitat for bird species. The effects of the change in land use enacted at the construction phase will be ongoing through the operation (including maintenance) phase.

7.9.34 The management of the ecological mitigation and enhancement areas for the duration of the operation (including maintenance) phase is detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. The loss of functionally linked land for qualifying bird species of the Humber Estuary SPA/Ramsar site/SSSI would be **adverse** and **long term** (for the operational lifetime of the Proposed Development), but **reversible**, but with the creation of appropriate ecological mitigation and enhancement areas, any potential residual effects from loss of functionally linked land is considered to be **not significant** at the **District** level.

Figham Pastures LWS

7.9.35 Operational maintenance of the grid connection cable route would be isolated to specific inspection shafts. Appropriate supervision by a suitably qualified ecologist to determine any required mitigation prior to and during maintenance work within Figham Pastures LWS would ensure works do not impact Figham Pastures LWS and its associated species.

7.9.36 Figham Pastures LWS is of **County** importance. The residual effect is anticipated to be **adverse** and **short term**, which is considered to be **not significant** at the **Local** level.

Ground nesting birds

7.9.37 Operational works would be relatively small scale and localised, which is not anticipated to cause significant visual or noise disturbance to nesting birds.

7.9.38 Breeding bird survey data, detailed in **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report [EN010157/APP/6.4]**, was used to estimate the number of skylark territories that would require compensation due to the placement of solar PV modules. Skylarks were the most abundant ground nesting bird species found within the Order Limits and were therefore used as a proxy for all ground nesting species. This data was used to estimate the area and quality of habitat required to mitigate for effects on ground nesting birds in key, open and connected areas, which will be retained and improved as part of the embedded mitigation (refer to **Table 7-6** above).

7.9.39 The primary additional mitigation to compensate for habitat loss will be the creation of *c.* 116 hectares of flower-rich neutral grassland managed for the benefit of ground nesting birds, which will be in key, open and connected areas. The area of land retained is smaller than the area which would be developed. However, the proposed area retained for habitat creation and improvement has been assessed as sufficient to support the estimated number of skylark territories that would be lost, by increasing the carrying capacity and quality of nesting and foraging habitat for birds.

7.9.40 The appropriate habitat management regimes to achieve this increase in bird foraging habitat are detailed within and secured by the **Outline LEMP [EN010157/APP/7.5]**. Once habitats are established, it is predicted that the Proposed Development would have the ability to deliver a net gain in habitats required to support a diverse breeding farmland bird assemblage (of both ground nesting and non-ground nesting birds) similar to that currently present.

7.9.41 All vegetation management during operation (including maintenance) would be undertaken outside the nesting bird season (March to August) where possible. In the event vegetation management is required within the bird breeding season, a suitably qualified ecologist would be appointed to undertake the appropriate surveys and advise on any necessary mitigation.

7.9.42 Ground nesting birds are considered of **County** importance. With additional mitigation measures, there is anticipated to be a **long term beneficial** residual effect in quantity of foraging habitat and quality of nesting habitat once fully

established. This **beneficial** effect is considered to be **significant** at the **Local** level.

Bats (foraging and commuting)

7.9.43 The solar PV modules would be 3.5m from ground level tilted and a minimum of 10m from boundary habitats such as hedgerows; this is likely to reduce the risk of bats colliding with the solar PV modules, especially when considering the majority of hedgerows would be left to grow over 5m and offset distances detailed within the embedded mitigation measures (refer to **Table 7-6** above) would be maintained.

7.9.44 Bats could be disturbed during the operation (including maintenance) phase from high frequency 'electrical' noise, potentially emitted from the proposed substations, and hybrid packs which comprise four BESS, one inverter and four direct current (DC) converters (refer to **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]**). However, the higher frequencies of noise attenuate more quickly with distance and are also blocked more easily as they do not diffract (bend) over any barriers, unlike low frequency noise. All substations and hybrid packs are located outside the offset distances detailed within **Table 7-6** above.

7.9.45 Inverters are located at different locations across the Order Limits. Many are in-field and those that are near field boundaries would lie outside of the minimum 10m offset distance from boundaries. The inverters are relatively small structures and therefore noise would be emitted from small, localised points, which would be attenuated over a much shorter distance compared to noise emitted from the substations and hybrid packs.

7.9.46 The BESS is proposed to be located at least 15m from ancient woodland and 10m from other woodlands hedgerows and watercourses. Most of the noise from the BESS is low frequency noise from the cooling systems, which are outside of the units. The higher frequency noise associated with the electricity sounds are generated by the BESS units internally. A 3m high acoustic barrier would be installed around the BESS, which would reduce noise further, notably those sounds at higher frequency which are more likely to be within the bats' audible range. High frequency noise levels emitted from the BESS are therefore considered unlikely to be significant at or adjacent to the hedgerow and woodland boundaries in the vicinity.

7.9.47 Although the specific levels of high-frequency noise on field boundary features are not known, it is anticipated that bats would not be significantly affected due to attenuation over the minimum 10m offset distances between inverters and field boundaries, which is where most bats will be foraging and commuting. In the event that a particular boundary feature becomes less attractive to bats (for any

reason), the extensive network of hedgerows and ditches in the immediate vicinity would provide alternative foraging and commuting routes for bats.

7.9.48 Operational maintenance works would be relatively small scale and localised and are not anticipated to cause significant disturbance. Works would be carried out in daylight hours, except in an emergency. During operation, no part of the Proposed Development would be continuously lit and any lighting would be directional (directed downwards and away from boundary features and vegetation which may be used by bats), and manually or sensor operated for operational and security purposes. Therefore, lighting would not impact upon retained habitats (such as woodland and hedgerows) and any bats using such habitats.

7.9.49 The above measures are detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]**. Bats are therefore not anticipated to be disturbed during operation by lighting, or maintenance activities.

7.9.50 Solar sites with adequate mitigation could improve habitat for bats. Froidevaux *et al.* (2019) found that improvements to hedgerows and field margins had a positive effect on bat abundance and species diversity **[Ref. 7-41].** The Proposed Development therefore has embedded mitigation designed to support bats (refer to **Table 7-6** above). Offset distances and improvement measures would ensure boundary habitat is maintained and improved in extent and diversity. New tree and hedgerow planting, and wildflower grassland creation, would deliver an overall biodiversity net gain during the operation (including maintenance) phase, once these habitats are fully established. As well as reduced herbicide and pesticide use, these changes are anticipated to be beneficial for foraging and commuting bats.

7.9.51 In summary, there is limited published, scientific evidence on which to base an informed assessment (e.g. whether effects are short term or long term) and what evidence there is was only published in 2023 , but it is noted using the precautionary principle, that changes to the habitat due to the placing of solar PV modules could potentially adversely affect some bat species using both hedgerows and open fields across the Order Limits. As such, a worst case scenario has been assumed in the assessment of the impacts to bats, and therefore a long term effect concluded.

7.9.52 Bats within the Order Limits are of **County** importance. However, taking into account the embedded design and additional mitigation measures detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]** and **Outline OEMP [EN010157/APP/7.3]**, and once created and improved habitats have fully established, the residual effect on bats is considered to be **long term**, but highly localised and **not significant** at the **Local** level.

Decommissioning

7.9.53 The effects of decommissioning of the Proposed Development are likely to be similar to those for construction outlined above. Habitats and protected or otherwise notable species are likely to be subject to temporary loss of habitat and disturbance during decommissioning activities and appropriate measures detailed in and secured by the **Outline DEMP [EN010157/APP/7.4]** would mitigate any significant adverse effects.

7.9.54 The land within the Order Limits would be reinstated in accordance with the **Outline DEMP [EN010157/APP/7.4]**. Ecological mitigation and enhancement areas would be handed over to the relevant landowners, unless agreed otherwise. Consultation with appropriate stakeholders and landowners would be undertaken in advance of the decommissioning phase to discuss opportunities to maintain and manage the ecological mitigation and enhancement beyond the lifespan of the Proposed Development, as appropriate.

Humber Estuary SPA/Ramsar site/SSSI

Disturbance/displacement of qualifying bird species (individual and assemblage)

7.9.55 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented to reduce the potential risk of disturbance/displacement of Humber Estuary SPA/Ramsar site/SSSI qualifying bird species. The residual effect of disturbance/displacement of Humber Estuary SPA/Ramsar site qualifying bird species is anticipated to be **adverse**, **short term** and **temporary**, which is considered to be **not significant** at the **District** level.

Ground nesting birds

7.9.56 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented to reduce the potential risk of impact to ground nesting birds. The residual effect on ground nesting bird is anticipated to be **adverse**, **short term** and **temporary**, which is considered to be **not significant** at the **Local** level.

Bats (foraging and commuting)

7.9.57 The **Outline DEMP [EN010157/APP/7.4]** details and secures control measures that would be implemented to reduce the potential risk of impact to foraging and commuting bats. The residual effect on foraging and commuting bats is anticipated to be **adverse**, **short term** and **temporary**, which is considered to be **not significant** at the **Local** level.

7.10 Opportunities for enhancement

7.10.1 The ground underneath and around solar PV modules would be sown with a flower and legume rich grass mix to provide an insect rich foraging habitat during the breeding season, and 5% of the margins between the solar PV modules and security fence will be sown with a winter seed mix for foraging birds with the rest of the margins sown to a similar legume rich grass mix to underneath the solar PV modules.

7.10.2 Surveys and trapping using humane specific traps for American mink (*Neovison vison*) will be undertaken on each watercourse within the Land Areas for the first three years of operation. Any caught mink will be humanely dispatched and information sent to the Yorkshire Wildlife Trust. The surveys and trapping will be undertaken by a specialist contractor. Mink control would provide a beneficial long-term impact on many native species in particular water voles.

7.10.3 As presented in **ES Volume 3, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.3]** all the trading rules in the Statutory Biodiversity Metric have been met for all habitats including the assumption set out for coastal floodplain grazing marsh. The ecological mitigation and enhancement areas will deliver a minimum 10% net gain in biodiversity in line with the legislative requirement that will be in place from November 2025, and in fact, is expected to substantially exceed this, as set out in **ES Volume 3, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.3]**.

7.11 Monitoring requirements

7.11.1 The effect of solar PV modules on bats' use of solar farms is uncertain due to lack of research. Therefore, monitoring of bat activity comparing the operational baseline to the pre-construction baseline would be undertaken during the construction and operation (including maintenance) phases, as detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]** and Operational Environmental Management Plan.

7.11.2 As stated in **Section 7.10** above, regular monitoring of the non-native invasive mink would be carried out and if mink are identified, then a humane control programme would be initiated.

7.11.3 In addition to the above, monitoring of habitat creation mitigation measures would include the following, as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**:

- The management and monitoring of habitats that are to be retained, created and enhanced in the post-development scenario as part of the

biodiversity net gain within the Order Limits will be detailed and secured within the Landscape and Ecological Management Plan.

- Ensure all created habitats including replanted hedgerows meet the target habitat condition criteria assumed in **Volume 4, Appendix 7.10 Biodiversity Net Gain Assessment [EN010157/APP/6.4]**. If not on the trajectory to achieve the correct condition, then remedial management would be instigated.
- Following habitat re-instatement within Figham Pastures LWS, vegetation would be monitored against the National Vegetation Classification baseline to ensure regrowth is comparable with the baseline and that no injurious weeds such as thistles or docks establish. If injurious weeds become dominant or tufts do not establish, then remedial management would be put in place. Site visits will compile of one survey per year during years 1, 2 and 3 after construction works within Figham Pastures LWS. The survey will be undertaken during the period May to July to ensure habitat condition criteria are being met.
- An appointed ornithologist will undertake a Site visit to ensure the scrapes and grassland created for Humber SPA/Ramsar site bird species meet the design specifications specified in the **Outline LEMP [EN010157/APP/7.5]**, and if not, implement remedial measures to correct. Site visits will compile of one survey per year during years 1 to 3 after habitat creation then at 5 yearly intervals subsequently up to year 30. The surveys will be undertaken in the autumn (August – September) before onset of winter to allow for any remedial works before winter (November to March).
- An appointed ornithologist will undertake wintering surveys to ascertain if SPA bird species are using the mitigation areas specified in the **Outline LEMP [EN010157/APP/7.5]**, and if not, implement remedial measures to correct. Site visits will compile of one survey per year during years 1 to 3 after habitat creation and then at 5 yearly intervals subsequently up to year 30. Each survey will compile 4 visits (once a month) between November and March.
- An appointed ornithologist will monitor if glint and glare causing change in bird flight behaviour or any evidence of waterfowl landing within panel areas. The monitoring will be completed as part of the monitoring set out for Humber SPA/Ramsar site bird species above.
- An appointed ecologist will monitor habitat condition of the areas set aside for ground nesting birds to ascertain if created habitat within areas on target to meet the required condition and monitoring

establishment against condition criteria. Site visits will compile of one survey per year during years 1 to 3 after habitat creation and then at 5 yearly intervals subsequently up to year 30. The survey during the period May to July to ensure habitat condition criteria are being met.

- An appointed ecologist will monitor habitat condition of habitat under solar panels and margins to ascertain if created habitat within areas is on target to meet the required condition and monitoring establishment against condition criteria. Site visits will compile of one survey per year during years 1 to 3 after habitat creation and then at 5 yearly intervals subsequently up to year 30. The survey will be undertaken during the period May to July to ensure habitat condition criteria are being met.
- An appointed ecologist will undertake bat activity monitoring surveys to ascertain how bat activity levels compare with pre-operational bat activity. Static bat detectors deployed for five consecutive nights during Spring, Summer and Autumn will be used to undertake surveys once a year for years 1 to 5 and then year 10 and 15 during the operational phase. Static detectors will be deployed as close to the locations used during the 2023 and 2024 bat activity surveys to allow comparison between pre-operational and operational stages.

7.12 Difficulties and uncertainties

7.12.1 The following difficulties and uncertainties have been encountered in undertaking the biodiversity assessment:

- Breeding bird surveys of the grid connection cable route have not been undertaken. In the absence of full bird survey data, a habitat suitability assessment and desk study have been undertaken. For the purposes of the Environmental Statement, breeding birds assemblage likely present within the grid connection cable route is based on the desk study and results of the breeding bird surveys of the Land Areas.
- Based on the habitat assessment, it is considered likely the land within the grid connection cable route could constitute functionally linked land for the same Humber Estuary SPA species as the Land Areas; golden plover, lapwing, mallard, teal and black-headed gull. For this reason, passage bird surveys and wintering bird surveys of the grid connection cable route are currently being undertaken and the survey results will only be available in April 2025.
- eDNA surveys of ponds within 250m of the grid connection cable route and within the pond in Field C4 in Land Area C have not been undertaken as the ponds were identified outside the eDNA survey

period. Pre-construction surveys will be undertaken to confirm the presence of great crested newt (as detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**) and if presence is confirmed, then either an East Riding of Yorkshire District Level Licence or a Natural England Low impact class licence will be applied for and obtained. However, the assessment is based on the assumption that great crested newts are present within ponds within 250m of the grid connection cable route and within the pond in Field C4 in Land Area C.

- Due to access limitations and health and safety concerns, it was not possible to survey all ditches within the Order Limits and surrounding 250m offset distance, but it is considered that a sufficient number of the ditches were assessed to provide a representative sample across the Site. The ditches that were deemed most suitable to support great crested newts, water voles and otters have been included in the assessment.
- Land outside the Order Limits has not been surveyed for badgers; therefore, badger setts that may be present within 30m of the Order Limits may not have been recorded during the surveys. This is not considered to be significant data gap as pre-construction badger surveys will be undertaken (as detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**).
- Badger sett category classifications were based on the field evidence collected at the time of the survey. It is possible that sett classification could change depending on monitoring and if breeding appears.
- A badger sett was classified as a separate sett based on the topography of the ground and distance from other sett entrances. However, as some badger tunnels have been known to extend up to 30m, it is possible that badger sett entrances within 30m proximity of one another are connected and are the same sett.
- Due to heavy rain during the wintering bird survey (visit 2 in December 2023), the nocturnal survey of Fields E13-E17 in Land Area E could not be undertaken. This is not considered a significant limitation to the assessment, as these fields were assessed as being unsuitable for supporting large numbers of nocturnally foraging birds due to containing sileage grass crop only. This was supported by the limited observations of birds in these fields during the other three nocturnal visits. The results that are reported are assumed to provide a representative sample of the species using the Site.
- During the nocturnal wintering bird surveys, bird identification to species level was often not possible due to the limitations of identifying

birds using thermal cameras only, as bird identification is usually aided by visual plumage characteristics which are not visible through a thermal camera. As such, distant groups of birds observed through the thermal camera were occasionally assigned to family level only, e.g. duck, gull, small wader, etc., if specific identification was not possible. This is not considered to be a signification limitation to the survey results, as only low numbers of birds were recorded on Site during the nocturnal surveys.

- As the two surveys for breeding birds were undertaken two years apart, in 2022 and 2024 respectively, it is possible that breeding bird populations could have shifted in the interim period, particularly for ground nesting species which are subject to influence by crop rotations in arable fields, resulting in potential double counting or some birds being missed. However, this is not considered to be a significant limitation to the survey results, as it is considered likely that any movement of birds between the two survey areas would have taken place equally in both directions, so overall it is unlikely that there would be a significant net change in the breeding bird populations between the two survey years. The results are considered to provide a representative sample of the bird species using the Site.
- The water vole and otter assessment undertaken was to assess the suitability of habitat only and does not constitute a survey for presence, though any incidental records of field signs of either water vole or otter would have been recorded if seen. The assessment has assumed that water vole and otter are potentially present on Site, where suitable habitats exist.
- Some existing watercourse crossings, mainly brick culverts, may provide features suitable for roosting bats. A definitive list of all crossing locations is not yet available, so surveys to confirm the absence of roosting on existing structures will be carried out prior to construction (as detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**).
- Targeted bat activity surveys of hedgerows impacted by the grid connection cable route have not been undertaken, but in line with proposed mitigation as detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**, the hedgerows will be replanted, after the temporary construction phase works are complete, therefore the impact will be temporary. The impact of this temporary hedgerow loss has been assessed. This is not considered to be a significant data gap,

given the low value bat foraging and commuting habitat within the grid connection cable route and temporary nature of works.

7.13 Summary

7.13.1 A summary of this assessment is presented in **Table 7-7**. The geographic importance of each feature is identified alongside any relevant embedded mitigation and the potential effects that could arise on those features. Any proposed additional mitigation measures are stated and residual effects then assessed (taking account of any additional mitigation proposed), including any monitoring requirements.

Table 7--7: Assessment summary

Feature/ matter	Phase	Geographic importance of the feature	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
Humber Estuary SPA/Ramsar/SSSI site	Construction	International	250m offset distance from on-site substations.	Loss of functionally linked foraging habitat	Creation of wetland scrapes and areas of grassland without solar PV modules. Measures to limit noise and disturbance.	**Not significant**	Monitoring to ensure mitigation effective
Humber Estuary SAC/SSSI (river lamprey only)	Construction	International	Horizontal Directional Drilling under River Hull. 250m offset distance from on-site substations.	Degradation of habitats.	Control measures to manage the Horizontal Directional Drill.	**Not significant**	No monitoring requirement envisaged
Figham Pastures LWS	Construction	County	Horizontal Directional Drilling will be used where feasible. 250m offset distance from on-site substations.	Damage to grassland habitat	Measures to safeguard grassland and seedbank.	**Not significant**	Monitoring to ensure mitigation effective
Sections of hedgerow and individual hedgerow trees	Construction	District	Retention of hedgerows. Use of existing gaps and gateways to minimise hedge removal. Appropriate fencing to be installed to avoid impact to hedgerows.	Hedgerow loss	Working width kept to a minimum. Reinstatement on completion.	**Not significant**	Monitoring to ensure replanted hedge sections establish well
Sections of ditches	Construction	Local	Minimum of 10m offset distance from watercourses where possible. Box culverts and span bridges will be used where possible.	Loss of watercourse and loss of riparian habitat	Working width kept to a minimum. Pollution prevention safeguards. Where possible, single span bridge as opposed to culverts and box culverts to allow continued movement of aquatic fauna.	**Not significant**	N/A
Sections of river habitat	Construction	District	Horizontal Directional Drilling under River Hull. 50m offset distance from main rivers. Minimum of 10m offset distance from watercourses where possible. Box culverts and span bridges will be used where possible.	Loss of riparian habitat	Working width kept to a minimum. Pollution prevention safeguards. Where possible, single span bridge as opposed to culverts and box culverts to allow continued	**Not significant**	N/A

Feature/ matter	Phase	Geographic importance of the feature	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
					movement of aquatic fauna.		
Great crested newt	Construction	Local	Offset distances from ponds, hedgerows and woodland.	Incidental injury and mortality	Pre-construction surveys to inform appropriate licence (if great crested newt present).	**Not significant**	N/A
Ground nesting birds	Construction	County	Offset distances from hedgerows, woodland and watercourses.	Loss and displacement from nesting habitat	Retention majority hedgerows, all woodland and watercourses Avoidance of vegetation removal in bird breeding season Creation grassland habitat for ground nesting birds.	**Not significant**	Monitoring to ensure mitigation effective
Bats (foraging and commuting)	Construction	County	Offset distances from hedgerows, woodland and watercourses	Loss of roosts and incidental injury and mortality	Temporary infilling of hedge gaps. Reinstatement of hedgerows. Creation of areas of flower rich grassland with no solar PV modules. Mitigation regards noise and lighting. Provision of bat boxes.	**Not significant**	Monitoring to ensure mitigation effective
Bats (roosting)	Construction	County	Offset distance of 10m from woodland.	Incidental injury and mortality	Pre-construction surveys of any trees to be removed with bat roost potential and if present, apply for and obtain appropriate licence and agree mitigation with Natural England. Provision of bat boxes.	**Not significant**	Monitoring to ensure effectiveness of mitigation.
Water vole and otter	Construction	Local	Minimum of 10m offset distance from	Incidental injury and mortality	Pre-construction surveys.	**Not significant**	N/A

Feature/ matter	Phase	Geographic importance of the feature	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			watercourses where possible. Box culverts and span bridges will be used where possible. New culverts excluding those used within watercourses which infrequently contain water will be designed to be as short as possible. Culvert diameter should be a minimum of 600mm when under 20m in length and a minimum of 900mm when above 20m in length. Riparian vegetation will be included at the culvert inlet and outlet to provide transitional light levels. New culverts, excluding those used within watercourses which infrequently contain water, will have inlets depressed at least 150mm below the watercourse bed, baffles built into the culvert base to limit sediment loss during surcharging and improve the design for fish passage. Pools will be incorporated at culvert outlets to limit scour, dissipate energy and maintain channel stability.		Measures to maintain water quality.		
Humber Estuary SPA/Ramsar site/SSSI ~~site~~	Operation (including maintenance)	International	N/A	Continued loss of foraging habitat	As above – mitigation delivered at construction.	**Not significant**	Monitoring to ensure mitigation effective
Figham Pastures LWS	Operation (including maintenance)	County	N/A	Grassland does not re-establish	Correct long term management and	**Not significant**	Monitoring to ensure grassland re-

Feature/ matter	Phase	Geographic importance of the feature	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
					control injurious weeds if required.		established well with no injurious weeds
Ground nesting birds	Operation (including maintenance)	County	N/A Mitigation delivered at construction	Loss of nesting habitat	None envisaged.	**Significant (beneficial)**	Monitoring to ensure mitigation and long term management effective.
Bats (foraging and commuting)	Operation (including maintenance)	County	Offset distance of 10m from key foraging features such as woodland, hedgerows and watercourses.	Displacement from foraging habitat	Habitat creation for ground nesting and wintering birds will also likely benefit foraging bats.	**Not significant**	Monitoring to ensure effectiveness of mitigation
Humber Estuary SPA/Ramsar site/ SSSI ~~site~~	Decommissioning	International	Pre-decommissioning surveys to avoid disturbing fields with large aggregations wintering birds	Disturbance and displacement of foraging wintering birds	N/A	**Not significant**	No monitoring requirement envisaged
Ground nesting birds	Decommissioning	County	N/A	Loss and displacement from nesting habitat	Avoidance of works during bird breeding season or nesting bird check before works occur. Otherwise, not applicable as land returned to agriculture will be available for ground nesting birds.	**Not significant**	No monitoring requirement envisaged
Bats (foraging and commuting)	Decommissioning	County	N/A	Displacement from foraging habitat	Pre-works surveys, measures to protect bat foraging routes during decommissioning.	**Not significant**	No monitoring requirement envisaged

7.14 References

- **Ref. 7-1:** Conservation of Habitats and Species Regulations 2017. Available online: The Conservation of Habitats and Species Regulations 2017 (legislation.gov.uk)**Ref. 7-2:** The Environment Act (2021) Available online: Environment Act 2021 (legislation.gov.uk)
- **Ref. 7-3:** Defra (2024) *The Statutory Metric: User Guide.* Department for Environment, Food and Rural Affairs. Available online: https://assets.publishing.service.gov.uk/media/65c60e0514b83c000ca715f3/The_Statutory_Biodiversity_Metric_-_User_Guide_.pdf
- **Ref. 7-4:** Wildlife and Countryside Act 1981 (as amended). London: The Stationary office
- **Ref. 7-5:** Countryside and Rights of Way Act 2000. Available online: https://www.legislation.gov.uk/ukpga/2000/37/contents
- **Ref. 7-6:** Natural Environment and Rural Communities Act 2006. (Section 41). London: The Stationary office
- **Ref. 7-7:** The Hedgerows Regulations 1997 Available online: https://www.legislation.gov.uk/uksi/1997/1160/made
- **Ref. 7-8:** The Protection of Badgers Act 1992. Available online: https://www.legislation.gov.uk/ukpga/1992/51/contents
- **Ref. 7-9:**The Wild Mammals (Protection) Act 1996, Section 7. Available online: https://www.legislation.gov.uk/ukpga/1996/3/contents
- **Ref. 7-10:** Invasive Alien Species (Enforcement and Permitting) Order 2019. Available online: https://www.legislation.gov.uk/uksi/2019/527/contents
- **Ref. 7-11:** The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. UK Statutory Instruments 2017 No. 407. London: The Stationary office. Available online: https://www.legislation.gov.uk/uksi/2017/407/contents
- **Ref. 7-12:** Salmon and Freshwater Fisheries Act 1975. London: The Stationary office. Available online: https://www.legislation.gov.uk/ukpga/1975/51#:~:text=1975%20CHAPTER%2051,enactments%20relating%20to%20such%20fisheries.&text=C8Act%20extended%20(1.12.,Water%20Resources%20Act%201991%20(c
- **Ref. 7-13**: The Eels (England and Wales) Regulations 2009. UK Statutory Instruments, 2009 No. 3344, PART 4, Regulation 14. London:

The Stationary office. Available online: https://www.legislation.gov.uk/uksi/2009/3344/regulation/14

- **Ref. 7-14:** Department for Energy Security and Net Zero (2023) (designated in January 2024). Overarching National Policy Statement for Energy (EN-1). Available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- **Ref. 7-15:** Department for Energy Security and Net Zero (2023) (designated in January 2024). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3
- **Ref. 7-16:** Department for Energy Security and Net Zero (2023) (designated in January 2024). National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5
- **Ref. 7-17:** Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework. Available online: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
- **Ref. 7-18:** Government of the United Kingdom (2016) Planning Practice Guidance – Natural Environment. Available online: https://www.gov.uk/guidance/natural-environment
- **Ref. 7-19:** A Green Future: Our 25-year plan to improve the Environment. Available online: https://assets.publishing.service.gov.uk/media/65fd713d65ca2f00117da89e/CD1.H_HM_Government_A_Green_Future_Our_25_Year_Plan_to_Improve_the_Environment.pdf.
- **Ref. 7-20:** Environmental Improvement Plan 2023. First revision of the 25-year Environment Plan. Available online: https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf
- **Ref. 7-21:** East Riding of Yorkshire Council (2016) East Riding Local Plan 2012 – 2029 (adopted April 2016). Available online: https://www.eastriding.gov.uk/planning-permission-and-building-control/planning-policy-and-the-local-plan/east-riding-local-plan/
- **Ref. 7-22:** Chartered Institute of Ecology and Environmental Management (2018) Guidelines for Ecological Impact Assessment in

the UK and Ireland. (version 1.3 updated September 2024). Available online: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf

- **Ref. 7-23:** BSI (2023) BS 42020:2013 British Standard Institution: Biodiversity Code of Practice for Planning and Development
- **Ref. 7-24:** Institute of Estuarine and Coastal Studies (IECS) (2013) Waterbird Disturbance Mitigation Toolkit
- **Ref. 7-25:** Popper, A.N., Hawkins, A.D., Fay, R.R, Mann D.A., Bartol S, Carlson T.J, Coombs S, Ellison, W.T., Gentry R.L, Halvorsen M.B., Lokkeborg S., Rogers P.H., Southall B.L, Zeddies D.G. and Tavolga W.N (2014). *Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI*, ASA S3/SC1.4 TR-2014
- **Ref. 7-26:** Szabadi, K., Kurali, A., Rahman, N., Froidevaux, J., Tinsley, E., Jones, G., Görföl, T., Estók, P., Zsebők, S. (2023). The use of solar farms by bats in mosaic landscapes: Implications for conservation. Global Ecology and Conservation. Available online: https://doi.org/10.1016/j.gecco.2023.e02481
- **Ref. 7-27:** Defra: 'Magic' interactive map Available online: Magic Map Application (defra.gov.uk)
- **Ref. 7-28:** Joint Nature Conservation Committee. Available online: https://sac.jncc.gov.uk/
- **Ref. 7-29:** BRIG. ed. A., Madock (2008) UK Biodiversity Action Plan; Priority Habitat Descriptions, Hedgerows. Biodiversity Reporting and Information Group.
- **Ref. 7-30:** UKHab Ltd (2023). UK Habitat Classification Version 2.01. Available online: https://www.ukhab.org
- **Ref. 7-31:** Natural England (2024) Priority river habitat map. Available online: https://www.data.gov.uk/dataset/20019cdb-9fef-4024-81af-daf1d1b74762/priority-river-habitat-rivers
- **Ref. 7-32:** Natural England (2014) Priority river habitat in England – mapping and targeting measures, Natural England Joint publication JP006. Available online:

https://publications.naturalengland.org.uk/publication/6266338867675136

- **Ref. 7-33:** Defra (2024), Statutory biodiversity metric condition assessments. Available online: Statutory biodiversity metric tools and guides - GOV.UK (www.gov.uk)
- **Ref. 7-34:** BRIG. ed. A., Madock (2011) UK Biodiversity Action Plan; Priority Habitat Descriptions, Rivers. Biodiversity Reporting and Information Group.
- **Ref. 7-35:** Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management, Ampfield. Available online: https://cieem.net/resource/uk-bat-mitigation-guidelines-2023/
- **Ref. 7-36:** National Grid guidance (Development near overhead lines, 2008) Available online: https://www.nationalgrid.com/sites/default/files/documents/Development%20near%20overhead%20lines_0.pdf
- **Ref. 7-37:** Tinsley E., Froidevaux J. S. P., Zsebők S., Szabadi K. L., Jones G. (2023). Renewable energies and biodiversity: Impact of ground-mounted solar photovoltaic sites on bat activity. Journal of Applied Ecology. Published by John Wiley & Sons Ltd on behalf of British Ecological
- **Ref. 7-38:** Russo, D., Cistrone, L., and Jones, G. (2012) Sensory ecology of water detection by bats: a field experiment. PLoS ONatural England. 7(10): e48144
- **Ref. 7-39:** BSI (2009) BS 5228-2:2009 British Standard Institution: Code of Practice for Noise and Vibration Control on Construction and Open Sites
- **Ref. 7-40:** Reason P. and Bentley C (2020) *Noise Impacts on Bats – A Sound Assessment?* In Practice. Chartered Institute of Ecology and Environmental Management. Issue 108 | June 2020.
- **Ref. 7-41:** Entwistle A. C, Harris S., Hutson A. M., Racey P.A, Walsh A., Gibson S.D., Hepburn I. and Johnston J. (2001) *Habitat Management for Bats – A Guide for Land Managers, Land Owners and Their Advisors.* Joint Nature Conservation Committee. Available online: https://data.jncc.gov.uk/data/23745574-3756-40ef-81cd-e6fea30decc0/habitat-management-for-bats.pdf

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