BEACON FEN ENERGY PARK

Planning Inspectorate Reference: EN010151

Chapter 7 – Ecology
Document Reference: 6.2 ES Vol 1, 6.2.7a Chapter 7
October 2025

The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/572) – Regulation 14

Quality information

Prepared by	Checked by	Verified by	Approved by
KS	TB	SR	TB

Revision History

Revision	Revision date	Details	Authorized	Name	Position
2	21/10/25	Update to reflect consultee comments	TB	TB	TD

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7. ECOLOGY

7.1 Introduction

7.1.1 This Chapter reports the assessment of the likely significant effects of the Proposed Development on Ecology. In particular it considers the potential for likely significant effects arising from land take, airborne and waterborne contamination, habitat fragmentation and disturbance.

7.1.2 This Chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the front chapters of this **Environmental Statement (ES) (Chapters 1 – 5)** (**Document Refs: 6.2 ES Vol 1, 6.2.1 through 6.2.5**) and particularly to the description of the Proposed Development in **Chapter 2 (Document Ref: 6.2 ES Vol 1, 6.2.2)**, which includes details about the Site, construction, operation and decommissioning of the Proposed Development, as well as the final chapter, **'Summary of Significant Environmental Effects' (Chapter 19) (Document Ref: 6.2 ES Vol 1, 6.2.19)**. A 'shadow' **Habitats Regulations Assessment (Document Ref: 5.2)** has been prepared to consider whether or not the Proposed Development would cause 'likely significant effects' on Natura 2000 (European) wildlife sites.

7.1.3 For the purposes of this chapter, the 'Site' is the area shown on **Figure 1.2 (Document Ref: 6.4 ES Vol 3, 6.4.2)** and within the Site are distinct areas shown on **Figure 1.3 (Document Ref: 6.4 ES Vol 3, 6.4.3)**: the 'Solar Array Area', where the on-site substation and solar panels are proposed to be located, the 'Bespoke Access Road' and the 'Cable Route Corridor', which is the section of the Site where the cables from the Solar Array Area will connect to the Bicker Fen National Grid Substation (the 'Substation'). Extension of Bicker Fen National Grid Substation will include a new generation bay, a new generation bay control room amid a perimeter access road. Within each new generation bay will be electrical equipment required for connection to the transmission system.

7.1.4 National Grid have requested that there be optionality within the design of the extension to Bicker Fen substation, so the exact location of the extension has not yet been determined.

7.1.5 This chapter is accompanied by the following Technical Appendices (which include full details of survey guidelines followed, survey areas, survey methods and survey dates) **(Document Refs: 6.3 ES Vol 2, 6.3.20 through 6.3.44)**:

- Appendix 7.1 Legislation
- Appendix 7.2 Planning Policy
- Appendix 7.3 Bicker Fen Solar Farm Preliminary Ecological Appraisal
- Appendix 7.4 Bicker Fen Solar Farm Great Crested Newt Habitat Suitability Index and eDNA Report
- Appendix 7.5 Bicker Fen Solar Farm Wintering Bird Report

- Appendix 7.6 Bicker Fen Solar Farm Report on Surveys for Breeding Birds
- Appendix 7.7 Bicker Fen Solar Farm Bat Activity Survey Report
- Appendix 7.8 Bicker Fen Solar Farm Badger Survey Report (Confidential)
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7.1.6 This chapter is supported by the following Figures (**Document Refs: 6.4 ES Vol 3, 6.4.44 through 6.4.47**):

- Figure 7.1 International Sites within 20km of the Site
- Figure 7.2 SSSI within 10km of Site
- Figure 7.3 Local Wildlife Sites within 2km
- Figure 7.4 Ancient Woodland/Priority Habitat within 1km of the Site

7.1.7 Effects on ecological resources from solar energy 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. This biodiversity chapter is therefore supported by information contained within the following chapters of this Environmental Statement:

- Chapter 6: Landscape and Visual (**Document Ref: 6.2 ES Vol 1, 6.2.6**)
- Chapter 10: Noise and Vibration (**Document Ref: 6.2 ES Vol 1, 6.2.10**)
- Chapter 11: Water Resources and Flood Risk (**Document Ref: 6.2 ES Vol 1, 6.2.11**)

- Chapter 12: Climate Change (**Document Ref: 6.2 ES Vol 1, 6.2.12**)
- Chapter 16: Air Quality (**Document Ref: 6.2 ES Vol 1, 6.2.16**)
- Chapter 17: Summary of Environmental Effects (**Document Ref: 6.2 ES Vol 1, 6.2.17**)

7.1.8 The Technical Appendix for badger survey results **Appendix 7.8 Bicker Fen Solar Farm Badger Survey Report (Document Ref: 6.3 ES Vol 2, 6.3.27)** is not included in full within this ES chapter, owing to the sensitivities of detailing information on the location of Badger setts. Any information, survey results and reports will be provided confidentially to key stakeholders.

7.1.9 This Chapter is supported by **Appendix 2.4 Outline Construction Environmental Management Plan** (**OCEMP**) (**Document Ref: 6.3 ES Vol 2, 6.3.7)**, produced to manage potential environmental effects associated with the Proposed Development and to comply with environmental legislation.

7.1.10 This Chapter is also supported by **Appendix 6.7 Outline Landscape and Ecology Management Plan (OLEMP) (Document Ref: 6.3 ES Vol 2, 6.3.19)**, produced to ensure the proposed development delivers long term biodiversity compensation and enhancement.

7.2 Legislation and Policy

7.2.1 The legislation and policy considered relevant to the assessment of Ecology are listed below, with further details provided in **Appendices 7.1 and 7.2 (Document Refs: 6.3 ES Vol 2, 6.3.20 and 6.3.21).**

Legislative Framework

7.2.2 The applicable legislation includes:

- The Environment Act 2021;
- Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations');
- Natural Environment and Rural Communities Act 2006 (the 'NERC Act');
- Countryside and Rights of Way Act 2000 (the 'CRoW Act');
- The Hedgerows Regulations 1997 (the 'Hedgerow Regulations');
- Protection of Badgers Act 1992 (the 'Protection of Badgers Act');
- Wildlife and Countryside Act 1981 (as amended) (the 'WCA');
- The European Union (EU) Water Framework Directive (2000/60/EC) (the 'WFD') as enacted into domestic law by the Water Environment (Water Framework Directive (England and Wales) Regulations 2017;
- Salmon and Freshwater Fisheries Act 1975 and;
- The Eels (England and Wales) Regulations 2009

Planning Policy

7.2.3 The applicable planning policy includes:

- Overarching National Policy Statement for Energy (EN-1) (November 2023);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023);
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023);
- National Planning Policy Framework (NPPF) 2024;
- South East Lincolnshire Local Plan 2011 to 2036 (adopted 2019); and
- Central Lincolnshire Local Plan (adopted 2023).

7.3 Consultation & Scope of Assessment

Consultation Undertaken to Date

7.3.1 Consultation has been ongoing throughout the preparation of the DCO application; it can broadly be divided into the following key stages:

- EIA Scoping;
- Non-Statutory Consultation (May and June 2023);
- Statutory Consultation (January to March 2024); and
- Two rounds of targeted consultation (first March 2024, second December 2024 and January 2025).

7.3.2 Table 7.1 provides a summary of the consultation activities undertaken in support of the preparation of this Chapter.

Table 7.1– Summary of Consultation Undertaken to Date

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
EIA Scoping				
PINS	May 2023	Scoping Report	Consider potential effects beyond 20km, especially for wildlife sites designated for mobile fauna species. Agree the study area(s) with relevant consultation bodies.	Noted; as per Charted Institute of Ecology and Environmental Management (CIEEM) 2018 the Zone of Influence (ZOI) has/ been reviewed throughout the EIA process. Twenty kilometres was chosen as a reasonably large distance for birds to travel from coastal Special Protection Area (SPA) to their inland foraging grounds. The study area was not considered likely to be of significant value to migrating bats. Survey methods and study areas have been agreed with Natural England.
PINS	May 2023	Scoping Report	Matters may be subsequently scoped out if further evidence provided to justify approach. Any subsequent refinement of scope to be agreed with relevant consultation bodies in writing, with evidence and a clear justification.	Noted; the scope of survey work has not deviated from the scoping report.
PINS	May 2023	Scoping Report	Sufficient justification, supported by evidence and agreement from	This process has been adopted within the ES chapter. All ecological features likely to be impacted by the development

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			statutory consultees required to scope out specific features from the assessment.	have been scoped into the baseline for survey. Where baseline surveys found that the feature is of negligible importance it not considered further for (i.e. scoped out of) impact assessment within the ES.
PINS	May 2023	Scoping Report	Consider potential for development site to provide functionally linked land for bird species associated with the Wash SPA and Ramsar sites.	Further bird surveys have been undertaken to assess the species using the Site, see **Appendices 7.17 and 7.22 (Document Ref: 6.3 ES Vol 2, 6.3.36 and 6.3.44)** as summarised in Section 7.5.47 and Section 7.5.48. The potential for the Site to be functionally linked and further mitigation has been included in the Appropriate Assessment, see separate **Habitat Regulations Assessment (HRA)** report (**Document ref 5.2**).
PINS	May 2023	Scoping Report	Data relating to presence and locations of 'sensitive' species that could then be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication to be provided as a confidential annex.	Confidential annexes are clearly defined and will be provided where appropriate. The ES Ecology chapter contains details on sensitive species and as such as version of the ES without this information has been made for viewing by the general public.
Lincolnshire County Council (LCC)	May 2023	Scoping opinion	Agreed in scoping response that ecology should be scoped in.	Noted.
Natural England	May 2023	Scoping opinion	Air Quality impacts on Sites of Special Scientific Interest SSSIs to be considered.	Impacts during construction and decommissioning have been considered (see Section 7.6.34 and 7.6.79).
Natural England	May 2023	Scoping opinion	Consideration of habitat/protecte d species be at	Assessment has reviewed the local populations. A review of cumulative schemes and the impact on the habitats and

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			the landscape scale.	protected species on a wider scale is given in Section 7.10.
Natural England	May 2023	Scoping opinion	Consideration should be made of impacts on ground nesting birds due to land take.	Impacts are discussed on ground nesting birds during construction and will continue to be considered with relevant stakeholders to provide suitable mitigation areas.
Natural England	May 2023	Scoping opinion	Biodiversity Net Gain (BNG) assessment and habitat management plan to be written (including retained / enhanced features).	A **BNG Strategy (Document Ref: 7.3)** has been produced and habitat management and monitoring plan will be produced as part of the DCO application.
Environment Agency	May 2023	Scoping opinion	Further detail of likely impacts on watercourse effects and species that use them.	This has been considered for the watercourses and species they support including invertebrate assemblage and riparian mammals (see Section 7.6 for construction impacts and see **Appendices 7.9 and 7.14 (Document Refs: 6.3 ES Vol 2, 6.3.28 and 6.3.33)** for further detail on associated species).
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Effects of large-scale habitat change could be significant for the species reliant on arable habitats and associated cultivation regimes (e.g. breeding and wintering birds, and scarce arable flora).	Impacts on species reliant on arable land have been considered in Section 7.6. See **Appendices 7.11 and 7.15 (Document Refs: 6.3 ES Vol 2, 6.3.30 and 6.3.34)** for botanical survey results.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Applicant to ensure all woodland in zone of influence to be suitably assessed to demonstrate the absence of ancient woodland.	Noted that ancient woodland (AW) may not be marked. Note that the Fenlands are less likely to have supported woodland prior to being drained around the 1630s. Therefore as AW is defined as woodland that has persisted since 1600 AW is less likely to be present.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Woodland, hedgerow and ditch habitat	Botanical condition assessments form part of **BNG Strategy** which can be found as a

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			surveys required, with Site Condition Assessment of habitats for BNG.	separate document **(Document Ref: 7.3).**
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Require agreement on survey area for badgers.	Badger bait marking has been carried out within the Solar Array Area. This has been limited to the red line boundary due to access as summarised in the confidential badger section and full details provided in **Appendix 7.8 (Document Ref: 6.3 ES Vol 2, 6.3.27)**. A badger walkover survey was also undertaken for the Cable Route Corridor and Bespoke Access Corridor, and within 50m as summarised in the confidential badger section and full details provided in **Appendix 7.20 (Document Ref: 6.3 ES Vol 2, 6.3.42)**.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Opportunities to link or extend existing habitats of higher biodiversity value should be explored; focus on woodland and scrub, meadow, pond and wetland.	Ecological corridors have been included as enhancement see Section 7.8. These have been guided by reference to Natural England's National Character Areas.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Decommissioning impacts to include impacts on enhanced / created habitats.	This has been considered, noting that in the absence of the Proposed Developments the enhanced and created habitats would be unlikely to exist (i.e. the land would remain arable land).
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	NKDC advise a Local Ecological Network, Biodiversity Opportunity and Green Infrastructure Mapping, along with the Local Nature Recovery Strategy, are available to guide habitat enhancements including for and	Throughout the DCO process, this information has been reviewed, noting the historic land use. The **BNG strategy (Document Ref: 7:3)** has drawn upon the Biodiversity Opportunity and Green Infrastructure Mapping, Natural England's National Character Areas (South Lincolnshire Edge and The Fens), as well as the emerging Lincolnshire Local Nature Recovery Strategy.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			should be used when formulating BNG.	
Forestry Commission	May 2023	Scoping opinion	Recommend enhancing existing woodland and planting to increase woodland blocks to at least 5 ha.	Woodlands on Site will be enhanced through management to open the canopies, and encourage a shrub layer and ground flora; see Section 7.8. and will be included as part of the **BNG Strategy** uplift (**Document ref 7.3**).
Burton Pedwardine & Burton Gorse Village	May 2023	Scoping meeting	Deer impacts of solar farms / excluding them from areas.	With regards to development deer are only protected from unnecessary suffering, Wild Mammals (Protection) Act 1996; there is no requirement to allow deer species to access all areas of the Site. The Fences will allow deer to move through the centre of the Site as well as buffer fields where habitat enhancements will provided a long term source of food. The placement of appropriate fencing is included as embedded mitigation, as it will protect wildlife using the Site (e.g. ground nesting birds), see Section 0.
Non-Statutory Consultation				
Lincolnshire Wildlife Trust	March 2024	Non-Statutory Consultation	The upcoming Biodiversity Net Gain assessment should explore ways in which ecological enhancements can be maximised for the site with particular attention paid to the 'additionality' pillar of the metric.	In line with the BNG principles, the BNG benefits are maximised. New 'additional' habitats include species rich and floodplain meadows. These habitats recreate a more natural state of the Site and ultimately will provide more value to wildlife. This will be detailed in the **BNG strategy** (**Document ref 7.3**).
Lincolnshire Wildlife Trust	March 2024	Non-Statutory Consultation	One key area of focus for Lincolnshire Wildlife Trust is the stark decline in ground-nesting birds (GNB) and want to see	On Site mitigation is provided where buffer areas are outlined.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			applicants for solar developments make significant efforts to mitigate for any and all losses in breeding territories.	
Lincolnshire Wildlife Trust	March 2024	Non-Statutory Consultation	LWT strongly encourage the exploration of measures to enhance habitat connectivity with ditch enhancement measures. Additionally, hedgerow enhancement connecting the fragmented patches of woodland would be beneficial for habitat connectivity.	Hedgerows and ditches will be enhanced to provide wildlife corridors and improve the connectivity of habitats as shown in Section 7.8.
Ministry Of Defence (MOD)– Defence Estates	March 2023	Non-Statutory Consultation	The principal concern of the MOD is with the creation of new habitats which may attract and support populations of large and, or flocking birds close to an aerodrome.	The majority of habitats proposed on Site are not suitable for flocking/ large bird species. One small lagoon is proposed within the BESS area, for firewater storage, but given the lack of suitable habitat and size of the waterbody, it is not considered likely to attract flocking birds.
Statutory Consultation				
Anglian Water	February 2024	Statutory consultation	Anglian Water advise that the project liaise with the Lincolnshire NEP to identify priority habitats and species which are likely to be included in the Local Nature Recovery Strategies.	Meetings with Lincolnshire NEP have taken place to further discuss the potential biodiversity opportunities on Site in line with local objectives.
Lincolnshire County Council (LCC)	March 2024	Statutory consultation	LCC notes that the Applicant has scoped the	An approach has been agreed with Natural England that the threshold for considering impact

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			development site out as Functionally Linked Land for wintering bird species from the Wash SPA as less than 2% of qualifying bird species populations have been recorded using the development site. LCC recommends seeking confirmation of this approach from Natural England.	was 1% of the population of SPA site qualifying species, Two Gadwall were found on Site compared to a five-year mean for The Wash of 176. Therefore impacts on the SPA are included in sections 7.6.27 to 7.6.29and Gadwall are considered in the Appropriate Assessment, see standalone **HRA (Document Ref: 5.2).**
Lincolnshire County Council (LCC)	March 2024	Statutory consultation	LCC notes that the information provided to date covers the land required for the energy park but does not comprehensively cover the full extent of the development boundary.	A full suite of biodiversity baseline surveys has been undertaken for areas such as the Cable Route Corridor, Bespoke Access Corridor and Substation which fall outside of the main Solar Array Area. The results, potential impacts and mitigation for these areas are outlined in this Chapter.
Lincolnshire County Council (LCC)	March 2024	Statutory consultation	LCC advises that Biodiversity Opportunity Mapping has been produced by the Greater Lincolnshire Nature Partnership and a Local Nature Recovery Strategy for Greater Lincolnshire is currently being developed. These documents will provide useful guidance when considering the design of new	These sources have been checked along with further consultation with relevant statutory bodies to ensure the most suitable habitat is incorporated into the design as part of the BNG process and managed appropriately as set out in the **BNG strategy (Document Ref: 7.3)**.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			habitats as part of BNG.	
Lincolnshire County Council (LCC)	March 2024	Statutory consultation	LCC welcomes the Applicant's commitment to the provision of skylark plots to mitigate for loss of nesting opportunities for species which prefer open nesting areas.	Noted.
Lincolnshire County Council	March 2024	Statutory consultation	LCC agrees with the findings of the survey works and suggested additional work. Given the detection of GCN (great crested newt) eDNA in 3 waterbodies on the site and the legally protected status of the species, LCC agrees that GCN for further assessment is required to determine population sizes and to inform compensation /mitigation requirements.	Further surveys have taken place on waterbodies within the ZoI. See Section 7.5.37 and **Appendix 7.12 (Document Ref: 6.3 ES Vol 2, 6.3.31)**. for further details. Meetings with Natural England have concluded the requirement for a draft licence and letter of no impediment alongside population assessments of positive waterbodies. The draft licence application and discussions with Natural England will take place following submission of this Environmental Statement. Specific mitigation and enhancement will be further established and confirmed as part of the Natural England licence process.
Lincolnshire County Council	March 2024	Statutory consultation	LCC advises that comprehensive, appropriately timed botanical surveys are required to identify the presence of any scarce plant species occurring on the site. This will be particularly important to inform the calculation of baseline	Botanical surveys have been carried out on the Solar Array Area, as shown in **Appendix 7.11 (Document Ref: 6.3 ES Vol 2, 6.3.30)**. Further botanical surveys were undertaken in 2024 of key habitats within the Bespoke Access Road and Cable Corridor Route as shown in **Appendix 7.15 (Document Ref: 6.3 ES Vol 2, 6.3.34).** All botanical surveys were undertaken at an appropriate time and recorded detailed information to inform BNG calculations.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			Biodiversity Units and eventual BNG.	
Lincolnshire County Council	March 2024	Statutory consultation	LCC notes that the Applicant proposes grubbing up existing hedgerows, temporarily planting elsewhere, and then replanting after construction. LCC is sceptical of the likely success of the replanting and is of the opinion that replanting new hedgerows of local provenance native species is likely to achieve better long-term results as well as potentially being more cost-effective.	Proposed plans for enhancing hedgerows on Site are provided in Section 7.6.26. Sections of new species rich hedgerows, including species of local provenance are included, see Section 7.8. Habitat management and monitoring is a requirement of successful BNG and therefore new and enhanced hedgerows will be monitored throughout occupation.
Lincolnshire County Council	March 2024	Statutory consultation	LCC advises that ancient woodland data for the county is currently being updated by the Greater Lincolnshire Nature Partnership. The Applicant should ensure that the most up to date information is being used to assess impacts.	Data has been checked from the greater Lincolnshire data partnership, Lincolnshire Environmental Records Centre and MAGIC maps. Relevant information included in this Chapter.
Natural England	March 2024	Statutory consultation	Whilst the site may not be Functionally Linked to the SPA, the survey results indicate there is still a significant population of wintering birds	An Appropriate Assessment has been completed as part of the **HRA (Document Ref: 5.2)** (to be reviewed by Natural England). Wintering bird surveys have been undertaken for the Solar Array Area and the Cable Route Corridor/Bespoke Access Road see Section 7.5.44, **Appendix 7.17 (Document Ref:**

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			using the site; regardless of the conclusion with regard to the SPA Natural England would anticipate mitigation & enhancement to be put in place for impacts to any wider environment birds.	**6.3 ES Vol 2, 6.3.36)**. Mitigation for impacts to wintering birds are included.
Natural England	March 2024	Statutory consultation	Natural England recommend using their Pre-Submission Screening Service, if the protected species surveys reveal the need for a licence.	During further Discretionary Advice Service meetings, the need for draft licences was discussed. A draft licence for great crested newts will be submitted to Natural England supplemented with further population surveys.
Natural England	March 2024	Statutory consultation	Natural England advises that no reference to ancient or veteran trees has been provided in the Ecology Chapter of the PEIR. Ancient and veteran trees should be considered in line with NE & FC's standing advice. We would also recommend that where any ancient/veteran trees or ancient woodland are in proximity to construction works, in particular any construction compounds, measures such as dust suppression should be considered to	A small number of ancient/veteran trees have been found on Site during the **Appendix 6.6, the Arboricultural Impact Assessment (Document Ref: 6.3 ES Vol 2, 6.3.18**). These trees are all due to be retained post development. Further details including the locations of trees, root protection areas and precautionary mitigation are outlined within arboricultural impact assessment. Impacts related to dust suppression and measures to mitigate for this are outlined within **Chapter 16 Air Quality (Document Ref: 6.2 ES Vol 1, 6.2.16)**.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			avoid any potential smothering and/or other indirect effects to this irreplaceable habitat.	
Natural England	March 2024	Statutory consultation	Natural England advises that the Statutory Biodiversity Metric is used throughout the project to quantify the benefit of the project to overall biodiversity.	The Statutory Biodiversity Metric will be used as part of a comprehensive BNG assessment as detailed in the standalone **BNG Strategy (Document Ref: 7.3).**
Natural England	March 2024	Statutory consultation	Natural England recommends that connectivity of existing and created habitats is made a key consideration for the biodiversity design of the project.	Key ecological corridors have been highlighted in discussions with the LPA. These corridors have been included as part of the biodiversity opportunity plan and incorporated into **Figure 6.31 Landscape Strategy Plan (Document Ref: 6.4: ES Vol 3, 6.4.42).** These enhancements required to establish the ecological corridors is included in Section 7.8.
Natural England	March 2024	Statutory consultation	NE advises that may be opportunity to develop increased understanding of, or association with, the development where routes with visual access into the development site are retained. This includes the provision and enhancement of public right of way.	The final Site is to include a permissive path. This will be linked with ecological corridors as outlined in the Biodiversity Opportunities Plan and detailed in Section 7.8. Along the permissive walkway the Applicant will erect information boards to provide the public with information on local wildlife.
Environment Agency (EA)	March 2024	Statutory consultation	EA advises that impacts on fish	Fisheries data provided in the data search is included in

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			(particularly eels) have not been included within the ecological assessment.	Section 7.5.65. Impacts to fish and eels have been addressed in the embedded mitigation detailed in Section 7.5.66.
Environment Agency (EA)	March 2024	Statutory consultation	EA advises that there is not an appropriate buffer for the riparian zone and as a result it will result in increased risk to protected species.	The buffer zone throughout the embedded mitigation of the Solar Array Area has been extended to at least 5 m (see Section 7.6.4). This is in line with the Water Vole Mitigation Handbook.
Environment Agency (EA)	March 2024	Statutory consultation	EA advises that the current strategy to remediate the site is not appropriate - the proposal to remediate the site back to arable land does not take into account biodiversity enhancements created by the development.	It is anticipated that some areas of proposed ecological enhancements (see Section 7.8) which connects or improves habitat such as watercourses, waterbodies, woodland and hedgerows will remain post development. As such the Site will have higher biodiversity value than if the Site was not developed.
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Advise that robust data collected using standard hedgerow survey methods is necessary to classify hedgerows for BNG purposes.	Hedgerows with the Solar Array Area have been surveyed in order to provide enough information to correctly classify the hedgerows for the BNG assessment, see the standalone **BNG Strategy (Document Ref: 7.3).** On the Cable Route Corridor and Bespoke Access Corridor an initial Phase 1 Habitat survey has been undertaken which maps the hedgerows see **Appendix 7.20 (Document Ref: 6.3 ES Vol 2, 6.3.42)**. A more detailed botanical and hedgerow survey has been undertaken in the correct season see **Appendix 7.15 (Document Ref: 6.3 ES Vol 2, 6.3.34).**
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Scarce arable flora surveys should be undertaken.	Scarce arable flora was covered during the botanical surveys undertaken in July 2023, see **Appendix 7.11(Document Ref: 6.3 ES Vol 2, 6.3.30)**. Scarce

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
				arable flora was also be assessed on the Bespoke Access Corridor and Cable Route Corridor in the appropriate season of 2024, see **Appendix 7.15 (Document Ref: 6.3 ES Vol 2, 6.3.34).**
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Surveys for aquatic ecology could be required. Aquatic plant and invertebrate surveys may be appropriate to define and evidence the nature conservation value of impacted watercourses, to understand the impact on the relevant designations, and to identify invasive non-native species that could be spread by works.	Invertebrate surveys took place in the summer of 2024. Assemblages of terrestrial invertebrates using features such as watercourses have been recorded, and impacts assessed, see Section 7.5.31 **Appendix 7.14 (Document Ref: 6.3 ES Vol 2, 6.3.33)**. Aquatic plants supported by the ditches on the Access Route Corridor and Cable Route Corridor have been included in the botanical survey which was undertaken in June 2024, see **Appendix 7.15 (Document Ref: 6.3 ES Vol 2, 6.3.34**).
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	For the breeding bird surveys. Only four of the six survey visits was within the survey period for quail (mid-May to end of July), a Schedule 1 and Endangered bird species. Consistent with the preceding solar projects in the District, quail is a relevant consideration that needs further attention.	Breeding bird surveys undertaken in 2024 included six survey visits within the appropriate season for quail. See Section 7.5.48 and **Appendix 7.22 (Document Ref: 6.3 ES Vol 2, 6.3.44).** The mitigation within Section 7.7 of this Chapter describes how potential effects on quail are mitigated.
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Chapter 7 commits to provision of BNG. This	The Statutory Biodiversity Metric is issued as part of a comprehensive BNG assessment as detailed in the

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			assessment should align with current good practice for Statutory BNG even if the scheme is not otherwise subject to the statutory regime.	**BNG Strategy (Document Ref: 7.3)**. Good Practice guidelines for BNG were followed throughout and will continue to be implemented throughout the Access Route Corridor and Cable Route Corridor BNG updates.
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Valuation of bird assemblages and species should be undertaken in accordance with CIEEM methods. Reliance on the very old Fuller (1980) approach is not sufficient and ideally should be avoided entirely.	Fuller (1980) in accordance with the most recent CIEEM good practice guidelines were used for valuation of bird species. Geographical levels of importance been adapted to update the conservation categories. This is in order to reflect the significant declines in many bird populations since the Fuller criteria were created see **Appendices 7.5, 7.6, 7.17 and 7.22 (Document Refs: 6.3: ES Vol 2, 6.3.24, 6.3.25, 6.3.36, and 6.3.34).**
AECOM on behalf of North Kesteven District Council	March 2024	Statutory consultation	Valuation of ecological receptors needs to be evidence based. There needs to be further evidence to support, for example, the valuation of watercourses.	The valuation of ecological receptors has been updated to include further evidence. Justification of the valuation is given in Section 7.6, and summarised in Table 7.7
Direct Topic-Specific Consultation				
Lincolnshire Wildlife Trust (LWT)	October 2023	Workshop	Roundtable discussions between various stakeholders covering general constraints and opportunities with solar farms in Lincolnshire.	LWT to produce a report on the findings of the meeting, at the time of submission the final output has not been received. Recommendations provided will be reviewed throughout the DCO process.

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
Natural England (NE) DAS Meeting	May 2024	Virtual meeting	Introductory meeting to discuss upcoming surveys of Bespoke Access Road and Cable Route Corridor.	Methods agreed suitable with Natural England and further meetings were scheduled.
Natural England DAS Meeting	September 2024	Virtual meeting	NE confirmed that a draft licence would be required for great crested newts.	A draft licence for great crested newts will be produced and will be submitted to NE.
Natural England DAS Meeting	September 2024	Virtual meeting	NE confirmed that for bird species associated with the designations of the SPA, a full assessment and mitigation will be required in the HRA, to be reviewed by NE before full submission.	The **HRA (Document Ref: 5.2)** includes assessment on birds which are the qualifying feature of the Wash and this assessment and is due to be reviewed by Natural England.

Scope of the Assessment

7.3.3 The method for determining the scope of the assessment within the Ecological Impact Assessment (EcIA) differs from that used in other technical chapters within this EIA to correspond with topic specific guidance (i.e. CIEEM 2018). This includes the concept of Zone of Influence (ZoI), which in this chapter is used to support the determination of the scope of the assessment as the second stage of the assessment (i.e. identification of important ecological features), as opposed to being a mechanism for identifying receptors (as it is in other chapters). This chapter uses a geographical context for importance (see Table 7.2) as opposed to the Sensitivity of Receptor (see Table 4.1, **Chapter 4 Document Ref: 6.2 ES Vol 1, 6.2.4**).

7.3.4 The relevant receptors (i.e. ecological features), the spatial and the temporal scope are all defined in this section. The chapter will seek to:

- Determine the importance of identified ecological features at a legislation and policy level;

- Determine the importance of identified ecological features at the level of the Proposed Development and use this determination as a first step in scoping in/out ecological features;
- Determine the broad potential effects that could occur as part of the project – the chapter then determines which of the ecological features present could be affected and whether or not the potentially significant effects as assessed to become likely significant effects;
- Determine the ZoI for each ecological feature and scope out those where there is no overlap (based on survey and desk study data) or where the area of feature overlapping is sufficiently small;
- Determine whether the potential effects for ecological features remaining under consideration could result in significant effects when project design and typical construction practice (e.g. pollution prevention measures) are implemented; and
- Describe whether any of the likely significant effects are temporarily restricted (e.g. will occur during construction only).

Ecological Features Importance

7.3.5 For this assessment, the first stage in determining the scope of the assessment is to identify which ecological features identified through the desk study and field surveys are 'important' in the context of the Proposed Development. Following CIEEM (2018) guidance, the importance of ecological features is first determined with reference to UK legislation and policy (see Table 7.2) and then with regard to the extent of habitat or size of population that may be affected by the Proposed Development.

Table 7.2 – Importance of Ecological Features with regard to Legislation and Policy

GEOGRAPHIC CONTEXT OF IMPORTANCE	EXAMPLE/DESCRIPTION
International or European	1. European sites including Special Protection Areas (SPA), Special Areas of Conservation (SAC), candidate SACs and Sites of Community Importance (SCI). Potential SPAs (pSPA), possible SACs (pSACs), Ramsar sites (designated under international convention) and proposed Ramsar sites should also be considered in the same manner in accordance with national planning policy. 2. Areas of habitat or populations of species that meet the published selection criteria based on discussions with Natural England and field data collected to inform the EcIA for designation as a European site or Ramsar site, but which are not themselves currently designated at this level.
National	1. Nationally designated sites including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNRs). 2. Areas (and the populations of species that inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs, but which are not themselves designated based on field data collected to inform the EcIA, and in agreement with Natural England. 3. Habitats of Principal Importance (HPI) and Species of Principal Importance (SPI), Red listed and legally protected species that are not addressed directly in Part 2 of the "Guidelines for Selection of Biological SSSIs" but can be determined to be of national importance using the principles described in Part 1 of the guidance.

GEOGRAPHIC CONTEXT OF IMPORTANCE	EXAMPLE/DESCRIPTION
	4. Areas of Ancient Woodland (e.g. woodland listed within the Ancient Woodland Inventory) and ancient and veteran trees.
Regional (East Midlands)	1. Regularly occurring HPI and populations of SPI, Red listed, and legally protected species may be of regional importance in the context of published information on population size and distribution.
County (Lincolnshire)	1. Local Nature Reserves (LNR) and non-statutory designated sites (i.e. Local Wildlife Sites (LWS)). 2. Areas which based on field data collected to inform the EcIA meet the published selection criteria for those sites listed above for habitats or species, including those listed in relevant Local Biodiversity Action Plans (LBAP), but which are not themselves designated.
Local	1. HPI and SPI, Red listed and legally protected species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above. 2. Common and widespread semi-natural habitats occurring within the study area in proportions greater than may be expected in the local context. 3. Common and widespread native species occurring within the study area in numbers greater than may be expected in the local context.
Negligible	1. Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area. 2. Areas of heavily modified or managed land uses (e.g. hard standing used for car parking, as roads etc.)

7.3.6 As the importance of ecological features is determined with regard to the extent of habitat or size of population that may be affected by the Proposed Development, status can differ from that which would be conferred by legislative protection or identification as a conservation notable species. For example, house sparrow *Passer domesticus* is important at a national level because it is a Species of Principal Importance (SPI) and features on the Birds of Conservation Concern (BoCC) red list. However, a small population that could be affected by a development would be assessed as being of less than national importance due to the large, albeit declining, national population (more than 5 million pairs). Similarly, a small length of hedgerow, a Habitat of Principal Importance (HPI), even if deemed to be 'important' with regard to the Hedgerow Regulations may be considered to be 'less than of national importance' due to the extent of this habitat type across a given county.

7.3.7 Wherever possible, information regarding the extent and population size, population trends and distribution of the ecological features has been used to inform the categorisation described in Table 7.7 to determine importance at the project level. Where detailed criteria or contextual data are not available, professional judgement was used to determine importance.

7.3.8 Where protected species are present and there is the potential for a breach of the legislation, those species should always be considered as 'important' features.

7.3.9 All legally protected species and ecological features that are of sufficient importance have been taken through to the next stage of the scoping assessment.

Spatial Scope

7.3.10 The construction, operation and decommissioning phases of the Proposed Development may result in the following environmental changes that could result in significant effects upon ecological features / receptors:

- Land take / land use change;
- Increased disturbance (e.g. from increased light, noise and vibration levels);
- Habitat fragmentation; and
- Exposure to contamination (i.e. via direct contact, air or water).

7.3.11 Key to establishing which environmental changes may result in likely significant effects, is the determination of a ZoI for each important ecological feature identified. The ZoI differs depending on the type of environmental change (i.e. the change from the existing baseline) as a result of the Proposed Development and the ecological feature being considered.

7.3.12 The most straightforward ZoI to define is the area affected by land take and direct landcover changes associated with the Proposed Development. This ZoI is the same for all affected ecological features.

7.3.13 By contrast, for each environmental change that can extend beyond the area affected by land take and landcover change (e.g. increased noise associated with construction activities within the land take area), the ZoI may vary between ecological features, depending upon their sensitivity to the change and the precise nature of the change. For example, a dormouse *Muscardinus avellanarius* might only be disturbed by noise generated very close to its nest, while nesting marsh harrier *Circus aeruginosus* might be disturbed by noise generated at a much greater distance, and other species (e.g. many invertebrates) may be unaffected by changes in noise. In view of these complexities, the definition of the ZoI that extends beyond the land take area was based upon professional judgement informed (as far as possible) by a review of published evidence (e.g. disturbance criteria for various species) and discussions with the technical specialists who are working on other chapters of the Environmental Statement.

7.3.14 It should be noted that the avoidance of potentially significant effects through the design process are implicitly considered through the consideration of each ZoI, as are standard construction practices that are commonplace. When scoping in or out ecological features from further assessment, environmental measures (see Section 7.7.3) associated with general good practice that will be described within the **OCEMP (Document Ref 6.3: ES Vol 2, 6.3.7)** for the Proposed Development have been taken in to account (e.g. dust suppression and appropriately scheduled vegetation removal, etc.) and referenced in Section 7.6.4 to 7.6.76 of this Chapter.

7.3.15 Ecological features that are scoped into the assessment (i.e. those of sufficient importance occurring within a relevant ZoI) are summarised in Table 7.7, along with a summary of the justification for inclusion. For each ecological feature scoped into the assessment and identified as a sensitive receptor in Table 7.7,

the potential environmental changes and significant effects resulting from the Proposed Development are assessed.

Temporal Scope

7.3.16 The temporal scope of the assessment is consistent with the period over which the Proposed Development would be carried out and, therefore, covers the construction, operational and decommissioning phases. The timescales of these phases are outlined in **Chapter 2 (Document Ref: 6.2: ES Vol 1, 6.2.2)** (Sections 2.15.2-2.15.7).

7.3.17 The environmental changes can occur during the construction phase, operational phase, decommissioning phase or all phases of the Proposed Development. For the purposes of the assessment, all land take is assumed to take place in the construction phase. The effects of the environmental changes are considered with respect to their duration, frequency, timing and reversibility for each of the scoped in ecological features in Table 7.7.

Effects not considered within the impact assessment

7.3.18 Following the conclusion of the baseline surveys, and with the exception of such species receiving specific legal protection or those subject to legal control (e.g. invasive species), all ecological features that were determined to be important at a negligible level, have not been considered for further impact assessment (i.e. *scoped out* of further assessment). Further, ecological features of local importance, where there was a specific technical justification, have also been scoped out. This is because any potential impacts would not influence the decision-making about whether or not consent should be granted for the Project (in other words a significant effect in EIA terms would not occur). This approach is consistent with that described in CIEEM EcIA guidelines 2018 which states:

It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable.

Limitations & Exclusions

7.3.19 Specific assumptions and limitations for each survey, along with how these were addressed, are detailed in the technical reports found in **Appendices 7.1 to 7.22** of this Chapter of the ES **(Document Refs: 6.3: ES Vol 2, 6.3.20 through 6.3.44)**. The surveys did not encounter any significant constraints that would limit the data or create gaps. The established baseline is therefore reliable.

7.4 Assessment Methodology & Significance Criteria

Extent of the Study Area

7.4.1 The study area encompasses the area over which all desk-based and field data have been or will be undertaken to inform the assessment. Owing to the presence of multiple ecological features and many potential effects, the level and type of data collection varies across the study area. The 'study area' comprises:

- Land within the Order Limits (the 'Site');
- The desk study area for European sites;
- The desk study area for legally protected and notable ecological features; and
- The field survey area(s).

7.4.2 The extent of the desk study area(s) (see Table 7.3) were determined based on best practice guidance and a high-level overview of the types of ecological features present, and the potential effects that could occur (see Figures 7.1-7.4). This then enabled the identification of specific areas which required ecological survey (termed field survey areas hereafter where referring to areas within which ecological surveys were undertaken).

7.4.3 In line with comments received from Natural England (in response to the PEIR) the study areas were defined on a precautionary basis to ensure that, as a minimum, the ZoI relevant to all ecological features are covered during baseline data collection activities.

Table 7.3 – Information Relevant to the Desk Study

ECOLOGICAL FEATURE	EXAMPLE / DESCRIPTION	DESK STUDY AREAS
Statutory sites designated under international conventions or European Directives.	Wetlands of International Importance (also known as Ramsar sites), SACs and SPAs.	The Site and within 20 km of it, due to importance and presence of highly mobile species as interest features. This was extended to 30 km for bats.
SSSIs.	SSSIs designated under the WCA for their biodiversity value.	The Site and within 10 km of it, given importance and potential presence of mobile species as interest features.
Other statutory sites designated under national legislation.	NNRs and LNRs.	The Site and within 2 km of it, given importance and potential presence of mobile species as interest features.
Locally designated sites.	In Lincolnshire these are termed as Local Wildlife Sites (LWS).	The Site and within 2 km of it, given importance and presence mobile

ECOLOGICAL FEATURE	EXAMPLE / DESCRIPTION	DESK STUDY AREAS
		species as interest features.
Habitats of Principal Importance (HPI) and Species of Principal importance (SPI), Red-listed species and legally protected species.	HPIs and SPIs, species recorded on The IUCN Red List of Threatened Species and/or local Red Lists for the UK or relevant sub-units (e.g. regions or counties) and legally protected habitats and species include those listed on Schedules 1, 5 and 8 of the WCA, those included on Schedules 2 and 5 of the Habitats Regulations. Badger *Meles meles* and Hedgerows are provided protection under the Protection of Badgers Act and the Hedgerows Regulations, respectively. Fresh water fish and eels are protected under The Salmon and Freshwater Fisheries Act 1975 and The Eel Regulations.	The Site and within 1 km of it, given potential presence of mobile species and their level of importance.
Legally controlled species.	Legally controlled species include those listed on Schedule 9 of the WCA.	The Site and within 2 km of it, given potential mobility and their level of importance.
Bat roosting locations.	Bat roost locations are considered separately from other species records in accordance with guidance.	The Site and within 5 km of it, given mobility of species and their level of importance.
Waterbody locations.	Waterbodies may support species within the groups listed above (e.g. legally protected great crested newts).	The Site and within 0.5 km of it, given typically more limited mobility of species and their level of importance.

Assessment Methodology

General Approach

7.4.4 The generic project-wide approach to the assessment methodology is set out in **Chapter 4 (Document Ref: 6.2 ES Vol 1, 6.1.4)**, specifically Sections 4.4-4.5. However, whilst this has informed the approach that has been used in this biodiversity assessment, it is necessary to align with the standard industry guidance provided by CIEEM (2018).

7.4.5 The assessment has been based upon not only the results of the desk study and field surveys as set out in **Appendices 7.3 to 7.22 (Document Refs: 6.3 ES Vol 2, 6.3.22 through 6.3.44**), but also relevant published information (e.g. on the status, distribution, sensitivity to environmental changes and ecology of the features scoped into the assessment, where this information is available) and professional knowledge of ecological processes and functions.

7.4.6 The spatial extent of the assessment reflects the area occupied by the ecological feature scoped in for assessment (see Table 7.6) and, as a minimum, the ZoI of the changes that are likely to affect it.

7.4.7 Where part of a designated site is located within the ecological ZoI relating to a particular biophysical change as a result of the Proposed Development, an assessment has been made of the effects on the designated site as a whole. A similar approach has been taken for areas of notable habitat.

7.4.8 For species that occur within the ZoI, the assessment has considered the total area that is used by the affected individuals or the local population of the species (e.g. for foraging or as breeding territories).

Relevant Guidance

7.4.9 The applicable guidance is summarised as follows:

- Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine;
- Biodiversity: Code of practice for planning and development published by the British Standards Institution (BS 42020:2013).
- Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, Giulia. (IUCN, 2021)
- Biodiversity Guidance for Solar Developments G E Parker and L Greene (BRE, 2014).

7.4.10 Technical guidance that has been used to define the survey methods used to inform this assessment is referenced in the methods sections of the technical reports in **Appendices 7.3-7.22 (Document Refs: 6.3 ES Vol 2, 6.3.22 through 6.3.44).**

Significance Criteria

7.4.11 The CIEEM (2018) Guidance at paragraph 5.2.4 defines a significant effect as one "*that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general*".

7.4.12 When considering potentially significant effects on ecological features, whether adverse or beneficial, the following characteristics of environmental change are considered:

- Extent - the spatial or geographical area over which the environmental change may occur;
- Magnitude - the size, amount, intensity or volume of the environmental change;
- Duration - the length of time over which the environmental change may occur;
- Frequency - the number of times the environmental change may occur;
- Timing - the periods of the day/year etc. during which an environmental change may occur; and
- Reversibility - whether the environmental change can be reversed through restoration actions.

Magnitude of Change

7.4.13 The characteristics described above are all important in assessing effects by using information about the way in which habitats and species are likely to be affected. The scale for the magnitude of the environmental change (i.e. impact) as a result of the Proposed Development is described within Table 7.4 and will be used to provide an understanding of the relative change from the baseline position.

Table 7.4 – Magnitude of Change

SCALE OF CHANGE	CRITERIA AND RESULTANT EFFECT
High	The change permanently (or over the long-term) affects the conservation status of a habitat/species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource / species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the receptor in the context of the project.
Medium	The change permanently (or over the long term) affects the conservation status of a habitat/species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a change in the level of importance of this receptor in the context of the project.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in any permanent change in the conservation status of the species / habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the receptor in terms of its importance.
Very Low	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/species features or the integrity of designated sites.
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations, or changes that balance each other out over the lifespan of a project and result in a neutral position.

Determining Significance

7.4.14 Adverse effects are assessed as Significant if the favourable conservation status of an ecological feature would be lost as a result of the Proposed Development. Beneficial effects are assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases species diversity, increases the extent of a particular habitat or halts / slows down an existing decline). For a beneficial effect to be Significant, the conservation status would need to positively increase in-line with a magnitude of change of 'High', as described in Table 7.4, above.

7.4.15 Conservation status is defined as follows (as per paragraph 5.3.2 of the 2018 CIEEM guidance):

"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area; and for species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area."

7.4.16 The decision as to whether the conservation status of an ecological feature would alter has been made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.

7.4.17 A similar procedure will be used where designated sites may be affected by the Proposed Development, except that the focus will be on the effects on the integrity of each site, defined as *"The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or the levels of populations of the species for which it was classified"*[1]. The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the site has been designated.

Mitigation Hierarchy

7.4.18 Mitigation measures are dependent upon the ecological features found during the baseline surveys. The following mitigation hierarchy will be adopted:

- Avoid impacts (e.g. move aspects of the Proposed Developments to avoid features entirely);
- Minimise impacts (e.g. reducing the area of land take); and
- Restore after impacts (e.g. restoring a habitat damaged during construction).
- If none of the above can be carried out, compensation (e.g. creating habitat where it was not previously found) will be undertaken.

7.4.19 **Chapter 3** of the ES outlines the alternatives and design evolution (**Document Ref: 6.2 ES Vol 1, 6.2.3**). With regards to ecological impacts the site selection for the Solar Array Area was based upon suitable land for power generation close to a National Grid connection. Once this was established the mitigation hierarchy has been employed for the proposed development including:

- Siting of the panels outside ecological buffer zones following surveys;
- Choice of the Bespoke Access Corridor and Cable Route Corridor to avoid ecological receptors based on a mix of desktop study and field surveys.

7.4.20 Potential impacts on ecological receptors were reviewed alongside other potential environmental impacts to determine the best layout within the Solar Array Area and routes for the corridors.

7.4.21 As much as possible, the Proposed Development design has been guided to avoid ecological impacts. This avoidance is encompassed in the embedded

[1] Guidance on the use of Habitat Regulations Assessment. https://www.gov.uk/guidance/appropriate-assessment

mitigation (Sections 7.6.1 to 7.6.26). The further mitigation described in this Chapter (Sections 7.7.7 to 7.7.16) will focus on minimising, restoring and compensating for impacts that cannot be avoided. Where the design incorporates avoidance of ecological features, this will be identified. The proposed mitigation has been designed to be proportionate to the value of the feature and consequent impacts of the Proposed Development. Where there is uncertainty in the level of effect, a precautionary approach has been taken.

7.5 Baseline Conditions

7.5.1 Establishment of the ecological baseline, within the ZoI, involved reference to existing data sources, consultation with statutory bodies and other relevant organisations, and field surveys.

Desktop Sources Used

7.5.2 The following desktop sources have been used to inform the existing baseline conditions of the study area:

- Multi-Agency Geographic Information for the Countryside (MAGIC maps) to identify the location of designated sites, notable habitats and granted European Protected Species within the vicinity of the Site.
- Satellite imagery was used to assess likely habitat features and areas of further ecological assessment.
- Ordnance survey maps were used initially to assess habitat features such as waterbodies and watercourses
- Lincolnshire Environmental Records Centre (LERC) were contacted to provide information on wildlife data records (including locations and citations of Local Wildlife Sites, records of protected and invasive species within 2km of the Site).
- National Biodiversity Network (NBN) Gateway for information/ records on any protected and/or notable species recorded within 2km of the Site.
- EA Ecology and Fish Data for species records of fish, macroinvertebrate and macrophytes within the vicinity of the Site.

Baseline Surveys

7.5.3 The Preliminary Ecological Appraisal (PEA) consisted of three components:

- The desktop study data review;
- A Phase 1 Habitat survey; and
- A scoping survey for protected species and other species of conservation concern.

7.5.4 Following the PEA, field surveys were then undertaken to characterise the ecological baseline within the relevant Survey Areas. Further details regarding the definition of these Survey Areas and any limitations are presented in the associated technical appendices.

Current Baseline Conditions

7.5.5 The Proposed Development consists of the Solar Array Area, Cable Route Corridor and Bespoke Access Road (a total of 758.5 Ha). The Solar Array Area is 529 ha and covers an agricultural landscape mainly in arable use, with a low number of small woodlands/copses scattered throughout. Ditches and drains subdivide many of the fields and are more common than hedgerows as boundaries. A section of the wide (5-10 m) Car Dyke separates the northern (approximately) two-thirds of the area from the southern third.

7.5.6 The Cable Route Corridor runs approximately 12 km south and east to connect the Solar Array Area to the Bicker Fen Substation. The Cable Route

Corridor is 183 ha. The Cable Route Corridor covers similar arable habitats to the Solar Array Area, crossing the Great Hale Eau LWS and South Forty Foot Drain LWS. There are occasional grazed grass fields and small plantation woodlands. Ditches and drains are the most common boundary with hedgerows present but used less frequently.

7.5.7 The Bespoke Access Road runs 3 km from the A17 heading north-east to the Solar Array Area. The Access Route Corridor is 45.4 Ha and is primarily arable land. A mixture of ditches and hedgerows form the field boundaries.

Sensitive Receptors

Statutory Designated Sites

7.5.8 There are five statutory designated sites present within the desk study area (2 km from the site for NNR and LNR, 10 km for SSSI and 20 km for international sites) (see **Figures 7.1, 7.2 Document Refs: 6.4 ES Vol 3, 6.4.44 and 6.4.45**), Table 7.5).

Table 7.5 –Statutory Designated Sites within 20km of the Site

SITE NAME	IMPORTANCE	SUMMARY FEATURES	DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT
The Wash RAMSAR	International	Designated for its marine habitats and internationally important populations of migratory and overwintering wetland birds.	15 km East
The Wash SPA	International	Designated for its internationally important populations of wetland birds during the breeding season and over winter.	15 km East
The Wash and North Norfolk Coast SAC	International	Designated for its marine habitats along with populations of harbour seal *Phoca vitulina* and otter.	15 km East
Horbling Fen SSSI	National	Designated for geological reasons.	4.1 km South-East
Wilsford & Rauceby Warrens SSSI	National	Designated for limestone grass heath.	7.3km West

7.5.9 There are no NNR or LNR present within 2 km of the Site.

Non-statutory Designated Sites

7.5.10 There are ten LWS present within 2 km of the Site. These are detailed in Table 7.6, below, and illustrated on **Figure 7.3 (Document Ref: 6.4 ES Vol 3, 6.4.46)**.

Table 7.6 – Local Wildlife Sites within 2km of the Site

SITE NAME	SUMMARY FEATURES	DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT
Great Hale Eau	The eastern half or section 1 of the drain has a channel width of approximately 1-2m, with earth banks. The banks of the drain support rank grassland with tall ruderal vegetation. [redacted]	Onsite
South Forty Foot Drain	A long (33 km), wide (10-20m) channel that bisects the cable corridor. The banks are managed as a mixture of grassland and scrub. The water supports a wide variety of aquatic plants. Running through wildlife poor arable landscape into the centre of Boston the LWS forms an important wildlife corridor.	Onsite
Ewerby Pond	A flooded borrow pit bordered by small areas of fen and a hedgerow. The main interest at the site is marginal/fen habitat.	0.6 km North
Old Forty Foot to South Forty Foot Drain	A 0.95km long channel. At the upstream end, the channel is 0.5m wide, dominated by grassy vegetation and almost dry, whereas central and western parts are 2m wide and hold water to a depth of circa 50cm. There is clear water throughout, but with plentiful algae midway along the drain.	0.6 km West
Cobbler's Lock and Reed beds	An area of tall scrubby fen, with some more open areas grading into wet woodland, damp grassland and dry reedbed.	0.75 km North
Broadhurst Drain East	This 0.73km long channel and its banks extends upstream from Old Forty Foot Drain westwards to a hedge around Broadhurst Farm. The downstream end holds shallow, clear water 1.5m across. On the southern drain bank there is botanically rich, open, managed grassland, whereas the unmanaged northern bank is characterised by a denser and longer sward.	0.8 km South
Old Forty Foot Drain	A 1.94km long channel. Botanical interest declines slowly from south to north. The key aquatic species is the globally threatened fine-leaved water-dropwort *Oenanthe aquatica*, which is common south of Little Hale Drove.	1.2 km West
Willow Farm Drain	A 0.5km long channel. Holds water 1-2m wide that looks highly eutrophic. Both banks are botanically poor.	1.5 km West
Beacon Hill Railway Cutting	A railway cutting with a diverse calcareous grassland flora in particular on the south facing slope.	1.5 km South
Mill Drain	The 1m to 2m wide channel of Mill Drain and its banks extends 1.3km upstream from Old Forty Foot Drain in the south-east to near Glebe Farm in the north-west. It is characterised by very shallow, clear water over gravel and supports a range of aquatic and waterside flora. The banks are also of botanical interest.	1.6 km West

Habitats of Principal Importance and Ancient Woodland

7.5.11 Four types of HPI are present within 1 km of the Site. These are listed, below, and illustrated on **Figure 7.4 (Document Ref: 6.4 ES Vol 3, 6.4.47)**:

- Coastal and floodplain grazing marsh;
- Deciduous woodland;

- Traditional orchard; and
- Open mosaic habitat.

7.5.12 One area of 'ancient and semi-natural woodland' is present within 1 km of the Site. This is Old Wood, which is located approximately 0.9 km north-east of the Site (see **Figure 7.4 Document Ref: 6.4 ES Vol 3, 6.4.47**). Ancient woodland is relatively rare in the vicinity of the Order Limits as it is in the region of the Great Fen, which was drained in the 17th Century. Therefore, most woodlands present could only have been planted after this point and are not ancient.

Habitats

7.5.13 **Appendix 7.3 and Appendix 7.20 (Document refs: 6.3 ES Vol 2, 6.3.22 and 6.3.42)** shows the habitats within the Solar Array Area, the Cable Route Corridor, the Bespoke Access Road and Bicker Fen substation.

Broadleaved Woodland

7.5.14 Small areas of woodland containing broadleaved species are scattered throughout the Solar Array Area, Bespoke Access Road and Cable Route Corridor. The majority of these woodlands contain ash *Fraxinus excelsior* as the dominant species in the canopy along with field maple *Acer campestre*, hawthorn, blackthorn *Prunus spinosa* and elder in the understorey. A few woodlands also include oak *Quercus robur*, sycamore *Acer pseudoplatanus* and silver birch *Betula pendula.* Other understory species recorded occasionally include willow *Salix Sp* and bramble *Rubus fructose Agg.* Ground flora in the woodland areas is primarily ground ivy *Glechoma hederacea,* common nettle *Urtica dioica* and hogweed *Heracleum sphondylium.* The woodlands are a mix of semi-natural and recent plantations.

Scrub

7.5.15 There are a number of small areas of dense scrub throughout the Solar Array Area. Throughout the Cable Route Corridor and Solar Array Area there are short lengths of dense scrub bordering field margins, including many areas of dense bramble along with hawthorn and blackthorn. There are smaller patches of dense and scattered scrub within the Bicker Fen substation area at the end of the Cable Route Corridor.

Semi-improved Grassland

7.5.16 There is a small area of semi-improved neutral grassland habitat, with poor semi-improved grassland located within some of the arable fields within the Solar Array Area. The species present include common knapweed *Centaurea nigra*, cowslip *Primula vulgaris*, rough meadowgrass *Poa trivialis*, smooth meadow grass *Poa pratensis*, creeping cinquefoil *Potentilla reptans*, dandelion *Taraxacum officinale* agg., Yorkshire fog *Holcus lanatus* and cock's foot *Dactylis glomerata*.

7.5.17 Field margins have been assessed as part of the botanical assessment (**see Appendices 7.11 and 7.15 Document Refs: 6.3 ES Vol 2, 6.3.30 and 6.3.34**). No notable arable flora was found.

Improved Grassland

7.5.18 There is a small patch of improved grassland in the Solar Array Area, species within this include perennial rye-grass *Lolium perenne*, creeping bent *Agrostis stolonifera*, oxeye daisy *Leucanthemum vulgare* and dandelion.

7.5.19 There are several improved grassland fields in the Cable Route Corridor area. These are all grazed or have been grazed recently. At the time of survey, the fields were grazed by sheep or horses, with evidence of cattle grazing taking place on the other fields. The grassland around the Bicker Fen substation included species such as perennial rye-grass, meadow foxtail *Alopecurus pratensis* and cocksfoot with occasional common chickweed *Stellaria media*, groundsel *Senecio vulgaris*, creeping thistle *Cirsium arvense* and white clover *trifolium repens*. The horse grazed grass fields to the north of the A17 are comprised of perennial rye grass and annual meadow grass *Poa annua* with occasional white clover, dandelion, daisy *bellis perennis*, selfheal *Prunella vulgaris* and catsear *Hypochaeris radicata* with locally abundant common nettle and creeping thistle.

Marsh/Marsh Grassland

7.5.20 There is a small area of marshy grassland present in, along the edge of a woodland, with soft rush *Juncus effusus*, hard rush *Juncus erectus*, Yorkshire fog, creeping bent and great willowherb *Epilobium hirsutum*.

Tall Ruderal Vegetation

7.5.21 This habitat is found in a small strip close to the centre of the Solar Array Area. Species are a mix of grasses and herbs, including false oat grass *Arrhenatherum elatius*, cocksfoot, Yorkshire fog, hemlock *Conium maculatum*, hogweed *Heracleum sphondylium*, hedge mustard *Sisymbrium officinale*, broad leaved dock *Rumex obtusifolius*, curled dock *Rumex crispus* and common nettle *Urtica dioica*.

7.5.22 Another area of tall ruderal vegetation is present within the Bicker Fen substation. This is comprised of a mixture of grass and tall herbs including common nettle, teasel *Dipsacus fullonum,* broad-leaved dock, hemlock, white deadnettle *Lamium album* and cocksfoot.

Standing Water

7.5.23 Multiple waterbodies are found in and within 500 m of the Order Limits. These vary from small woodland and garden ponds to larger agricultural reservoirs. These waterbodies support plant species including watercress *Rorippa nasturtium-aquaticum* agg. and sedges *Carex* spp. During the 2023 surveys some of these waterbodies had dried out.

Running Water

7.5.24 Water-filled ditches were found throughout the Order Limits. Many of these are used as drainage channels. There are also several water filled ditches, and larger drainage channels along the Access Route Corridor and Cable Route Corridor, most notably Great Hale Eau and South Forty Foot Drain. Vegetation in the ditches included species such as water plantain *Alisma*

plantago-aquatica, marestail *Hippuris vulgaris*, bulrush *Typha latifolia,* and common water crowfoot *Ranunculus aquatilis.*

Arable Land and Game Cover Crop

7.5.25 This is the predominant land use within the Order Limits. Crops noted at the time of survey include wheat *Triticum aestivum*, linseed *Linum usitatissimum,* flaxseed *Linum usitatissimum,* cabbage *Brassica Sp.* and oil seed rape *Brassica napus*. Many of the fields had margins with a more diverse range of species.

Buildings and Amenity grassland

7.5.26 In the east of the Solar Array Area is one of the landowner's farms, a complex of built structures, bare ground, hard standing and amenity grassland (i.e. lawns).

7.5.27 There are several other built structures such as farmyards, buildings, hard standing and amenity lawns within the larger Bespoke Access Road and Cable Route Corridors but these have since been refined to avoid built structures.

Bare Ground

7.5.28 As well as in the farmyards, there are expanses of bare ground where the earth has been compacted for farm tracks.

Hedgerows

7.5.29 There are many hedgerows present across the Site, from species-poor to species-rich, and with some containing mature trees. The woody species recorded in the hedges include ash, hawthorn, blackthorn, dog rose, field maple, elder and dogwood *Cornus sanguinea* with non woody species including bramble and ivy *Hedera helix.* Many hedgerows were alongside wet or dry drainage ditches.

Legally Protected Species, Species of Principal Importance and Red-Listed Species

Invertebrates

7.5.30 Records of one protected invertebrate species (white-letter hairstreak *Satyrium w-album*) and seven other SPI have been returned by the data search within 2 km of the site.

7.5.31 A terrestrial invertebrate survey was undertaken in April 2024 (**Appendix 7.14 Document Ref: 6.3 ES Vol 2, 6.3.33**). The survey included a scoping survey to identify areas within the Solar Array Area which are most likely to support a high abundance of invertebrates or notable species, and likely to be impacted by the development. A sample survey of 12 habitat areas was undertaken. A total of 205 terrestrial invertebrate species were recorded. Species of note include a Species of Principal Importance, White Ermine moth *Spilosoma lubricipeda,* and three nationally scarce species *Catapion pubescens, Scymnus femoralis* and *Megalonotus antennatus.*

7.5.32 The most species rich area was a waterlogged area sheltered by a small plantation in the north of the Site. It is expected that wetland habitats hold

much more value for invertebrates compared to arable land, as demonstrated by the results of the invertebrate surveys. Mature trees and hedgerows (especially where dead wood is present) also hold high conservation value.

Reptiles

7.5.33 No recent records of reptiles were found within 2 km of the Proposed Development. Two historic records of grass snake *Natrix Helvetica* (from 1976) were recorded within 2km of the site.

7.5.34 Reptile surveys of the Solar Array Area were undertaken in spring and summer 2023 (**Appendix 7.10 Document Ref: 6.3 ES Vol 2, 6.3.29**). No reptiles have been found within the Solar Array Area. Individual grass snake and common lizard *Zootoca vivipara* recorded in low numbers outside but in the vicinity of the Order Limits.

Great Crested Newts

7.5.35 There are recent records of Great Crested Newts (GCN) within 2 km of the Proposed Development, including a waterbody within the Bicker Fen Substation. No European Protected Species Licence (EPSL) applications have been recorded within 2 km of the Proposed Development.

7.5.36 Surveys of waterbodies within 500 m of the Solar Array Area were undertaken in 2022 by AECOM but many waterbodies were found to be dry (**Appendix 7.4 Document Ref: 6.3 ES Vol 2, 6.3.23**). Waterbodies were revisited in 2023 by WA using environmental DNA (eDNA), followed by traditional surveys, where a positive GCN eDNA result was found (**Appendix 7.12 Document Ref: 6.3 ES Vol 2, 6.3.31**). **Appendix 7.4 (Document Ref: 6.3 ES Vol 2, 6.3.23)**, Figure 4, shows the locations of the waterbodies surveyed. From autumn 2023 the Site boundary was reduced and no positive GCN eDNA results for waterbodies were found within the Site nor the updated 500 m buffer. A medium population was found over 500 m from the Site, in surveys undertaken on behalf of the applicant in Spring 2023. Where access was permitted, all eDNA surveys within 500 m of the Site were negative.

7.5.37 Further surveys for GCN were undertaken in 2024 on 26 waterbodies within the ZoI of the Bespoke Access Road and Cable Route Corridor and for waterbodies where access was not obtained for the Solar Array Site previously. Surveys included a habitat suitability assessment and eDNA surveys. Positive eDNA samples for GCN were returned by five waterbodies, two of which are located within 100m of the Solar Array Area. Further detail on the results of the 2024 surveys can be found in **Appendix 7.21 (Document Ref: 6.3 ES Vol 2, 6.3.43).**

7.5.38 Following the draft licence application further population assessments of the positive ponds will be required.

Birds - General

7.5.39 The data search returned records of 61 species of bird, including 13 SPI within 2 km of the Proposed Development.

Birds - Wintering

7.5.40 **Appendix 7.5 (Document Ref: 6.3 ES Vol 2, 6.3.23)** Figures 1.1.-3.2 shows the locations of birds recorded during the 2023 wintering bird surveys. During the winter, the following were recorded within the Solar Array Area:

- Five EU Birds Directive Annex 1 species;
- Sixteen Birds of Conservation Concern (BoCC) Red-List species; and
- Twenty-three BoCC Amber-List species.

7.5.41 Additionally, the following species for which the Wash SPA and Ramsar are designated for were recorded on the Solar Array Area; peak counts of birds recorded are given with the average counts within the SPA/Ramsar (at time of designation) in brackets:

- Pink footed goose *Anser brachyrhynchus*: 50 (7,300);
- Gadwall *Anas strepera*: 2 (71);
- Wigeon *Anas penelope*: 11 (3241);
- Black headed gull *Chroicocephalus ridibundus* 6 (4,000);
- Golden plover *Pluvialis apricaria**: 25 (22,033); and
- Lapwing *Vanellus vanellus**: 452 (46,422).

7.5.42 *Golden plover and lapwing are not qualifying species for The Wash SPA/Ramsar at present but could be considered for qualifying species in the future.

7.5.43 Two gadwall were seen at a single location (the reservoir in the south west of the site) on one occasion. This represents over 1% of the Wash SPA and Ramsar at time of designation. The most recent 5 year mean for gadwall on the Wash was 176 birds (2018/19-22/23, BTO 2024[2]).

7.5.44 Wintering bird surveys were also conducted for the Bespoke Access Road and Cable Route Corridor areas between November 2023 and March 2024. During these winter surveys, a total of 66 birds were recorded. **Appendix 7.17 (Document Ref: 6.3 ES Vol 2, 6.3.36)** includes the results of these surveys. This included:

- Seven Schedule 1 species;
- Thirteen Species of Principal Importance
- Thirteen Birds of Conservation Concern (BoCC) Red-List species; and
- Twenty-one BoCC Amber-List species.

7.5.45 Additionally, the following species for which the Wash SPA and Ramsar are designated for were recorded; peak counts of birds recorded are given with the average counts within the SPA/Ramsar (at time of designation) in brackets:

- Pink footed goose *Anser brachyrhynchus*: 270 (7,300);
- Black headed gull *Chroicocephalus ridibundus* 311 (4,000);

7.5.46 The habitat of highest ornithological interest includes hedgerows and waterways. The arable and grassland fields also provide notable habitat for wintering species.

[2] British Trust for Ornithology (2024) https://app.bto.org/webs-reporting/numbers.jsp

Birds - Breeding

7.5.47 **Appendix 7.6 (Document Ref: 6.3 ES Vol 2, 6.3.24)** Figures 1-73 shows the breeding territories as well as non-breeding birds recorded during the 2023 breeding bird surveys. During the breeding season the following were recorded breeding within the Solar Array Area:

- Three WCA Schedule 1 species;
- Twelve BoCC Red-List species; and
- Seventeen BoCC Amber-List species.

7.5.48 No species for which the Wash SPA and Ramsar are designated for were recorded breeding within the Solar Array Area.

7.5.49 During the breeding season the following were recorded breeding within the Access Route Corridor and Cable Route Corridor:

- Six WCA Schedule 1 species;
- Sixteen SPI:
- Eighteen BoCC Red-List species; and
- A total of 22 BoCC Amber-List species.

7.5.50 Three species which are qualifying species for The Wash SPA are found on Site (Natural England, 2014). These are gadwall, oystercatcher and curlew. Three gadwall were seen at the Heckington Eau/Car Dyke junction in March and two also nearby in April.

7.5.51 The figures within **Appendix 7.22 (Document Ref: 6.3 ES Vol 2, 6.3.22)**, shows the breeding territories as well as non-breeding birds recorded during the 2024 breeding bird surveys.

Bats - General

7.5.52 Four species of bat were recorded within 2 km of the Order Limits in the data search return. One European Protected Species Licence was found within 2 km, for destruction of a breeding site of common pipistrelles *Pipistrellus pipistrellus*, dated 2020.

Bats-Roosting

7.5.53 During the preliminary roost appraisal of the trees in the Solar Array Area (**Appendix 7.13 Document Ref: 6.3 ES Vol 2, 6.3.32**) hedgerows and woodland edge undertaken in spring 2023, the following were found:

- Two high suitability trees;
- Six moderate suitability trees; and
- Eighteen low suitability trees.

7.5.54 These trees were concentrated in the hedgerows in the south-western corner of the Solar Array Area, with others in the woodland edges. Other hedgerows were regularly cut and had not developed potential roost features.

7.5.55 A preliminary bat roost assessment was carried out on the Bespoke Access Road in summer 2024 (**Appendix 7.16 Document Ref: 6.3 ES Vol 2, 6.3.35**). This survey followed the most recent 2023 guidelines and as such are

categorised as either having the potential to support a maternity roost (PRF-M) or the potential to support individual bats (PRF-I). The following were found:

- Ten PRF-M suitability trees; and
- Ten PRF-I suitability trees.

7.5.56 A bat roost assessment was carried out on the Cable Route Corridor in summer 2024, the following were found:

- Thirty PRF-M suitability trees; and
- A total of 76 PRF-I suitability trees.

Bats - Foraging and Commuting

7.5.57 During the 2023 bat activity surveys, at least eight species of bats were recorded, including barbastelle *Barbastella barbastellus*, which is an EU Habitats Directive Annex II Species. **Appendix 7.7 (Document Ref: 6.3 ES Vol 2, 6.3.26)** [redacted] Bat activity moved throughout the year, being most intense along the Car Dyke in the northeast in the spring, moving to the south-western hedgerows and north of Fen Farm in the summer and in the autumn being found along these hedgerows and Car Dyke. Barbastelle were heard through the year on the static detectors, but during the walked transects only in the autumn and only in the south-west and south of the Solar Array Area.

7.5.58 Further bat activity surveys were undertaken on the Cable Route Corridor and Bespoke Access Road, including nighttime bat walkovers and static bat detector surveys. **Appendix 7.18 (Document Ref: 6.3 ES Vol 2, 6.3.37)** [redacted] Bat activity moved throughout the year, being most intense along a series of hedgerows/ woodlands north of the A47 moving to the plantation woodlands surrounding the Bicker Fen substation.

Badgers – Confidential

7.5.59 Owing to the persecution of this species, a confidential version of this Chapter has been supplied to the Planning Inspectorate and relevant organisations but is not for distribution in the public domain.

Otters

7.5.60 There are recent records (most recently from 2021) returned by LERC of otter within 2 km of the Site and this species is a qualifying feature of the Wash and North Norfolk Coast SAC. **Appendix 7.9 (Document Ref: 6.3 ES Vol 2, 6.3.28)** Figure 1.1 shows the locations surveyed for otter within the Solar Array Area. No otters or evidence of their presence were recorded during the 2023 surveys.

7.5.61 Further riparian mammal surveys took place in 2024 on watercourses within the Access Route Corridor and Cable Route Corridor. An otter was recorded on South Forty Foot Drain. [redacted] The survey locations and results are shown in **Appendix.7.19** (**Document Refs: 6.3 ES Vol 2, 6.3.38 through 6.3.41**).

Water Voles

7.5.62 There are records returned by LERC of water vole within 2 km of the Site. **Appendix 7.9 (Document Ref: 6.3 ES Vol 2, 6.3.28)** Figure 1.1 shows the locations surveyed for water voles within the Solar Array Area. No water voles or evidence of their presence were recorded, however, during the 2023 surveys.

7.5.63 Further water vole surveys have taken place on watercourses within the Access Route Corridor and Cable Route Corridor areas in 2024. [redacted] Water vole signs were also noted throughout the Access Route Corridor and Cable Route Corridor. On the access road there was one potential burrow. Throughout the Cable Route Corridor numerous signs were found including droppings, feeding piles and burrows. Signs were concentrated around Heckington Eau and land south of Great Hale Fen/ Great Hale Eau. Further details are included in **Appendix 7.19 (Document Refs: 6.3 ES Vol 2, 6.3.38 through 6.3.41)**.

Fish and Eels

7.5.64 There is one record of European eel *Anguilla anguilla* within 2km of the site, recorded in 2016 in (or within proximity to) Heckington Eau.

7.5.65 There is also one bony fish record, a spined loach *Cobitis taenia* (a European protected species) which was recorded in 2019 in (or within proximity to) South Forty Foot Drain.

Sensitive Ecological Receptors Summary

7.5.66 A summary of the sensitive ecological features, their importance in the context of the development and justification for scoping in or out of further assessment is given in Table 7.7, below.

Table 7.7 – Importance of Ecological Features

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
The Wash Ramsar	International	Local	This site is designated under the Ramsar convention as a Wetland of International Importance. Gadwall (a qualifying feature) have been found in the Solar Array Area within the Order Limits having a population equivalent to more than 1% of the Ramsar site's size. As such there is a possibility the sites are functionally linked.	N
The Wash SPA	European	Local	This site is designated in accordance with the EC Birds Directive. Gadwall a qualifying feature have been found in the Solar Array Area within the Order Limits having a population equivalent to more than 1% of the SPA size, as such there is a possibility the sites are functionally linked.	N
The Wash and North Norfolk Coast SAC	European	National	This site is designated in accordance with the EC habitats directive. Linked to the Proposed Development by otters (an Annex II species present as a qualifying feature, but not a primary reason for site selection of the SAC) which have	N

[3] Based on Table 7.2

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			been recorded in the waterbodies within the Cable Route Corridor.	
Wilsford & Rauceby Warrens SSSI	National	National	The site is designated under the WCA; the whole of the SSSI lies within 10 km of the Site. The SSSI is sensitive to pollution and could be affected by airborne contaminants.	N
Horbling Fen SSSI	National	Negligible	Designated for geological importance only and outside the scope of this chapter	Y
Great Hale Eau LWS and South Forty Foot Drain LWS	County	County	The sites are designated by the Greater Lincolnshire Nature Partnership (GLNP), under criteria set for the county of Lincolnshire. Both LWS lie within the Proposed Development.	N
All other LWS within 2km	County	County	The sites are designated by the GLNP under criteria set for Lincolnshire. All are within 2 km and are hydrologically linked to the Site and/or could be affected by airborne contaminants.	N
Broadleaved woodland	National	Local	This habitat qualifies as HPI. Its small total area within the vicinity of the Order Limits and relatively uniform structure. Due to it being relatively young, and not meeting the LWS criteria for GLNP set for Lincolnshire (2013), the woodlands are	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			of no more than local importance.	
Coastal and floodplain grazing marsh (includes semi-improved grassland in Solar Array Area)	National	County	This habitat qualifies as HPI. The amount of habitat present on or in the vicinity of the Proposed Development make it of county importance as per the GLNP criteria set for Lincolnshire.	N
Traditional Orchard	National	Negligible	The habitat qualifies as an HPI. The habitat within the vicinity of the Proposed Development is not connected hydrologically and is too distant to be affected by airborne contaminants.	Y
Open Mosaic habitat	National	Negligible	The habitat qualifies as an HPI. The habitat is found offsite (an old mineral workings) and has not been surveyed, however the data search including aerial imagery, suggests that it may have been colonised by scrub and been cleared for pasture. The habitat is not connected hydrologically (the cable route will be directionally drilled under the Heckington Eau) and is too distant to be affected by airborne contaminants.	Y
Scrub	Negligible	Negligible	This habitat is not an HPI. It is a common and widespread, fast-growing habitat found across	Y

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			Lincolnshire, making it no more than negligible importance.	
Improved grassland	Negligible	Negligible	This habitat is not an HPI. It is a common and widespread, fast-growing habitat found across Lincolnshire, making it no more than negligible importance.	Y
Marsh/Marshy Grassland	National	Negligible	The grassland does not fit the HPI criteria being dominated by common and widespread species, indicating it is no more than negligible importance.	Y
Tall ruderal vegetation	Negligible	Negligible	This habitat is not an HPI. It is a common and widespread, fast-growing habitat found across Lincolnshire, making it no more than negligible importance.	Y
Standing water	National	County	This habitat is an HPI. As there are waterbodies within the Site and many of the waterbodies outside the Site are hydrologically linked, there is up to a county importance.	N
Running water (excluding Great Hale Eau and South Forty Foot Drain)	Negligible	Negligible	The drainage ditches are found throughout the Site and are common in the local area. They are regularly cut (and dredged) and are likely to have regular chemical input (fertilisers, herbicides and	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			insecticides), indicating the watercourses are of Negligible importance	
Hedgerows	National	County where hedgerows meet LWS criteria and Local for all other hedgerows on Site.	This habitat can qualify as an HPI. The majority (11 of 21) hedgerows in the Solar Array Area are species-poor and gappy, making it of no more than local importance. The species poor hedgerows do not meet the GLNP criteria for LWS and therefore are no more than local importance. Ten hedgerows as outlined within Appendix 7.11 Botanical Survey Report (Solar Array Area) are native and species rich (contain five or more native woody species), and as such meet the criteria for LWS quality and are therefore at County value. On the Cable Route Corridor and Access Route Corridor there are some species rich hedgerows with trees, but the majority are species-poor. These hedgerows do not meet the GLNP criteria for LWS and therefore are no more than local importance.	N
Invertebrates	National	County	Invertebrates including one SPI and three nationally scarce species have been found on the	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			Solar Array Area, mostly in habitat such as small plantation areas. The notable invertebrates found are not widespread across Lincolnshire and given the close proximity of suitable invertebrate habitat within the Site, a County level of importance is expected.	
Great crested newt	European	Local (and legally protected)	No GCN have been found within the waterbodies within the Site. GCN have been found in a small number of waterbodies within the vicinity of the Order Limits. GCN positive ponds have been found within 500m of the Bespoke Access Road/ Cable Route Corridor. A number of records are taken from the data search and in most cases the sizes of the populations are not known. Where they are known they are small – medium populations. Given the presence of GCN within the vicinity of Site, a local level importance is expected.	N
Reptiles	National	Negligible but legally protected	Small numbers of two common reptile species have been found in the vicinity of the Site in similar habitats. In accordance with Froglife (1999), the Site does not meet	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			the criteria for a Key Reptile Site and given the lack of records and suitable habitat on Site, this indicates a negligible importance.	
Wintering birds	International	County	A total of 71 bird species were recorded within the Solar Array Area, and a total of 66 bird species within the Bespoke Access Corridor / Cable Route Corridor survey areas indicating a county level importance given the combined results across the scheme (Fuller, 1980).	N
Breeding birds	National	County (and legally protected)	All bird species are protected under the WCA. A total of 45 bird species were recorded within the Solar Array Area, indicating a local level importance (Fuller, 1980). A total of 78 bird species were recorded during the survey of the Bespoke Access Road and Cable Route Corridor (43 of which can be categorised as species of conservation concern using standardised UK bird protection and conservation criteria). As per Fuller (1980) the assemblage of birds is of County importance.	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
Badgers (confidential)	National	Local (and legally protected)	Badgers are protected from cruelty rather than for conservation reasons. Badgers are generally considered widespread across arable landscape and therefore no more than a local importance.	N
Bats; roosting	European	County	Trees on Site and within the vicinity of the access road and Cable Route Corridor offer suitable features for roosting bats and may support some rarer species of bats and/or a maternity roost and are therefore up to a county level importance (in accordance with Wray *et al*. 2010).	N
Bats commuting and foraging	European	County	Small numbers of rarest species of bats (barbastelle) were found on the Site and (in accordance with Wray *et al*. 2010). Other bat species also recorded foraging and commuting across the Site, especially using features such as hedgerows and woodlands. In accordance with Wray *et al*. 2010, bats using the Site are up to a county level importance.	N
Otters	European	Local (and legally protected)	Records of otters have previously (latest 2021) been found within the Site. Signs of otter were found on The	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			Great Hale Eau and an otter was recorded using the South Forty Foot Drain. As per the Environment Agency led National Otter survey in 2010, otters were found to be using most watercourses across the catchment and are generally widespread across Lincolnshire, indicating a local level importance (Environment Agency, 2010).	
Water Vole	National	Local (and legally protected)	Records of water vole have previously (latest 2015) been found within the Site. Water voles were found on multiple ditches and drainage channels within the vicinity of the Access Route Corridor and Cable Route Corridor. As per The Wildlife Trust led National Water Vole Database Project, water voles were found to be using most watercourses across the catchment and are generally widespread across Lincolnshire (records from 2013-2022), indicating a local level importance (The Wildlife Trust, 2024).	N
Eels	European	Local	European eel is a SPI and is afforded protection under the Eel Regulations. One record of	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY[3]	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF FURTHER ASSESSMENT Y/N
			European eel has been found within in proximity to the Site (recorded in Heckington Eau). There are also wider records of eel across Lincolnshire (Environment Agency, 2021) indicating a local level importance.	
Fish	National	Local	One record of a spined loach has been found within proximity to the Site (recorded in South Forty Foot Drain). There are also wider records of eel across Lincolnshire (Environment Agency, 2021) indicating a local level importance.	N
Hares	Local	Local	Records have been found in the vicinity of the Site and small numbers were noted throughout the surveys. Hares are generally considered widespread across Lincolnshire (Lincolnshire Wildlife Trust, 2024), indicating a local level importance.	N
Hedgehogs	Local	Local	There are records of hedgehogs within proximity to the Site. Given that hedgehogs are widespread across Lincolnshire (BHPS, 2024), they are no more than local level importance.	N

Future Baseline Conditions

7.5.67 Determining a future baseline draws upon information about the likely future use and management of the Site in the absence of development, having

regard to known population trends (for species), and climate change that may cumulatively impact with the Proposed Development to upon ecological receptors / features.

7.5.68 In the absence of development it is assumed that the land will continue to be actively managed as farmland. Therefore it is unlikely that the habitat within the Site would materially change in terms of its composition or function (in relation to the ecological features it supports) in the absence of the Proposed Development, and so it is considered appropriate to rely upon the current baseline conditions and information to inform this assessment.

7.6 Assessment of Effects

Embedded Mitigation

General

7.6.1 The following elements of mitigation have been assumed as part of the assessment, representing 'embedded' mitigation as either forming an integral, committed and deliverable part of the scheme design or a construction practice which will be included within the DCO application. Table 7.8 outlines how these embedded measures will influence the Ecology assessment.

7.6.2 The Scheme has been designed to avoid key nature conservation and ecological features present within or adjacent to the Site. Habitats such as woodlands, mature trees and hedgerows have been avoided where possible. Any access tracks, cable routing and fencing has been located to pass through existing gates and gaps in hedgerows where feasible.

7.6.3 Outside the Solar Array Area land utilised in the construction phase that is not retained for the operational life of the Proposed Development will be reinstated to its previous use as far as practical in consultation with landowners.

7.6.4 Buffers from key habitat features have been included as embedded mitigation to ensure design maintain appropriate distance from receptors. Temporary fencing will be used to demarcate vegetation features. The following buffers have been used wherever possible:

- At least a 15 m buffer around woodlands;
- A minimum 5 m buffer around watercourses;
- A minimum 5 m buffer between working areas and hedgerows;
- Minimum 5 m offset from all infrastructure (including fencing) from bank top of all riparian boundaries and watercourses;
- All trees within hedgerows and individual trees – protected by clearly defined root protection areas, concordant with the requirements for each individual tree;
- Minimum of 9 m buffer from waterbodies; and

Badger setts subject to 30 m buffer.

7.6.5 Where buffers cannot be maintained, appropriate pre-construction surveys will take place, and mitigation designed on the basis of these.

7.6.6 There will be some removal of trees but as no mature trees with roosting features are outlined to be removed no bat roosts in trees are expected to be affected.

7.6.7 There will be limited nighttime construction activity. This will reduce impacts to foraging/commuting bats which will not be subject to lighting impacts other than for a short period potentially during spring/autumn when bat activity at dusk may overlap with end of day and start of day working.

7.6.8 Where practical, vegetation clearance will be undertaken at an appropriate time of year, outside of the breeding season for birds. Therefore, construction will seek to avoid the nesting bird period i.e., March to August (inclusive) for sensitive vegetation

7.6.9 Where vegetation clearance is not practical outside the nesting bird period, habitats will be checked for the presence of any nests by a suitably qualified ornithologist, prior to vegetation removal, and if active nests are found, then appropriate buffer zones would be put in place and the area monitored until the young birds have fledged.

7.6.10 Vegetation such as grassland will be managed prior construction to ensure it does not become more suitable for wildlife. Vegetation that does require cutting will be cut in a phased approach, firstly cutting to 30 cm, then, following a period of no less than 24 hours, to 15cm and then to ground level, after another 24 hours. Any habitat features which may conceal amphibians (log piles, rubble mound bunds, any other debris etc.) will not be dismantled during their inactive season (November to February inclusive).

7.6.11 Before construction there will be establishment of a sensitive site lighting scheme. Lighting will be the minimum required for safety and security and not illuminating key habitat features (river corridors, hedgerows, Priority Habitats, mature trees). Where lighting is necessary, it will adhere to best practice guidelines and will be deployed in accordance with the following recommendations:

- Consideration of hood design, lamp height, and angle, to reduce light spill particularly avoiding illuminating retained foraging and commuting habitat on the site such as mature trees, waterbodies, tree lines, and hedgerows;
- Use of LED with less blue light e.g. ‘warm white’ (~3000K) or red light where appropriate;
- No metal halide lamps should be used anywhere on Site;
- Minimising hours of lighting to those absolutely necessary for security and safety purposes, where possible lighting should avoid key periods of bat activity (i.e. sunset and sunrise); and
- Where security lights are necessary, movement sensors should be installed to avoid constant illumination (with as short an illumination time as reasonably possible).

7.6.12 The scheme will comply with the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** which will include measures such as covering and protecting surface water drainage systems to reduce the likelihood and severity of potential pollution and sediment incidents and flooding affecting watercourses and the local ditch network.

7.6.13 An **OCEMP** has been produced **(Document Ref: 6.3 ES Vol 2, 6.3.7).** The Scheme will comply with industry good practice and environmental protection legislation. Measures to prevent pollution incidents, minimise effects on ecology from noise and vibration, prevent and minimise dust creation and air pollution will be adopted. Precautionary working method statements would be produced, controlled and implemented.

7.6.14 As outlined within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**. where construction vehicles are required to pass over the water bodies, vehicles/plant must be cleaned away from the water in dedicated vehicle washing areas to prevent potential pollutants entering the surface water system, before crossing over the water body. The spread of dust and sediment will be controlled through fine water spraying of water routes. Regularly

service, monitor and inspect vehicles and plant. Plant and machinery will have dedicated refuelling areas, with drip-trays used routinely and spill kits available.

7.6.15 Where the Scheme includes soil removal, any soil will be added back in order. This will include replacing the subsoil first and then replacing any turf. This is expected to happen throughout the Site but is particularly important for habitats including coastal and floodplain grazing marsh to ensure local plant biodiversity and important habitat for invertebrates is not lost.

7.6.16 Excluding the removal of approximately 0.8 ha recently (ca 2006) planted trees and woodland within the Bicker Fen Substation for the proposed extension, the existing woodland on Site will be retained and there is opportunity to enhance the woodland by creating more diversity, planting native tree species and altering management to increase the variety of age classes. Increasing the amount of deadwood will also improve the habitat available to a range of fauna.

7.6.17 Hodge Dike, Heckington Eau and South Forty Foot Drain will be crossed by the 400 KV cable using trenchless methods to reduce land take and disturbance.

7.6.18 Where the scheme includes drain-down, culverting or open-trenching to watercourses of value to fish, key fish migration timings will be avoided where practical e.g., avoiding key fish migration seasons (April to June for European eel and spined loach). Where watercourses and ditches are culverted, culverts will be designed to allow continued connectivity and fish passage along the watercourse, with a natural bed and no drop inlet or outlet. During the installation of culverts or over-pumping for open trenching through watercourses, fish rescue and translocation will be implemented.

Solar Array Area

7.6.19 New hedgerows will also be established to supplement the network of existing, retained hedgerows. Hedgerows will be planted with native, locally occurring species as outlined within the local plan. New and reinforced hedgerows will provide a valuable habitat, forming important wildlife corridors.

7.6.20 Lengths of new hedgerow will be planted to enhance the Site and compensate for any lost, each hedgerow will have at least five native and locally occurring species. Hedgerows will be based on three core species: Hawthorn, Blackthorn and Field Maple. Other species should include a mixture of oak, hazel, holly *Ilex aquifolium*, elder, crab apple *Malus sylvestris* and dogwood *Cornus sanguinea*. Where there are gaps between areas of woodland on Site, hedgerows will be planted to increase wildlife connectivity.

7.6.21 New scrub habitat will be created in selected areas to provide suitable habitat for declining farmland birds. Hedgerows and trees will be allowed to grow tall and wide (ideally at least 1.5 m tall and wide) to provide maximum benefits for biodiversity and this natural regeneration will encourage a mosaic of successional habitats, forming broad habitat corridors throughout the Scheme.

7.6.22 The Site supports ground nesting birds, including skylark, which prefer open nesting areas. Within the open buffer areas adjacent to ditches, and in the

wildflower meadows the habitats will be improved for this species. This will include delaying grassland cuts until after young are fledged; cut from June onwards and no more than once every seven weeks. These should increase the density of birds supported, and partially replace the areas lost. The details of these habitat enhancements will be included in the **OLEMP (Document Ref 6.3 ES Vol 2**, 6.3.19).

7.6.23 The land under the panels and within buffer areas will be sown with a mix of locally found species which given the improved nature of the soil is expected to achieve a medium diversity grassland. The grassland will include a range of grasses and herbs which will benefit a range of pollinator species such as bees, butterflies and hoverflies. This grassland will be managed appropriately as set out within a habitat management plan to ensure the grassland achieves the highest diversity, supports a range of species and maintains a biodiversity net gain uplift.

7.6.24 There are some areas on Site which are suitable for a higher diversity grassland including lowland meadow and floodplain grazing marsh. Areas along watercourses will be enhanced which will improve the watercourses for a range of fauna and will also ensure a biodiversity habitat unit uplift.

7.6.25 Fencing is due to be implemented during construction. For areas which provide habitat for ground nesting birds, the post and wire deer fencing will make sure the area is protected from predators. By preventing deer accessing the site this will reduce grazing pressure on young trees and shrubs allowing hedgerows and woodland understorey to develop. Access will be provided elsewhere to allow badgers, hares, hedgehogs and other small mammals through.

7.6.26 The existing and proposed hedgerows around the perimeter of the Beacon Fen Energy Park will be allowed to grow taller than 3-5m in height to provide a greater level of security. Hedgerows within the Order Limits will be improved by planting up any gaps. The species selection will be developed in consideration of local landscape context and local provenance. Woodland planting comprising typically of native species (with some climate-change-adapting species), planted as multipurpose features for visual screening, will aid landscape integration and support nature conservation and biodiversity.

Table 7.8 - Summary of the Embedded Environmental Measures and how these Influence the Ecology Assessment

ECOLOGICAL FEATURE	CHANGES AND EFFECTS	EMBEDDED MEASURES AND INFLUENCE ON ASSESSMENT
Statutory designated sites	Five Statutory designated sites within 20km of the Proposed Development.	The Design of the Proposed Development avoids all Statutory designated sites of biodiversity conservation importance.
Non-statutory sites	Ten LWS within 2km. Non-statutory designated sites onsite include two drainage channels that must be crossed as part of the Cable Corridor Route. Uncontrolled works could impact these LWS. Other LWS hydrologically connected to the Site,	The majority of impacts will be mitigated for by a minimum buffer of 5m, which is considered sufficient to mitigate for potential hazards such as chemical and soils spills into watercourse and avoid potential direct impacts to the

ECOLOGICAL FEATURE	CHANGES AND EFFECTS	EMBEDDED MEASURES AND INFLUENCE ON ASSESSMENT
	could also be impacted in the absence of controlled works.	LWS and riparian habitats. Heckington Eau and South Forty Foot Drain will be crossed using HDD. The **OCEMP (Document Ref: 6.3 ES Vol, 2 6.3.7)** will include further requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off.
Grassland	Grassland including lowland meadow and floodplain grazing marsh are present within the Site. These habitats could be impacted by the works.	Where the Scheme includes soil removal, any soil will be added back in the order that it was removed in. This will include replacing the subsoil first and then replacing any turf. Suitable buffer areas will be enhanced to ensure a biodiversity habitat unit uplift. Grassland of locally occurring species will also be planted under the panel areas.
Woodland and hedgerows, roosting bats	Woodlands and hedgerows lie within the Site. Removal of trees in woodland or hedgerows could result in the loss of bat roosts. Uncontrolled works or vehicular movements could damage roots and adversely impact trees.	All woodlands (with the exception of trees within the recently planted Bicker Fen substation plantation) will be retained. Hedgerows (except for those where access is required) will be retained. There will be some removal of trees but as no mature trees with roosting features are outlined to be removed no bat roosts in trees are expected to be affected. Buffers will be set up around woodland (at least 15 m) and hedgerows (at least 5 m) to avoid damage and compaction of roots. Any hedgerow removed will require compensation, with an appropriate replacement planted, and will be included in the **BNG Strategy** calculations **(Document Ref: 7.3)**. Woodland to be improved by creating more diversity, planting native tree species and altering management to increase the variety of age classes. Increasing the amount of deadwood will also improve the habitat available to a range of fauna.
Linear watercourses	Uncontrolled works could result in sediment or pollution which may cause increases in the level of silt present and/or changes to the water chemistry.	A minimum 5 m buffer from built development was applied along or around every watercourse and waterbody and was taken into consideration into the Proposed Development design, as far as possible. The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** will include further requirements to minimise any possible impacts during construction

ECOLOGICAL FEATURE	CHANGES AND EFFECTS	EMBEDDED MEASURES AND INFLUENCE ON ASSESSMENT
		such as safe storage of chemicals and prevention of sediment run off. Buffer areas will be enhanced, sown with locally occurring species.
Waterbodies	Uncontrolled works could result in sediment or pollution which may cause increases in the level of silt present and/or changes to the water chemistry.	A minimum of 8 m buffer will be applied around every waterbody and was taken into consideration into the Proposed Development design, as far as possible. The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** will include further requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off. Buffer areas will be enhanced, sown with locally occurring species.
Great crested newt	During the construction phase, construction works, GCN may be disturbed, injured or suffer mortality.	The Order Limits are over 100 m from waterbodies with GCN records. All positive GCN waterbodies to be retained. New terrestrial habitats will be created in the Solar Array Area which are more suitable for GCN than the existing arable land, along with enhancements to existing waterbodies. The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** will include further requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off.
Eels and Fish	During the construction phase, construction works, eels and fish could be disturbed, injured or suffer mortality.	Buffers (at least 5 m) will be set up around all ditches (except where crossings are required). The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** will include further requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off. Where there are direct impacts to watercourses of value to eels and fish, timing of works (outside of the key migration season) and culvert design will be implemented.
Ground nesting birds (skylark)	Skylark and other similar ground nesting birds prefer to nest in open areas. There will be a loss of open arable land for nesting sites.	As detailed in the **OLEMP (Document Ref: 6.3 ES Vol 2, 6.3.19**) open buffer areas will be retained, where the grass cutting regime will be amended to maximise the breeding success of skylarks in the remaining area.
Badgers (confidential)	During construction badger setts could be damaged or lost, individual badgers	A 30m buffer will be set up around known badger setts, noting that

ECOLOGICAL FEATURE	CHANGES AND EFFECTS	EMBEDDED MEASURES AND INFLUENCE ON ASSESSMENT
	could be disturbed, injured or suffer mortality.	badgers are mobile and may create new setts.
Otters and water voles	During the construction phase, construction works may result in otters and / or water voles (if present) being disturbed, injured or suffering mortality, or their dwellings being damaged or lost.	Buffers (at least 5 m) will be set up around all ditches (except where crossings are required). These will avoid impacts on otters and water voles. The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** will include further requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off. If watercourses where water voles and otters are known to be present cannot be avoided for the Bespoke Access Road/ Cable Route Corridor, a licence and further surveys may be required. Lighting of watercourses will be avoided as most species are more active at night.
Bats (foraging)	During the construction phase, construction works, bats may be disturbed, injured or suffer mortality.	Majority of hedgerows will be retained. Standard environmental protection measures will be implemented and adopted during construction, as detailed in the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** and sensitive lighting scheme.
Badgers, Hares, Hedgehogs and other small	Deer exclusion fencing and other security fencing could prevent small mammals moving though and reaching important foraging or other areas.	Gaps will be made where appropriate at the base of fencing to allow access for small mammals through. The placement of these will consider the need to prevent these mammals eating ground nesting bird eggs.

Assessment of Effects

Construction Phase

The Wash RAMSAR and SPA

7.6.27 The Wash RAMSAR and SPA lies approximately 15 km to the east and is connected to the Proposed Development by a system of drains, ditches and rivers. Given Gadwall were found on Site, it is possible that Gadwall could travel between the Wash and the Site and such they are functionally linked by this species.

7.6.28 There is potential for Gadwall to be disturbed by noise created and increased personal on Site as a result of the Proposed Development. The proposed works are located within 5-10m of the reservoir which supports gadwall over winter. The noise levels (as per **Chapter 10 Noise and Vibration, Document Ref: 6.2 ES Vol 1, 6.2.10**) are expected to exceed 70dB during the construction phase. As per the Waterbird Disturbance Mitigation Toolkit (2013), noise at 70dB would incur a risk of disturbance. Given the close proximity and sensitive nature of this species, noise created as a result of

construction activities would have a **temporary low adverse impact** the resultant effect is **Significant.**

7.6.29 Assuming the gadwall population in the Wash and Proposed Development are linked, the construction of the Proposed Development taking place within the winter will have a **temporary very low adverse impact** on The Wash RAMSAR and SPA, and due to the value of The Wash, the resultant effect on its conservation status is **Significant**.

The Wash and North Norfolk Coast SAC

7.6.30 The Wash and North Norfolk Coast SAC lies approximately 15 km to the east and is connected to the Proposed Development by a system of drains, ditches and rivers. It is possible that otters could travel between the SAC and the Proposed Development and, as such, they are functionally linked by this species.

7.6.31 During the construction of the Proposed Development, there will be the need for the Cable Route Corridor and Bespoke Access Road to cross ditches that could be used by otters. Excavation for and construction of crossings could directly injure or kill otters or damage or cause the loss of their holts.

7.6.32 Assuming the otter population in the SAC and Proposed Development are linked, the construction of the Proposed Development will have a **temporary very low adverse impact** on the Wash and North Norfolk Coast SAC, and due to the value of the SAC the resultant effect on its conservation status is **Significant**.

Wilsford & Rauceby Warrens SSSI

7.6.33 Wilsford and Rauceby Warrens SSSI lies 7.3 km west of the Site, to the west of the town of Sleaford. During construction the additional traffic required may impact the air quality of the SSSI; calcareous grassland and GCN are sensitive to nitrogen deposition (including from transport emissions).

7.6.34 Air quality impacts have been assessed as part of **Chapter 16 (Document Ref: 6.2 ES Vol 1, 6.3.16)** and the given the mitigation for vehicle increase associated with the development is followed, no impacts are expected on Wilsford and Rauceby Warrens SSSI and the resultant effect on its conservation status is **Not Significant.**

All LWS within 2 km

7.6.35 The majority of the LWS within the Site include ditches or drains and are connected to the Proposed Development hydrologically. Air quality impacts have been assessed as part of **Chapter 16 (Document Ref: 6.2 ES Vol 1, 6.3.16)** and the given the mitigation for vehicle increase associated with the development is followed, no airborne contaminants are expected. Given the embedded buffers and measures outlined within the OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7), and where hydrologically connected ditches will be crossed will be short sections with works expecting to take no longer than a week, the construction phase is expected to have a **temporary very low adverse impact** on LWS within 2 km of the Site because of waterborne contaminants, and the resultant effect on their conservation status is **Not Significant**.

Coastal and Floodplain Grazing Marsh and Grassland Habitat

7.6.36 Coastal and floodplain grazing marsh lies within the Proposed Development.

7.6.37 Whilst the area of coastal and grazing floodplain within the Solar Array Area is expected to be avoided during construction other grassland habitat will have to be removed to make way for the development. This grassland habitat is likely to take over 20 years to recover. Land take will to be relatively small (no more than 50 m wide sections grassland, which tend to be thin strips along ditches several hundred metres to over a kilometre long). Given the extent and quality of the grassland to be removed (i.e. it comprises of relatively common species), it is likely that it will be quickly recolonised. Due to the relatively small extent of habitat lost permanently and relatively low value of the invertebrates found there will be no significant impact as a result of land take.

Standing Water

7.6.38 Contaminants and chemical released as a result of agricultural activities will cease on land occupied by the Solar Array Area. The reduction in agricultural chemicals reduce eutrophication and improve water quality and will therefore have a **minor beneficial impact** on water quality. The resultant effect on its conservation status is **Not Significant.**

Linear Water Features

7.6.39 Contaminants and chemical released as a result of agricultural activities will cease on land occupied by the Solar Array Area. The reduction in agricultural chemicals reduce eutrophication and improve water quality and will therefore have a **minor beneficial impact** on water quality. The resultant effect on its conservation status is **Not Significant.**

Invertebrates

7.6.40 Invertebrates use a variety of the habitats found within the Site, including standing and running water, grassland and scrub. Small sections of these habitats will be lost during the construction phase to allow for the Access Route Corridor and Cable Route Corridor.

7.6.41 Land take is likely to be relatively small. Buffers of habitat along waterbodies in the Solar Array Area will be retained and only short sections of ditch will be crossed for the installation of the Cable Route and Bespoke Access Road. Therefore, it is expected that the habitat loss during the construction of the Proposed Development will have a **temporary low adverse impact on invertebrates**, and the resultant effect on their conservation status is **Not Significant**.

7.6.42 Given the embedded buffers and measures outlined within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**, the watercourses will have minimal contamination, but in the absence of further mitigation there will be a **temporary very low adverse impact on invertebrates**, and the resultant effect on their conservation status is **Not Significant.**

Great Crested Newt

7.6.43 GCN have been recorded within the vicinity of the Site and there is potential that transient individuals occupy areas of the Solar Array Area and also the Bespoke Access Road and Cable Route Corridor.

7.6.44 GCN use scrub, hedgerows, grassland, tall ruderal vegetation as well as standing water. Sections of these habitats will be lost during the construction to allow for Access Route Corridor and the cable installation. This may result in direct mortality or injury of individuals as well as GCN potentially losing habitats for the period it takes for the habitats to recolonise.

7.6.45 Land take is all within intermediate or distant terrestrial habitat (i.e. more than 50 m from breeding ponds (English Nature 2001)). Of this very little will be suitable habitat; these are thin strips of land at field margins of which much will be retained. Buffers of habitat along waterbodies in the Solar Array Area will be retained and only short sections of ditch will be crossed for the installation of the cabling and Bespoke Access Road. However given the close proximity of a number of positive GCN waterbodies, there is the possibility they occupy habitat which is due to be cleared as part of the development. Therefore, it is expected that the habitat loss and possibility for direct impacts during the construction of the Proposed Development will have a **temporary low adverse impact** on GCN, and the resultant effect on their conservation status is **Significant**.

Reptiles

7.6.46 Reptiles use scrub, grassland, tall ruderal vegetation and use hedgerows/ ditches as wildlife corridors. Land take required by the Access Route Corridor and Cable Route Corridors are relatively small. Only short sections of ditch will be crossed for the installation of the cabling and Access Route Corridor and as part of embedded mitigation buffers of habitat along waterbodies in the Solar Array Area will be retained. Sections of scrub, hedgerows and grassland will be lost during the construction phase to allow for the installation of the solar arrays, Access Route Corridor and the cable installation. This may result in direct mortality or injury of individuals as well as reptiles losing habitats for the period it takes for the habitats to recolonise.

7.6.47 Given the small numbers of reptiles found in the vicinity, appropriate buffers and vegetation removal measures outlined within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**, it is expected that the habitat loss during the construction of the Proposed Development will have a **temporary very low adverse impact** on reptiles. As the populations of reptiles encountered have been small, the resultant effect on their conservation status is **Not Significant**.

Wintering and Breeding Birds

7.6.48 During the construction phase of the Proposed Development there will be an increase in people and associated disturbance (e.g. increase noise levels). This is likely to result in birds dispersing from the areas of the Site where works are taking place.

7.6.49 The Solar Array Area will be constructed in plots. Once one plot is finished the works will move on to the next, rather than the whole site being developed at the same time. Birds will, therefore, be able to use undeveloped plots whilst the construction is occurring and relocate back in once it is finished.

7.6.50 Likewise the installation of the cabling will be undertaken section-by-section. Whilst construction is occurring, birds can use other sections and relocate back once the work is complete.

7.6.51 Notwithstanding this, as a proportion of the land will be unavailable due to disturbance at any one time, there will be an increase in competition for food resources on the remaining land during the seasons birds are using the Site. Therefore, it is expected that disturbance during construction will have a **temporary low adverse impact** on wintering and breeding birds, and the resultant effect on their conservation status is **Significant**.

7.6.52 A lagoon is proposed within the BESS area but given the lack of suitable habitat and size of the waterbody, it is not considered likely to attract flocking birds.

7.6.53 The construction of the Proposed Development will result in the permanent loss of ground-nesting bird (e.g. skylark *Alauda arvensis*) habitat. The construction phase will be short-term and the area effectively available for nesting birds post-construction. However some species such as skylark prefer to have a clear line of sight around the nest to view the approach of predators. Once the solar arrays are installed the birds' line of site will be reduced and they will be less likely to use the Solar Array Area.

7.6.54 As an indicator species, the population of skylark is relatively low (circa 0.1-0.2 territories per ha in the Solar Array Area). The 71 individuals make up approximately 0.05% of the Lincolnshire population; therefore the site is of no more than **local importance** for Skylark. A review of solar farms versus arable farmland was undertaken in East Anglia showed a drop from 2.13 birds per 4 ha on arable fields to 1 bird per 4 ha on mixed habitat solar farms (0.53 birds per ha on arable, versus 0.25 birds per ha mixed habitat solar) (Copping *et al.* 2025[4]). Whilst the habitats at Beacon Fen supported a lower density of skylark than the Solar farms in the study, it is anticipated there will be some drop in density as a result of the Proposed Development. For skylark, there is anticipated to be a **permanent very low adverse impact** because of the loss of nesting habitat with the resultant effect on their conservation status being **Not Significant**.

7.6.55 For all other bird species that nest in the Site, due to the availability of offsite nesting options, there is expected to be a **temporary very low adverse impact** and the resultant effect on their conservation status is **Not Significant**.

Badgers – Confidential

7.6.56 During the construction phase, there is the risk that setts could be damaged, potentially resulting in injury or mortality of any individuals present at the time. Construction activities in the proximity of setts may also result in injury to any individuals present at the time. As such, there is expected to be a **temporary very low impact** on badgers during construction. As their protection is to avoid persecution rather than because of their conservation status, the resultant effect is **Not Significant**.

[4] Copping, J. P., Waite, C. E., Balmford, A., Bradbury, R. B., Field, R. H., Morris, I., & Finch, T. (2025). Solar farm management influences breeding bird responses in an arable-dominated landscape. Bird Study, 1–6. https://doi.org/10.1080/00063657.2025.2450392 accessed 14th March 2025

Bats

7.6.57 As part of embedded mitigation appropriate buffers have been built into the design proposals for the Proposed Development area to avoid loss of hedgerows and woodland, including any trees that may contain bat roosts. Plantation woodland will be lost around the Bicker Fen substation connection, but these are young trees without suitable features for bats.

7.6.58 There is unavoidable loss of some hedgerows to facilitate the Access Route Corridor and Cable Route Corridor. Large gaps in the hedgerow may prevent bats crossing from roosts to foraging areas. Likewise, lighting during the construction phase can prevent light-averse species from following commuting routes or foraging in an area (e.g. if a watercourse is lit, bats will avoid flying along this feature and feeding above it). There will be up to a **temporary medium adverse impact** on bats. Owing to the presence of a rare bat species (barbastelle) at the Site, the resultant effect on conservation status is **Significant**.

Water Voles and Otters

7.6.59 During the construction phase of the Proposed Development there is a risk that water vole burrows and otter holts will be damaged or lost, potentially resulting in injury or mortality of any individuals present at the time. As part of embedded mitigation, appropriate stand-off buffers have been included around ditches in the Solar Array Area, although there will still need to be crossings for the Access Route Corridor and Cable Route Corridor as well as a footbridge over the Car Dyke to join up existing paths in the north-east corner of the Solar Array Area. It is possible that the Cable will be installed on sections of ditch where water voles have been recorded.

7.6.60 There is potential for disturbance of riparian mammals in the construction phase of the development due to increased personnel and noise. Whilst these species can adapt to human disturbance and otters are found in many towns and cities (Chanin 2003), the Proposed Development will cause disturbance that they have not habituated to in this location (e.g. vehicles, personnel in hi-visibility clothing). It is likely that both water voles and otters will temporarily relocate away from the source of the disturbance.

7.6.61 Given the potential ditch crossing required for the Cable Route Corridor, and the construction of Car Dyke footbridge, in the absence of further mitigation there is expected to be a **temporary low adverse impact** on water voles and otters because of disturbance and possible land take, with the resulting effects on the conservation status as **Significant**.

Fish including Eels

7.6.62 During the construction phase, there is risk that watercourses could be impacted. The majority of watercourses will be subject to an appropriate buffer. Watercourses providing habitat to fish and eels will need to be temporarily crossed (one week for smaller ditches making up the majority within the Order Limits up to three weeks for the wider ditches) to provide access to the construction traffic and install the cable.

7.6.63 Overall, given the Cable Corridor Route will have to cross over LWS, there is expected to be a **temporary low adverse impact** on fish including eels as a

result of the Proposed Development, with the resulting effects on the conservation status as **Not Significant.**

Mammals (Hare and hedgehogs)

7.6.64 During the construction phase of the Proposed Development, there will be increased levels of disturbance (i.e. noise) as well as an increased human presence in areas used by small mammals. Whilst these species can adapt to human disturbance, the Proposed Development will cause disturbance that they have not habituated to in this location (e.g. vehicles, personnel in hi-visibility clothing). It is likely that small mammals will temporarily relocate away from the source of the disturbance. The disturbance during the decommissioning phase is likely to have a temporary low adverse impact on small mammals, especially hares which were found within proximity to the site.

7.6.65 Overall, there is expected to be a **temporary low adverse impact** on small mammals because of land take and disturbance, with the resulting effects on the conservation status as **Not Significant.**

7.6.66 During the construction phase of the Proposed Development some areas will include permanent security fences. In places these will not include mammal gaps and restrict access and movement of mammals, to ensure that those areas of the Site are suitable for ground nesting birds. Given the land take and reduced connectivity, a **permanent low adverse impact** on small mammals is expected, with the resulting effects on the conservation status as **Not Significant.**

Operational Phase

7.6.67 In general, for the ecological receptors at the Site, most of the impacts will occur during the construction phase and no impacts will result in significant effects during the operational phase. The majority of the impacts will be related to land take, potential contamination and disturbance, all of which will be due to construction. Following construction this activity will cease and the impacts will not continue. Ground nesting birds will be impacted during construction and the impact (loss of sightlines) will continue during operation; however the impact expected to ground nesting birds will not alter so has not been included as an additional operational impact.

7.6.68 Whilst it is anticipated that occasional maintenance visits will be required during the operational phase, these will be short-term and on such a small scale that any impacts will be unlikely to result a significant effect.

All Habitats - Biodiversity Net Gain

7.6.69 The Proposed Development will result in the Solar Array Area being taken out of arable use as the area will not be accessible to farm machinery (although it could be used for grazing land). This will allow for the creation of new biodiverse habitats during the operational phase. The aim will be to achieve Biodiversity Net Gain on Site with appropriate habitats (i.e. of local providence) for the area and site use, this has been detailed in the **Biodiversity Net Gain Strategy (Document Ref: 7.3)**. Habitats in keeping with the natural landscape character will be targeted (e.g. floodplain grazing marsh and lowland meadows) and existing hedgerows and woodland will be enhanced where possible. The majority of the Site, which is currently arable land, will be

enhanced to be grassland of value to wildlife. The enhanced and newly created habitats will improve opportunity for protected and notable species, supporting food plants of more species and creating new dwelling opportunities.

7.6.70 The landscape planting details will be determined considering the operational needs of the Proposed Development and in consultation with relevant stakeholders. There is expected to be a **permanent medium beneficial impact** with the resulting effect on the conservation status of habitats and the species they support being **Significant**.

Wetland Habitats and Associated Species

7.6.71 During the operational phase of the Proposed Development, as it is assumed the Solar Array Area will be taken out of arable production, there will be little or no need for the application of chemicals (i.e. fertilisers, pesticides and/or herbicides) onto the land. There will consequently be little or no potential runoff into the watercourses and downstream. Depending on the input from adjacent fields not used for the Solar Array Area, this may allow for a greater diversity of flora and fauna in the waterbodies and connected LWS. There is expected to be a **permanent low beneficial impact**, with the resulting effect on the conservation status of waterbodies, LWS and the species they support being **Significant**.

Decommissioning Phase

7.6.72 Many of the impacts during the decommissioning phase will be the same as for the construction phase, however an assessment of the impacts on ecological features (notwithstanding that many are similar) is set out below. As with construction there will be:

- Disturbance due to machinery and personnel required to remove equipment;
- Temporary loss of habitats associated with the Bespoke Access Corridor;
- Risk of mortality or injury of animals using the Site;
- Airborne and waterborne contamination.

7.6.73 As 400 kV cable will not be dug up but left in situ, the impacts from installation of the cabling in the construction phase are not expected to be repeated during the decommissioning phase.

The Wash RAMSAR and SPA

7.6.74 The Wash RAMSAR and SPA lies approximately 15 km to the east and is connected to the Proposed Development by a system of drains, ditches and rivers. Given gadwall were found on Site, it is possible that gadwall could travel between the Wash and the Site and such they are functionally linked by this species.

7.6.75 There is potential for gadwall to be disturbed by noise created and increased personnel as a result of the decommissioning phase. The proposed works are located within 5-10m of the reservoir which supports gadwall during the winter. The noise levels (as per **Chapter 10 Noise and Vibration, Document Ref: 6.2 ES Vol 1, 6.2.10)** are expected to exceed 70dB during the

decommissioning phase. As per the Waterbird Disturbance Mitigation Toolkit (2013), noise at 70dB would incur a risk of disturbance. Given the close proximity and sensitive nature of this species, noise created as a result of construction activities would have a temporary low adverse impact the resultant effect is Significant.

7.6.76 Assuming the Gadwall population in the Wash and Proposed Development are linked, the decommissioning of the Proposed Development will have a **temporary very low adverse impact** on The Wash RAMSAR and SPA, and due to the value of The Wash, the resultant effect on its conservation status is **Significant**.

Wilsford and Rauceby Warrens SSSI

7.6.77 Wilsford and Rauceby Warrens SSSI lies 7.3 km west of the site, the other side of the town of Sleaford. During decommissioning the additional traffic required may impact the air quality of the SSSI; calcareous grassland and GCN are sensitive to nitrogen deposition (including from transport emissions).

7.6.78 Air quality impacts have been assessed as part of **Chapter 16 (Document Ref: 6.2 ES Vol 1, 6.2.16)** and given the mitigation for vehicle increase associated with the development is followed, no impacts are expected on Wilsford and Rauceby Warrens SSSI and the resultant effect on its conservation status is **Not Significant.**

All LWS within 2 km

7.6.79 The majority of the LWS within the Site include ditches or drains and are connected to the Proposed Development hydrologically. The Bespoke Access Corridor will remain in the same location for decommissioning of the Proposed Development During. It is possible the during the decommissioning of the Bespoke Access Road, material could be released into the water courses, which may cause increases in the level of silt present and/or changes to the water chemistry. Either of these effects could impact the LWS supressing plant growth or altering the species composition in the water bodies.

7.6.80 Given the embedded buffers and measures outlined within the **ODEMP (Document Ref: 6.3 ES Vol 2, 6.3.8)**, the decommissioning phase is expected to have a **temporary very low adverse impact** on LWS within 2 km of the Site because of waterborne and airborne contaminants, and the resultant effect on their conservation status is **Not Significant.**

Coastal and Floodplain Grazing Marsh

7.6.81 Coastal and floodplain grazing marsh lies within the Proposed Development. During the decommissioning phase it is not expected that any land take of coastal and grazing floodplain marsh possible that temporary land take of habitats grassland will occur to facilitate the decommissioning of the Solar Arrays or the Access Track Road.

Standing Water

7.6.82 Contaminants could be released during decommissioning into the water courses, which may increase the level of silt and/or change the water chemistry of the standing water. Appropriate buffers minimise the potential for

contamination and measures with Surface Water Drainage Scheme, as such not impact is expected and the resultant effect on its conservation status is **Not Significant.**

7.6.83 In the Bicker Fen Substation area it is not yet know whether the cable connection route may include the removal of a waterbody within the grounds of the Substation. If this waterbody was removed it would reduce this habitat in the local area and will have a **low adverse impact**, the resultant effect on its conservation status is **Not Significant** but additional mitigation is outlined in the scenario that this waterbody is removed.

Invertebrates

7.6.84 Invertebrates use a variety of the habitats found within the Site, including standing and running water, grassland and scrub. Small sections of these habitats may be lost during the decommissioning of the Site. Therefore, it is expected that the habitat loss during the decommissioning of the Proposed Development will have a **temporary low adverse impact on** invertebrates, and the resultant effect on their conservation status is **Not Significant.**

7.6.85 Where watercourses require crossing, for the majority of watercourse the methods will include standard trenching techniques such as open cut, cofferdam and silt curtains.

7.6.86 Many of the invertebrate assemblages found in the Site are likely to be dependent on the waterbodies and adjacent habitats. During construction materials could be released into the water courses that may increase the level of silt present and/or change the water chemistry. Either of these could impact the invertebrates, either directly causing mortality (e.g. toxins killing invertebrates or silts preventing them from breathing) or indirectly by supressing their food plant growth or altering the species composition in the waterbodies.

7.6.87 Given the embedded buffers and outlined method of crossing watercourses, especially those of higher conservation value, the watercourses will have minimal contamination, but in the absence of further mitigation there will be a **temporary very low adverse impact** on invertebrates, and the resultant effect on their conservation status is **Not Significant.**

Great Crested Newt

7.6.88 GCN are dependent on the waterbodies and adjacent habitats during the breeding season. During decommissioning, material could be released into the water courses that may increase the level of silt present and/or change the water chemistry. Either of these could impact the GCN and result in mortality (e.g. toxins killing GCN or silts preventing their young from breathing underwater). There could be an increase in GCN populations due to enhancements of the Site. Further surveys may be required to fully assess the impact of the decommissioning. It is assumed that there will be a **temporary low adverse impact** on GCN as a result of waterborne contaminants, and the resultant effect on their conservation status is **Significant**.

Reptiles

7.6.89 Reptiles use scrub, grassland and tall ruderal vegetation. Sections of these habitats will be lost during the decommissioning phase. This could result in direct mortality or injury of individuals as well as reptiles losing habitats for the period it takes for the habitats to recolonise. It is not known at this stage which habitats will be removed (if any), but the grassland habitats may take over 20 years to recover. Therefore, it is expected that the habitat loss during the decommissioning of the Proposed Development will have a **temporary very low adverse impact** on reptiles. As the populations of reptiles encountered have been small, the resultant effect on their conservation status is **Not Significant**.

Wintering and Breeding Birds

7.6.90 During the decommissioning phase of the Proposed Development there will be an increase in people and associated disturbance (e.g. increase noise levels). This is likely to result in birds dispersing from the areas of the Site where works are taking place.

7.6.91 It is expected that the Solar Array Area will be decommissioned in plots. Once one plot is finished the works will move on to the next, rather than the whole site having materials removed at the same time. Birds will, therefore, be able to use unaffected plots whilst the decommissioning is occurring and relocate back in once it is finished. Owing to the availability of offsite nesting options, the loss of nesting resources is expected to be a **temporary very low adverse impact** and the resultant effect on their conservation status is **Not Significant**.

7.6.92 Notwithstanding this, as a proportion of the land will be unavailable due to disturbance at any one time, there will be an increase in competition for food resources on the remaining land during the seasons birds are using the Site. Therefore, it is expected that disturbance during decommissioning will have a **temporary low adverse impact** on wintering and breeding birds, and the resultant effect on their conservation status is **Significant**.

7.6.93 The land occupied by the solar development will be released post development, which if the habitats continue to be managed sympathetically will provide greater opportunities for ground nesting birds such as skylark. In addition there will continue to be field margins/ buffer areas which provide suitable nesting and foraging provision for ground nesting birds. This will have a **low beneficial impact** of breeding birds and the resultant effect on their conservation status is **Significant.**

Badgers – Confidential

7.6.94 During the decommissioning phase, there is the risk that setts could be damaged, potentially resulting in injury or mortality of any individuals present at the time from decommissioning works. If any new setts are found prior or during the decommissioning, these will be noted, and the mitigation buffers will be implemented. Due to the mobile nature of the species, it is possible that new setts could be constructed during the decommissioning phase. As such, there is expected to be a **temporary very low impact** on badgers during decommissioning. As their protection is to avoid persecution rather than because of their conservation status, the resultant effect is **Not Significant**.

Bats

7.6.95 As part of embedded mitigation appropriate buffers have been built into the design proposals for the Proposed Development area to avoid loss of hedgerows and woodland, including any trees that may contain bat roosts.

7.6.96 There may be unavoidable loss of some hedgerows to facilitate access for the decommissioning. Large gaps in the hedgerow may prevent bats crossing from roosts to foraging areas. Likewise, lighting during the decommissioning phase can prevent light-averse species from following commuting routes or foraging in an area (e.g. if a watercourse is lit, bats will avoid flying along this feature and feeding above it). There is assumed to be a **temporary medium adverse impact** on bats. Owing to the presence of a rare bat species at the Site, the resultant effect on conservation status is **Significant**.

Fish and Eels

7.6.97 As part of embedded mitigation, appropriate stand-off buffers have been included around watercourses in the Solar Array Area, although there will still likely need to be crossings for access roads. **Appendix 2.5 Outline Decommissioning Environment Management Plan (ODEMP) (Document Ref: 6.3 ES Vol 2, 6.3.8)** includes measures to prevent impacts from pollutants. Where feasible, important watercourses will be crossed using HDD methods. Where ditches are to be crossed using open cut methods this may temporarily block commuting routes. This is not expected to be last more than one week per watercourse.

7.6.98 Overall, there is expected to be a **temporary low adverse impact** on fish and eels as a result of the proposed development, with the resulting effects on the conservation status as **Not Significant.**

Mammals (Hare and hedgehogs)

7.6.99 During the decommissioning phase of the Proposed Development, there will be increased levels of disturbance (i.e. noise) as well as an increased human presence in areas used by small mammals. Whilst these species can adapt to human disturbance, the Proposed Development will cause disturbance that they have not habituated to in this location (e.g. vehicles, personnel in hi-visibility clothing). It is likely that small mammals will temporarily relocate away from the source of the disturbance. The disturbance during the decommissioning phase is likely to have a temporary low adverse impact on small mammals, especially hares which were found within proximity to the site.

7.6.100 Overall, there is expected to be a **temporary low adverse impact** on mammals because of land take and disturbance, with the resulting effects on the conservation status as **Not Significant**.

All Habitats - Biodiversity Net Gain

7.6.101 As part of the decommissioning phase, the Solar Array Area will be restored to arable use. This is assumed to result in the loss of most or all of the habitats created to deliver BNG. The 40-year operational phase will be longer than the 30 years habitats must be maintained for in the Environment Act 2021. Notwithstanding, there is expected to be a loss of priority habitats.

7.6.102 Where possible, habitats will be retained during decommissioning (e.g. as field margins and enhanced hedgerows) and it is anticipated that there will be an enhancement greater than if the Proposed Development did not occur. There is expected to be a **permanent low adverse impact** on the habitats and species they support. However this is assuming development and BNG takes place; compared to a 'no development' scenario the post-decommissioning habitats will be the same or better condition. Therefore, there will be a resulting **Not Significant** effect on the conservation status of all habitats.

7.7 Additional Mitigation

7.7.1 Pre-construction surveys, such as Phase 1, badger and/or riparian mammals, and pre-works habitat assessment for fish, will be undertaken to support the baseline survey findings and to comply with relevant wildlife legislation. This is especially important for land within the Bicker Fen substation where the precise route and connection point currently has varying options.

7.7.2 This will also be required for any protected species licencing such as for GCN and any other protected species that may be identified as being necessary at detailed design stage.

7.7.3 The GCN mitigation will be discussed with Natural England using the Discretionary Advice Service. Based on the location of the GCN eDNA positive results the mitigation may involve:

- Installation of barriers to prevent GCN accessing the site during construction;
- Creation of improved habitat within the Order Limits to maintain the favourable conservation status of local GCN populations; and
- Post-construction monitoring of the populations.

7.7.4 Prior to any instream works, a pre-works habitat assessment will be undertaken by a suitably qualified ecologist to identify suitability for fish and sensitive aquatic species such as European eel and Spined loach. For fish where habitats are confirmed, appropriate site-specific mitigation will be implemented. Post-construction monitoring will be undertaken (where applicable) to confirm recovery, and remedial measures will be implemented if significant ecological degradation is observed.

7.7.5 Preconstruction surveys will also provide an update on the presence and location of any invasive and non-native species. This will inform the production of a Biosecurity Management Plan which will set out procedures to ensure that no invasive species are brought onto the Site (e.g. WCA Schedule 9 species) and will be secured through the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**. In the event that any invasive non-native species are identified prior to and or during the development process, exclusion zones will be established around them, and an Ecological Clerk of Works (ECoW) contacted for advice as required.

7.7.6 A **HRA (Document Ref: 5.2)** has been completed and mitigation within this in relation to designated sites and their qualifying features will be agreed with Natural England. The mitigation includes:

- Setting up a 60 m buffer zone around the location where gadwalls and lapwing were found to avoid noise disturbance over the winter (November to February);
- Update otter surveys;
- Undertaking environmental inductions for all contractors to inform the workforce of how disturbance can occur and how to avoid it;

Construction Phase Mitigation Measures

Mitigation of Construction Leading to Mortality, Injury, Disturbance or Habitat Loss

7.7.7 A security perimeter fence due to be implemented during the construction phase will include gaps to allow mammals that may use woodland habitats (such as small deer, badger, and hedgehog, to pass underneath at predetermined points. Areas outlined for ground nesting birds which include quail, will not include such gaps to prevent mammals eating chicks or eggs.

7.7.8 A full outline of mitigation techniques such as precautionary working methods has been included within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**.

Mitigation of Construction Leading to Great Crested Newt Mortality, Injury, Disturbance or Habitat Loss

7.7.9 A European Protected Species mitigation licence is necessary to permit construction work given the nearby GCN populations and their conservation status or the habitat in which they are found. Further surveys to assess population sizes within confirmed metapopulations will be needed to inform the licence application. Population surveys will take place in the survey season before licensable works commence. Required mitigation (such as fencing to keep GCN out of working areas and enhancement of existing ponds to provide more breeding waterbodies) will be agreed with Natural England. To avoid impacts during the construction process this will include.

- Installation of barriers to prevent GCN accessing the site during construction; and
- Creation of improved habitat within the Order Limits to maintain the favourable conservation status of the local populations of GCN.

7.7.10 Monitoring will take place post-construction to make sure the mitigation outlined above is successful and populations of GCN are at least maintained.

7.7.11 Further best practice working methods such as storage of materials and backfilling trenches will be followed as outlined within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**.

Mitigation of Construction Leading to Water Vole Mortality, Injury, Disturbance or Habitat Loss

7.7.12 The ditches within and around the Cable Route Corridor and Bespoke Access Corridor support water vole. Buffers are provided as embedded mitigation but due it is possible that sections of water vole habitat or dwellings may be lost. These sections will be up to 30 m on each bank of ditch crossed in the Cable Route Corridor, and up to 50 m on each bank in the Bespoke Access Corridor. Before the cable installation works begin, there will be pre-construction surveys of the ditches due to be crossed. If any water vole signs are found and the route cannot be modified in areas to be impacted, a licence from Natural England will be required to proceed with the works. This will involve mitigation such as exclusion and appropriate timing of works.

Mitigation of Construction Land Take Leading to Habitat loss

7.7.13 Within the Bicker Fen substation there will be loss of plantation woodland, a line of trees grassland and scrub. Appropriate pre-construction species surveys should take place on these habitats. Any vegetation removal would follow measures outlined within the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**. Habitat lost will be replaced, where possible in the same location, where this is not possible sufficient habitat has been enhanced and created in the Solar Array Area to compensate for that lost. Habitat replacement and compensation will follow best practice guidelines and in line with the BNG metric.

7.7.14 Construction activities associated with the Proposed Development will require the temporary removal of grassland, hedgerow, tall ruderal and other habitats as access roads are built and the cable is installed. To minimise the impact of this, the works will retain the above ground vegetation and/or seed bank separately from subsoil so that it can be replaced and quickly re-established. Full details will be included within the OCEMP or equivalent and will be tailored depending on the habitat(s), including:

- Temporary 'crossings' for bats will be placed in the gaps in hedgerows at night to maintain a commuting corridor; and
- Grasslands and herbs will be maintained by keeping topsoil separate, to be spread over the subsoil once the construction activities are completed. Where the habitat is particularly important, it may be appropriate that turfs are cut and kept separate from the subsoils and topsoil.

Operational Phase Mitigation Measures

7.7.15 As no significant negative effects are expected from the operational phase of the Proposed Development, no further mitigation measures are proposed beyond those already discussed in the construction phase above and which will continue to apply where relevant, e.g. the **OLEMP (Document Ref: 6.3 ES Vol 2, 6.3.19)**.

Decommissioning Phase Mitigation Measures

7.7.16 It is anticipated that equivalent mitigation measures from those used in the construction phase would be followed in the decommissioning phase, subject to the relevant regulatory controls and processes which exist at that point in time.

7.8 Enhancement Measures

7.8.1 Aside from the additional mitigation measures outlined here, habitat enhancements will be made in support of biodiversity net gain, these will be secured via the **Biodiversity Net Gain Strategy (Document Ref: 7.3).** These enhancements have been guided by the biodiversity opportunities laid out in the relevant local plan and landscape scale ecology strategies. As the Local Nature Recovery Strategy is still under development for Lincolnshire, the Proposed Development will aim to support the strategy's targets for nature where practical. Habitats are mapped on **Figure 6.31 Landscape Strategy Plan (Document Ref: 6.4: ES Vol 3, 6.4.42)** and further detailed within the **OLEMP (Document Ref: 6.3 ES Vol 2, 6.3.19)**. It will include:

- Management of grassland to maximise species diversity by selective cutting and grazing
- Woodland management encouraging shrub layer/understorey and ground flora through opening up the established canopy and planting appropriate native species.

Habitat boxes

7.8.2 To enhance the value of the woodlands for birds and bats, a variety of artificial nesting and roosting boxes will be installed in existing woodland areas, on retained individual trees, and on existing trees within hedgerows. This will increase the availability of suitable nesting and roosting sites for these species.

7.8.3 A total of 40 bird nest boxes and 30 bat roost boxes of varying types to suit different species of birds and bats will be installed within the retained woodland areas on suitable trees, on individual trees and on hedgerow trees, in locations to be determined by an ecologist at the time of installation. Bat and bird boxes will be made from long lasting materials. Where replacements are required, then these will be erected to ensure provision throughout the lifespan of the project.

Habitat piles

7.8.4 Habitat piles and hibernaculum will be created throughout the scheme to provide habitat for a range of amphibians, reptiles and invertebrates. These will be created using manage made and natural debris and will be positioned in target areas such as close to ponds, watercourses or at the edge of woodland which is well connected.

7.9 Residual Effects

7.9.1 On the basis that the mitigation measures set out and controlled in the draft DCO are undertaken and monitoring and remedial actions take place, no significant residual negative effects are anticipated, as shown below and in Tables 7.9, 7.10 and 7.11 following. Beneficial effects are expected through enhanced habitats supporting a more diverse flora and fauna, along with reduced chemical input onto the land and into watercourses.

7.9.2 Where a licence is obtained for protected species such as GCN and (if required) water vole, negligible impact is expected and the resultant effect on their conservation status is Not Significant.

7.9.3 Where Pollution Prevention Guidance measures are adopted within an **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)**, the impact of exposure to contamination on all LWS present within 2 km of the Site, standing water, and invertebrates is Negligible and the resultant effect on their conservation status is Not Significant.

7.9.4 Where an **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** detailing measures to mitigate for land take is adopted, the impact of habitat loss on Great Hale Eau and South Forty Foot Drain LWS, coastal and floodplain grazing marsh, invertebrates and commuting bats is Negligible and the resultant effect on their conservation status is Not Significant.

7.9.5 Where a lighting design and appropriate working schedule as detailed in the **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** is adopted the impact of light pollution on foraging and commuting bats is Negligible and the resultant effect on their conservation status is Not Significant.

Table 7.9 – Summary of Impacts, Mitigation and Residual Effects from Construction Phase

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
The Wash and North Norfolk Coast SAC	Very Low adverse Significant impact due to potential functional linkage via otter populations.	Avoid otter habitats retaining dwellings (where possible), minimise disturbance and, if necessary, temporarily exclude from the potential development under licence.	Negligible	Not significant.
Other statutory designated Sites	Not Significant	None required.	N/A	N/A
Great Hale Eau LWS, South Forty Foot Drain LWS	Low Adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
All LWS within 2 km	Not significant	None required.	Negligible	Not significant.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Coastal and floodplain grazing marsh/Semi improved grassland	Low adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Standing water	Medium Beneficial Significant impact	Waterbodies enhanced by appropriate buffer planting and desilting measures.	Negligible	Not significant.
Other habitats	Not Significant	Creation of new ecologically beneficial habitats, enhance hedgerows planting up gaps.	Negligible	Not significant.
Invertebrates	Medium Adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Great Crested Newt	Low Adverse Significant impact	Avoid suitable habitats where possible. A great crested newt licence will be obtained which will include mitigation and enhancement. This will include fencing and habitat improvements.	Negligible	Not significant.
Reptiles	Very Low Adverse Significant impact	Reptiles will be excluded from working areas. Retention of commuting and foraging habitats within the Site.	Negligible	Not significant.
Wintering Birds	Low Adverse Significant impact	Avoid disturbance over winter where possible. Utilise quieter techniques and /or acoustic and visual barriers to reduce disturbance.	Negligible	Not significant.
Breeding Birds	Low Adverse significant Impact	Retention of nesting and foraging habitats. Avoid removal of habitats within the nesting season if possible.	Negligible	Not significant.
Bats	Medium Adverse significant impact	Retention of foraging and commuting routes. Sensitive lighting scheme.	Negligible	Not significant.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
		Habitat boxes installed for roosting bats.		
Badger	Very Low Not Significant impact	Buffer zones around known badger setts, planting of open green spaces. Mitigation to adhere to relevant legislation.	Negligible	Not significant.
Otters	Low Adverse Significant impact	Avoid otter habitats containing refuges where possible, minimise disturbance and if necessary, temporarily exclude from the potential development under licence.	Negligible	Not significant.
Water Vole	Low Adverse Significant impact	Retention of known water vole habitats with suitable buffers. Temporary displacement of water voles under licence if required.	Negligible	Not significant.
Fish and Eels	Low Adverse Significant Impact	Retention of known watercourses and suitable buffers.	Negligible	Not significant
Other Mammals including deer, Brown hares and Hedgehogs	Very Low Adverse Impact	Best practice measures such as providing appropriate gaps in fencing, sensitive vegetation clearance, correct storage of materials and backfilling any excavations.	Negligible	Not significant

Table 7.10 – Summary of Impacts, Mitigation and Residual Effects from Operational Phase

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
All LWS within 2 km	Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Standing water	Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant.
Other habitats	Not Significant	Creation of new ecologically beneficial habitats, enhance hedgerows planting up gaps.	Medium beneficial	Significant.
Invertebrates	Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant.
Great Crested Newt	Medium Beneficial Significant impact	Proposed Development will create open green spaces for foraging and hibernating newts. As part of the licence process the improvement of onsite ponds will be outlined. During operation, agricultural chemical input will be lessened.	Medium beneficial	Significant.
Reptiles	Medium Beneficial Significant impact	Proposed Development will create open green spaces for foraging and hibernating reptiles.	Likely medium beneficial	Significant.
Wintering Birds	Not Significant	None required.	N/A	N/A
Bats	Low Beneficial Significant impact	Planting of open green spaces to enhance foraging and commuting within the Site.	Low beneficial	Significant.
Badger	Low Beneficial Not Significant impact	Planting of open green spaces.	Likely medium beneficial	Not significant.
Fish and Eels	Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant
Other Mammals including deer, Brown hares and Hedgehogs	Low Beneficial Not Significant impact	Planting of open green spaces.	Likely medium beneficial	Not significant

Table 7.11 – Summary of Impacts, Mitigation and Residual Effects from Decommissioning Phase

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Great Hale Eau LWS, South Forty Foot Drain LWS	Low Adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
All LWS within 2 km	Not Significant impact	None required.	Negligible	Not significant.
Coastal and floodplain grazing marsh/Semi improved grassland	Low adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Standing water	Medium Adverse Significant impact	Follow standard pollution avoidance during construction of access route.	Negligible	Not significant.
Other habitats	Not Significant	None required.	N/A	N/A
Invertebrates	Medium Adverse Significant impact	. Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Great Crested Newt	Low Adverse Significant impact	Avoid suitable habitats where possible. If not, GCN will be temporarily excluded from areas to be impacted.	Negligible	Not significant.
Reptiles	Very Low Adverse Significant impact	Reptiles will be excluded from working areas. Retention of commuting and foraging habitats within the site.	Negligible	Not significant.
Wintering Birds	Low Adverse Significant impact	Avoid disturbance over winter where possible. Utilise quieter techniques and /or acoustic and visual barriers to reduce disturbance.	Negligible	Not significant.
Breeding Birds	Low Adverse significant Impact	Retention of nesting and foraging habitats. Avoid removal of habitats within the nesting season if possible.	Negligible	Not significant.
Bats	Medium Adverse significant impact	Retention of foraging and commuting routes. Sensitive lighting scheme.	Negligible	Not significant.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Badger	Very Low Not Significant impact	Buffer zones around known badger setts. Mitigation to adhere to relevant legislation.	Negligible	Not significant.
Fish and Eels	Low Adverse Significant Impact	Retention of known watercourses and suitable buffers.	Negligible	Not significant
Other Mammals including deer, Brown hares and Hedgehogs	Very Low Adverse Impact	Best practice measures such as fencing, sensitive vegetation clearance, correct storage of materials and backfilling any excavations.	Negligible	Not significant

Monitoring

7.9.6 Monitoring of habitats and species will be undertaken in accordance with the species licences and/or precautionary method statements. To deliver BNG, a Habitat Monitoring and Maintenance Plan (HMMP) or equivalent will be required and will include monitoring and maintenance of created habitats. Any licences, method statements, HMMP or equivalent will include measures to determine success of the mitigation / enhancement measures.

7.10 Assessment of Cumulative Effects

Intra-Cumulative Effects

7.10.1 The consideration of intra-cumulative effects is inherent within this assessment. Ecological receptors which could experience intra-cumulative effects are summarised below:

Fauna species (including bats, birds, otter and water vole)

7.10.2 Potential intra-cumulative impacts may arise through disturbance caused by increased noise and vibration levels as a result of both onsite activities and traffic associated with construction and / decommissioning, plus reduced habitat quality due to dust deposition.

7.10.3 With the mitigation measures related to noise and dust management set out within the **OCEMP (Document Ref: 6.3 ES Vol.2, 6.3.7)** and **ODEMP (Document Ref: 6.3 ES Vol.2, 6.3.8)** in place, no significant intra-cumulative effects are anticipated.

Local Wildlife Sites

7.10.4 Potential intra-cumulative impacts may arise through airborne or hydrological pollution events. This could occur for the LWS within the Site, and other sites hydrologically connected to the Site.

7.10.5 A minimum 5 m buffer from built development was applied along or around every watercourse and waterbody within the Site (except where crossings are required). The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** and **ODEMP (Document Ref: 6.3 ES Vol.2, 6.3.8)** include requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off; and mitigation for the vehicle increase associated with the Proposed Development. With these measures in place, no significant intra-cumulative effects are anticipated.

Habitats (grasslands, watercourses and water bodies)

7.10.6 Grasslands within the Site could be affected by works which involve soil removal. Uncontrolled works could result in sediment or pollution which may cause increases in the level of silt present and/ or changes to the water chemistry in watercourses and water bodies. Where the Proposed Development includes soil removal, any soil will be added back in the order that it was removed in. This will include replacing the subsoil first and then replacing any turf (as set out within **Appendix 14.4 Outline Soil Management Plan (OSMP) (Document Ref: 6.3 ES Vol.2, 6.3.95)**. A minimum 5 m buffer from built development was applied along or around every watercourse and waterbody within the Site (except where crossings are required). The **OCEMP (Document Ref: 6.3 ES Vol 2, 6.3.7)** and **ODEMP (Document Ref: 6.3 ES Vol.2, 6.3.8)** include requirements to minimise any possible impacts during construction such as safe storage of chemicals and prevention of sediment run off. With these measures in place, no significant intra-cumulative effects are anticipated.

Inter-Cumulative Effects

7.10.7 The following developments were considered to in relation to potential in-combination impacts with the Proposed Development. These were identified due to their type, scale, proximity to the Proposed Development or timescale of the development. No other schemes were identified as having the potential for a cumulative effect on ecological features with the Proposed Development. Further details on these developments are given in **Chapter 4 Scope & Methodology (Document Ref: 6.2 ES Vol 1, 6.2.4).**

Triton Knoll Electrical System (EN090019)

7.10.8 This development involves the installation of cables and construction of a substation in the vicinity of the Proposed Development. As this development has already been constructed and is in the operational phase, there is expected to be little or no crossover with the Proposed Development and no in-combination impacts with respect to ecological receptors / features.

Heckington Fen Solar Park (EN010123)

7.10.9 This development includes the construction of a solar farm with associated infrastructure and connection to the national grid at Bicker Fen Substation. This is a similar development to the Proposed Development, to be constructed at a similar time and has the potential to have in-combination impacts on watercourses, the LWS, GCN, birds, bats and otters. The Heckington Fen application includes mitigation to avoid impacts on these features, which with the mitigation outlined in Section 7.7 would be expected avoid adverse in-combination impacts with the Proposed Development.

7.10.10 Heckington Fen has included biodiversity enhancements that, in-combination with the Proposed Development, should improve habitat connectivity through the landscape and provide an increased benefit to ecological receptors / features.

Outer Dowsing Offshore Wind (Generating Station) (EN010130)

7.10.11 The proposal includes for the creation of an offshore wind farm with an onshore connection. The project involves the installation of up to 100 turbines, with an onshore underground cable connection to a National Grid substation. Whilst the main infrastructure is offshore, the underground cable connection is proposed to link to the national grid near Sutterton, within a 12km radius of the cable corridor of the Site. Given the cable route of the wind farm will likely cross similar habitats to that of the Site, potential in-combination impacts are possible. Both cable routes will be subterranean, as such any impact to habitats will be temporary. Other impacts could include, GCN, birds, bats, water voles and otters. It is noted that both projects will include embedded mitigation and habitat/species enhancement as part of the required BNG assessment. As such adverse in-combination impacts are not expected.

Lincolnshire Reservoir (WA010003)

7.10.12 This development includes construction of a reservoir with ancillary infrastructure. It is located 5.8km from the Order Limits. It is currently in the Pre-application stage, expected to be submitted in Q4 2028. Little information is available at the time of writing and as such it is not possible to fully determine

the likely magnitude of any impacts and whether greater mitigation is required. However, the construction of this reservoir is anticipated to commence after the Proposed Development is complete and, therefore, it is likely there will be no in-combination impacts with respect to ecological receptors / features.

Springwell Solar Farm (EN010149)

7.10.13 Springwell Solar Farm is located 11.6km from the Order Limits. It includes the installation of a proposed new solar farm with battery storage and supporting grid connection infrastructure in North Kesteven, Lincolnshire. This project was accepted for examination in January 2025. The proposal is a similar development to the Proposed Development Site and will likely have periods of overlapping construction. It therefore has the potential to have in-combination impacts on watercourses, the LWS, GCN, birds, bats, water voles and otters. From the initial ecology surveys for Springwell, no reptiles or GCN were found. Similar habitat which is suitable for ground nesting birds will be disturbed during the construction phase and the occupation of the site will also limit some species such as skylark which need clear line of site to nest. Springwell Solar Farm has outlined habitat creation, enhancement and a management/monitoring programme will be documented within the LEMP. As both the Proposed Development Site and Springwell Solar Farm are providing enhancement of habitat for ground nesting birds, no additional cumulative impacts are expected for bird species. Mitigation is also outlined by Springwell Solar Farm for bats and LWS.

Boston Alternative Energy Source (EN010095)

7.10.14 This development is located 12km from the Order Limits. The proposal includes the construction of new facilities which will deliver 102 MW of energy to the National Grid using Refuse Derived Fuel as feedstock. This development is at the post-decision stage, with planning granted in July 2023. The only overlapping protected species issue is birds. However, the birds affected by the Boston Alternative Energy Source (BAES) are wading birds. Given that mitigation is in place for the wading birds impacted at BAES and the same species of wading birds are not expected to be impacted on the Beacon Fen Site, no cumulative impacts are expected.

Temple Oaks Renewable Energy Park (EN010126)

7.10.15 The proposal is located 15.9km from the Site. The development is for a solar installation with associated infrastructure. The development is in the pre application planning stage. The new Energy Park is to be constructed on an old airbase, with many of the current features being adapted for the new development. It has the potential to be in the construction phase at the same time as the Proposed development Site. Although most of the habitat is brown field there is portion of the site which will have solar units on previously arable land. As a result, there is potential for in combination impacts on species which use arable land such ground nesting birds. Although mitigation is expected for this Energy Park, it is not yet outlined. However, given the small loss of overlapping habitats and the distance between the proposals, no impact is expected.

7.11 Summary

7.11.1 The Site contains two local wildlife sites with seven more relatively close; it is also hydrologically connected and therefore functionally linked to an internationally designated site. The site lies in a landscape where arable farming dominates with fields delineated by drainage ditches and to a lesser extent hedgerows. Grassland is found at the margins of ditches, and waterbodies and woodland are occasionally found in the site. The site is of value to birds during the winter and breeding periods, foraging and commuting bats and badgers. It is likely to support a range of invertebrates and records of GCN, reptiles, otters and water voles have been found in the vicinity of the site.

7.11.2 During the construction and decommissioning phases, the principal impacts will comprise of:

- Land take during construction and decommissioning, loss of breeding habitat for ground nesting birds, creation of gaps in hedgerows used by commuting bats, destruction of badger setts; killing and injury of protected species;
- Waterborne and airborne contamination of habitats; including damaging the integrity of habitats making up the nearby SSSI and LWS;
- Disturbance of protected species and fragmentation of their habitats including direct disturbance of birds, badgers or otters using an area, and bat commuting habitat being fragmented by physical gaps in hedgerows, or lighting (which they will avoid).

7.11.3 During the operational phase there will be an overall beneficial impact on ecology as valuable habitats will be created/enhanced and reach maturity during this phase including grasslands and gapped-up hedgerows. It is likely that as the fields in the Solar Array Area are taken out of production then agricultural inputs (fertilisers, pesticides etc) will decrease and less will run off into the local watercourses improving the water quality and supporting more diverse wildlife.

7.11.4 Potential impacts on ecological receptors were reviewed alongside other potential environmental impacts to determine the best layout within the Solar Array Area and routes for the corridors.

7.11.5 Mitigation embedded within the development will involve designing in:

- Buffers around woodland, hedgerows and ditches, and any known main badger setts,
- Creation of Wildflower meadows.

7.11.6 Further mitigation will involve:

- Further surveys including update badger and riparian mammals during or following the detailed design stage, to avoid sensitive habitats and species,
- Timing works to avoid impacts;
- Use of barriers to reduce disturbance and/or keep protected species out of the works areas, under licence where needed;

- Avoiding or minimising airborne and waterborne pollution through works techniques;
- Infilling gaps in hedgerows after works, increasing the diversity of native plant species, and managing these to allow them to grow more dense and/or wider;
- Considering protected species in lighting design.

7.11.7 The proposed mitigation is anticipated to eliminate any significant adverse impacts. Monitoring of habitats to ensure they establish and are maintained in good condition in the long term will be necessary for the BNG assessment and detailed in the **OLEMP (Document Ref: 6.3 ES Vol 2, 6.3.19).** Monitoring of protected species will be as per the species licence requirements.

7.11.8 No cumulative effects have been established at present with other local schemes, these will be reviewed as the Proposed Development and other schemes progress. Additionally, opportunities to work with other developments to have a greater cumulative beneficial impact will continue to be explored.

7.11.9 A summary of the likely significant residual effects of the Proposed Development on the receptors considered within this Chapter are summarised in Table 7.12 below.

Table 7.12 – Summary of Impacts, Mitigation and Residual Effects

ISSUE	DESCRIPTION OF IMPACT	GEOGRAPHICAL SIGNIFICANCE							IMPACT	NATURE	SIGNIFICANCE	MITIGATION MEASURES
		I	N	R	C	D	P	L				
ECOLOGY												
All LWS within 2 km	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	Not significant	N/A
Standing Water	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	Not significant	N/A
Habitats - General	Operation: Improvements to habitats through Biodiversity Net Gain.				X				Medium Beneficial	Lt, R	Significant	N/A
Wetland Habitats and Connected LWS	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	Not significant	N/A
Invertebrates	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	Not significant	N/A

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