



BEACON FEN

ENERGY PARK

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List of Outstanding Issues and Information

Outstanding issue/info.	Section/Paragraph	Responsibility	Action

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7. ECOLOGY

7.1 Introduction

7.1.1 This Chapter reports the preliminary 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 end of this PEIR (Chapters 1 – 5) and particularly to the description of the Proposed Development in Chapter 2, which includes details about the Site, construction, operation and decommissioning of the Proposed Development, as well as the final chapter, 'Summary of Environmental Effects' (Chapter 17).

7.1.3 This chapter is accompanied by the following Appendices and Figures:

- 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
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7.1.4 As set out within Chapter 1, the information set out within this Chapter is preliminary and intended to inform consultees (both specialist and non-specialist) about the likely environmental effects of the Proposed Development, helping to inform their consultation responses.

7.2 Legislation and Policy

7.2.1 The legislation and policy considered relevant to the assessment of Ecology are listed below, with details provided in Appendices 7.1 and 7.2.

Legislative Framework

7.2.2 The applicable legislation includes:

- The Environment Act 2021;

- Conservation of Habitats and Species Regulations 2017 (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'); and
- 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.

Planning Policy

7.2.3 The applicable planning policy includes:

- Emerging Overarching National Policy Statement for Energy (EN-1) (November 2023);
- Emerging National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023);
- Emerging National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023);
- National Planning Policy Framework (NPPF) 2023;
- 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 will be ongoing throughout the preparation of the DCO application; to date, it can broadly be divided into the following key stages:

- EIA Scoping;
- Early Non-Statutory Consultation; and
- Direct Topic-Specific Consultation.

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 CIEEM 2018 the ZOI will be reviewed throughout the EIA process. Twenty kilometres was chosen as a reasonably large distance for birds to travel from coastal SPA to their inland foraging

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
				grounds. The study area was not considered likely to be of significant value to migrating bats.
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 is not expected to deviate from the scoping report. However, if for example during surveys an ecological feature is found not to be present, this will be discussed within the ES baseline and scoped out of the impact assessment section of the chapter
PINS	May 2023	Scoping Report	Sufficient justification, supported by evidence and agreement from statutory consultees required to scope out specific features from the assessment.	This process will be that adopted within the ES chapter. All likely ecological features will be considered within the baseline for survey. Where survey shows they are unlikely to be present or the feature is of negligible importance it will then be scoped out of further impact assessment withing 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.	We are planning to consider this potential. Bird surveys are being undertaken to determine if the same populations could use the development site and designated sites, i.e. if they are functionally linked
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	Confidential annexes will be clearly defined

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			be provided as a confidential annex.	
Lincolnshire County Council	May 2023	Scoping opinion	Agreed in scoping response that ecology should be scoped in.	
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Air Quality impacts on SSSI's to be considered.	Impacts during construction (sections 7.6.5-7.6.6) and decommissioning (7.6.47) have been considered.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Consideration of habitat/protected species be at the landscape scale.	Assessment has reviewed the local population. A review of cumulative schemes and the impact on the habitats and protected species on a wider scale is given in Section 7.9.2 to 7.9.7.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Consideration should be made of impacts on ground nesting birds due to land take.	Impacts on ground nesting birds during construction are dealt with in Sections 7.6.31-7.6.32
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Biodiversity net Gain (BNG) assessment and habitat management plan to be written (including retained / enhanced features).	A BNG assessment and habitat management plan (Landscape and Ecology Management Plan) will be produced as part of the DCO application
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Further detail of likely impacts on watercourse effects and species that use them.	This has been considered for the watercourse and species they support including invertebrate assemblage (e.g. sections 7.6.14 to 7.6.19 for construction impacts).
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.
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	Noted that Ancient woodland (AW) may not be marked. Note that the fenlands are

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			demonstrate the absence of ancient woodland.	less likely to have supported woodland prior to being drained therefore AW is less likely to be present (dependant on when the area was drained).
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Woodland, hedgerow and ditch habitat surveys required, with Site Condition Assessment of habitats for BNG.	Botanical condition assessments will form part of the DCO application to support the BNG assessment.
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 to increase our knowledge of the species. This has been limited to the red line due to access.
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.	These opportunities will be reviewed through the DCO process, noting the historic land use.
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 in Section 7.1.74-7.1.75, 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 should be used when formulating BNG.	As above opportunities will be taken through the DCO process, reviewing this information and noting the historic land use.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Recommend enhancing existing woodland and planting to increase	The land scape plan is being developed. With reference to the landscapes historic fen

ORGANISATION	DATE	FORM OF CONSULTATION	COMMENTS	SUMMARY OF OUTCOME
			woodland blocks to at least 5 ha.	habitats, woodland has not been targeted, but this will be reviewed through the DCO process.
AECOM on behalf of North Kesteven District Council	May 2023	Scoping opinion	Deer impacts of solar farms / excluding them from areas.	The placement of fencing for the protection of wildlife using the site (e.g. ground nesting birds) as well as a barrier to animals will be considered as the design is detailed in the DCO application.
Early Non-Statutory Consultation				
Lincolnshire Wildlife Trust	October 2023	Workshop	Roundtable discussions between various stakeholders covering general constraints and opportunities with solar farms in Lincolnshire,	Draft outputs from the event expected to be issued winter 2023/24. Recommendations will be reviewed during the DCO process.

Scope of the Assessment

7.3.3 The method for determining the scope of the assessment within the Ecological Impact Assessment (EclA) differs from that used in other technical chapters within this PEIR to correspond with topic specific guidance (i.e. CIEEM 2018). This includes the concept of Zone of Influence, 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).

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 zone of influence 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;
- Describe whether any of the likely significant effects are temporally 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 (see Sections 7.5.2 to 7.5.41) 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	<ol style="list-style-type: none"> 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. 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 EclA for designation as a European site or Ramsar site, but which are not themselves currently designated at this level.
National	<ol style="list-style-type: none"> Nationally designated sites including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNRs). 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 EclA, and in agreement with Natural England. 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. Areas of Ancient Woodland (e.g. woodland listed within the Ancient Woodland Inventory) and ancient and veteran trees.
Regional (e.g. east midlands)	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> Local Nature Reserves (LNR) and non-statutory designated sites (i.e. Local Wildlife Sites (LWS)). Areas which based on field data collected to inform the EclA meet the published selection criteria for those sites listed above for habitats or species, including those listed in

GEOGRAPHIC CONTEXT OF IMPORTANCE	EXAMPLE/DESCRIPTION
	relevant Local Biodiversity Action Plans (LBAP), but which are not themselves designated.
Local	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 7.6 below 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 Zone of Influence (Zol) for each important ecological feature identified. The Zol 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 Zol to define is the area affected by land take and direct landcover changes associated with the Proposed Development. This Zol 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 Zol 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 Zol that extends beyond the land take area was based upon professional judgement informed (as far as possible) by a review of published evidence (e.g. disturbance criteria for various species) and discussions with the technical specialists who are working on other chapters of the PEIR.

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 Zol, as are standard construction practices that are commonplace. When scoping in or out ecological features from further assessment, environmental measures (see Section 7.7.1) associated with general good practice that will be described within the Code of Construction Practice for the Proposed Development have been taken in to account (e.g. dust suppression and appropriately scheduled vegetation removal, etc.) and referenced in Section 7.6.2 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 Zol) are summarised in Table 7.6, 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 7.6, 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 of 2026-29, 2029-69 and 2069-72 respectively.

7.3.17 The environmental changes identified in Section 7.3.9 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 7.6.

Effects not considered within the Scope

7.3.18 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 been scoped out of the assessment at this stage. Further, ecological features of local importance, where there was a specific technical justification, have also been scoped out at this stage. 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 EclA guidelines 2018.

Limitations & Exclusions

7.3.19 The information within this Chapter is preliminary and intended to inform consultees. As such, this PEIR has been prepared at a point in the design process when parameters of the design are certain enough for an assessment to be based upon, but there is still sufficient flexibility to incorporate feedback from consultees.

7.3.20 At this current stage of the planning process, the following matters are still ongoing:

- Surveys are ongoing on the solar array area for invertebrates and reptiles;
- Surveys are ongoing for the cable route and access roads, as follows:
 - Preliminary ecological appraisal and habitat condition assessment;
 - Overwintering and breeding birds;
 - Great crested newts *Triturus cristatus*;
 - Bat activity;
 - Water vole *Arvicola amphibius*; and
 - Otter *Lutra lutra*.

7.3.21 For the purposes of this Chapter of the PEIR, where possible, the survey and data search results from the solar array area have been extrapolated to the cable route and access road. The survey information gathered to date on the cable route and access road is considered sufficiently robust for the purpose of the PEIR.

7.3.22 Where survey periods allow, the above matters will be completed in advance of submission and incorporated within the Environmental Statement (ES) that will be consulted upon as part of the examination process.

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:

- The Proposed Development (the initially anticipated developable area produced early in the design process);
- 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). 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.
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 species as interest features.
Habitats of Principal Importance (HPI) and Species of Principal importance (SPI), Red-	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	The Site and within 1 km of it, given potential presence of mobile species and

ECOLOGICAL FEATURE	EXAMPLE / DESCRIPTION	DESK STUDY AREAS
listed species and legally protected species.	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 <i>Meles meles</i> and Hedgerows are provided protection under the Protection of Badgers Act and the Hedgerows Regulations, respectively.	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.
Water body locations.	Water bodies 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

- 7.4.3 The generic project-wide approach to the assessment methodology is set out in Chapter 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).
- 7.4.4 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 7.9, 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.
- 7.4.5 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.
- 7.4.6 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.
- 7.4.7 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

7.4.8 The applicable guidance is summarised as follows:

- Chartered Institute of Ecology and Environmental Management (CIEEM 2018). Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine; and
- Biodiversity: Code of practice for planning and development published by the British Standards Institution (BS 42020:2013).

7.4.9 Technical guidance that has been used to define the survey methods used to inform this assessment includes the following referenced in the methods sections of the reports in Appendices 7.3-7.9 of this PEIR:

- Appendix 7.3 Bicker Fen Solar Farm Preliminary Ecological Appraisal:
 - JNCC Phase 1 Habitat Survey Method. <https://jncc.gov.uk/>
 - CIEEM (2017) Guidelines for Preliminary Ecological Appraisal. http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_20
- Appendix 7.4 Bicker Fen Solar Farm Great Crested Newt Habitat Suitability Index and eDNA Report
 - Oldham, R.S., Keeble, J., Swan, M.J.S., and Jeffcote, M. 2000. Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal*, 10, 143-155.
 - English Nature. 2001. Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.
 - Biggs, J., Ewald N., Valentini, A., Gaboriaud C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.
 - Natural England Standing Advice: <https://www.gov.uk/guidance/great-crested-newt-surveys-and-mitigation-for-development-projects>.
- Appendix 7.5 Bicker Fen Solar Farm Wintering Bird Report:
 - Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000). *Bird Census Techniques: 2nd edition*. Academic Press, London.
 - Gilbert G., Gibbons D.W., and Evans J. (1998) *Bird Monitoring Methods: A manual of techniques for key UK species*. RSPB, Bedfordshire.
- Appendix 7.6 Bicker Fen Solar Farm Report on Surveys for Breeding Birds:
 - Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000). *Bird Census Techniques: 2nd edition*. Academic Press, London.

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- Appendix 7.7 Bicker Fen Solar Farm Bat Activity Survey Report:
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Significance Criteria

- 7.4.10 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"*.

7.4.11 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

7.4.12 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

SCALE OF CHANGE	CRITERIA AND RESULTANT EFFECT
	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

7.4.13 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.

7.4.14 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."

7.4.15 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.

7.4.16 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.

Potential Mitigation Measures

7.4.17 Mitigation measures are dependent upon the ecological features found during the baseline surveys. Once the value of these and the likely impacts on these are fully understood, 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).

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

- If none of the above can be carried out, compensation (e.g. creating habitat where it was not previously found) will be undertaken.

7.4.18 As much as possible, the Proposed Development design has been guided to avoid ecological impacts. The mitigation described in this Chapter 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

Current Baseline Conditions

7.5.1 The Proposed Development consists of the solar array area, cabling corridor and access roads. The solar array area is approximately 517 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. The grid connector corridor runs approximately 12 km south and east to connect to the Bicker Fen Substation. The cable corridor covers similar arable habitats to the solar array area, crossing the South Forty Foot Drain LWS south of Swineshead Bridge. The access road will run approximately 3 km from the A17 heading north-east to the solar array area. This will also cross the same mix of arable land, ditches, drains and hedgerows as the cable corridor.

Sensitive Receptors

Statutory Designated Sites

7.5.2 The following internationally designated sites are present within 20 km of the Site (See Figure 7.1):

- The Wash Ramsar is located approximately 15 km east and is designated for its marine habitats and internationally important populations of migratory and overwintering wetland birds;
- The Wash SPA is located approximately 15 km east and is designated for its internationally important populations of wetland birds during the breeding season and over winter; and
- The Wash and North Norfolk Coast SAC is located approximately 15 km east and is designated for its marine habitats along with populations of harbour seal *Phoca vitulina* and otter.
- Horbling Fen SSSI is located 4.1 km south-east and is designated for geological reasons.
- Wilsford & Rauceby Warrens SSSI lies 7.3 km west of the site and is designated for limestone grass heath.

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

Non-statutory Designated Sites

7.5.4 There are ten LWS present within 2 km of the Site. These are detailed in Table 7.5, below, and illustrated on Figure 7.3.

Table 7.5 – 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. There is occasional scrub. There is an area approximately a third of the way along this section with willow trees.	Onsite
South Forty Foot Drain	The western half or section 2 of the drain has a channel width of approximately 1-2m. There is a fringe of emergent vegetation along the edges of the channel. The banks of the drain support rank grassland with tall ruderal vegetation.	Onsite
Ewerby Pond	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.	0.6 km North
Old Forty Foot to South Forty Foot Drain	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 West
Cobbler's Lock and Reed beds	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.	0.75 km North
Broadhurst Drain East	An area of tall scrubby fen, with some more open areas grading into wet woodland, damp grassland and dry reedbed.	0.8 km South
Old Forty Foot Drain	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.	1.2 km West
Willow Farm 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, which is common south of Little Hale Drove. Woody species are sycamore <i>Acer pseudoplatanus</i> , willow <i>Salix</i> sp., hawthorn <i>Crataegus monogyna</i> , elder <i>Sambucus nigra</i> , dogrose <i>Rosa canina</i> and bramble <i>Rubus fruticosus</i> agg.	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	A 0.5km long channel. Holds water 1-2m wide that looks highly eutrophic. Both banks are botanically poor.	1.6 km West

Habitats of Principal Importance and Ancient Woodland

7.5.5 Four types of HPI are present within 1 km of the Site. These are listed, below, and illustrated on Figure 7.4:

- Coastal and floodplain grazing marsh;
- Deciduous woodland;
- Traditional orchard; and
- Open mosaic habitat.

7.5.6 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). Ancient woodland is relatively rare in the vicinity of the Proposed Development 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

7.5.7 Appendix 7.3 Figure 3 shows the habitats within the solar array area. The same habitats are expected along the grid connector corridor and access route.

Broadleaved Woodland

7.5.8 Small areas of woodland containing broadleaved species are scattered throughout the solar array area. These contain ash *Fraxinus excelsior* in the canopy along with field maple *Acer campestre*, hawthorn, blackthorn *Prunus spinosa* and elder in the understorey. The woods are a mix of semi-natural and recent plantations.

Scrub

7.5.9 There are a number of small areas of dense scrub throughout the solar array area with short lengths of continuous scrub bordering field margins, including many areas of dense bramble along with hawthorn and blackthorn.

Semi-improved Grassland

7.5.10 There is a small area of semi-improved neutral grassland habitat, with poor semi-improved grassland located within some of the arable fields 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*.

Improved Grassland

7.5.11 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.

Marsh/Marsh Grassland

- 7.5.12 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

- 7.5.13 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*.

Standing Water

- 7.5.14 Multiple ponds are found in and within 500 m of the Proposed Development. These support plant species including watercress *Rorippa nasturtium-aquaticum* agg. and sedges *Carex* spp. During late spring 2022, many of these ponds had dried out.

Running Water

- 7.5.15 Water-filled ditches were found throughout the Proposed Development area. Many of these are used as drainage channels.

Arable Land and Game Cover Crop

- 7.5.16 This is the predominant land use within the Proposed Development area. Crops noted at the time of survey include wheat *Triticum aestivum*, linseed *Linum usitatissimum* and oil seed rape *Brassica napus*. Many of the fields had margins with a more diverse range of species.

Buildings and Amenity grassland

- 7.5.17 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).

Bare Ground

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

Hedgerows

- 7.5.19 There are many hedges 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*.

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

Invertebrates

- 7.5.20 Records of one protected invertebrate species (i.e. white-letter hairstreak *Satyrium w-album*) and seven other SPI have been found within 2 km of the site.
- 7.5.21 A scoping assessment of the Proposed Development for invertebrates has been planned and will take place in Spring 2024. The wetland habitats (i.e. ditches, ponds and marshy grassland) are likely to be of most conservation value for invertebrates. The arable fields are likely to be of very low conservation value for invertebrates.

Reptiles

- 7.5.22 No recent records of reptiles were found within 2 km of the Proposed Development.
- 7.5.23 Reptile surveys of the solar array area were undertaken in spring and summer 2023. No reptiles have been found. Individual grass snake *Natrix helvetica* and common lizard *Zootoca vivipara* recorded in low numbers outside the redline boundary but in the vicinity of the site.

Great Crested Newts

- 7.5.24 There are recent records of great crested newts within 2 km of the Proposed Development, including in ponds within the Bicker Fen Substation. No European Protected Species Licence (EPSL) applications have been recorded within 2 km of the Proposed Development.
- 7.5.25 Surveys of ponds within 500 m of the solar array area were undertaken in 2023 using environmental DNA (eDNA), followed by traditional survey where there was a positive result. Appendix 7.4 Figure 4 shows the locations of the ponds surveyed. Where access was permitted, all eDNA surveys within 500 m were negative, but a medium population was found over 500 m from the Proposed Development, in surveys undertaken on behalf of the applicant in Spring 2023, west of Helpringham.

Birds - General

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

Birds - Wintering

- 7.5.27 Appendix 7.5 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 Red List species; and
 - Twenty-three Birds of Conservation Concern Amber List species.

7.5.28 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 (130);
- Black headed gull *Chroicocephalus ridibundus* 6 (4,000);
- Golden plover *Pluvialis apricaria**: 25 (20,033); and
- Lapwing *Vanellus vanellus**: 452 (46,422).

7.5.29 *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.

Birds - Breeding

7.5.30 Appendix 7.6 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.

7.5.31 No species for which the Wash SPA and Ramsar are designated for were recorded breeding within the solar array area.

Bats - General

7.5.32 Four species of bat were recorded within 2 km of the Proposed Development 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

7.5.33 During the preliminary roost appraisal of the trees in the solar array area 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.

7.5.34 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.

Bats - Foraging and Commuting

7.5.35 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 Figures 1.1, 1.3 and 1.7 shows the locations where bats were recorded during the walked transects as

well as the static detector locations. 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.

Badgers – confidential

7.5.36 Owing to the persecution of this species, the data on badgers is not included in this publicly available document. The Badger Report (confidential) (Appendix 7.8) and a copy of this Chapter with the relevant data will be supplied to bona fide individuals and organisations upon request.

Otters

7.5.37 There are recent records (most recently from 2021) returned by Lincolnshire Environmental Records Centre (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. Figure 1.1 shows the locations surveyed for otter within the solar array area. No otters or evidence of their presence were recorded, however, during the 2023 surveys.

Water Voles

7.5.38 There are records (most recently from 2015) returned by LERC of water vole within 2 km of the Site. Appendix 7.9 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.

Sensitive Ecological Receptors Summary

7.5.39 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 7.6, below.

Table 7.6 – Importance of Ecological Features

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY ²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
The Wash Ramsar	International	Negligible	This site is designated under the Ramsar convention as a Wetland of International Importance. As only small numbers of the bird species listed on the site designation are	Y

² Based on Table 7.2

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY ²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
			found in the Proposed Development (< 2%) it is not considered functionally linked.	
The Wash SPA	European	Negligible	This site is designated in accordance with the EC Birds Directive. As only small numbers of the bird species listed on the site designation are found in the Proposed Development (< 2%) it is not considered functionally linked.	Y
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 been recorded in the waterbodies within the grid connector corridor.	N
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	N
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	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
			Proposed Development.	
All other LWS within 2km	County	County	The sites are designated by the GLNP under criteria set for the relevant county. 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 Proposed Development and poor structure due to it being relatively young, make it of no more than local importance.	Y
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.	N
Traditional Orchard	National	Negligible	The habitat qualifies as an HPI. The habitat within the vicinity of the development is not connected hydrologically and is too distant to be affected by airborne contaminants.	Y
Open Mosaic habitat	National	Local	The habitat qualifies as an HPI. The habitat is found offsite (an old mineral workings) and has not been surveyed, however the data search suggests that it may have been colonised by scrub	Y

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY ²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
			and been cleared for pasture.	
Scrub	Negligible	Negligible	Common and widespread, fast-growing habitat.	Y
Improved grassland	Negligible	Negligible	Common and widespread, fast-growing habitat.	Y
Marsh/Marshy Grassland	National	Negligible	The grassland does not fit the HPI criteria being dominated by common and widespread species.	Y
Tall ruderal vegetation	Negligible	Negligible	Common and widespread, fast-growing habitat.	Y
Standing water	National	County	This habitat is an HPI. Many of the ponds outside the Site are hydrologically linked.	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 presumed dredged) and are likely to have regular chemical input (fertilisers, herbicides and insecticides).	Y
Hedgerows	National	Local	This habitat can qualify as an HPI. The majority of hedgerows are species-poor and gappy, making it of no more than local importance.	Y
Invertebrates	National	County	Seven species were found within similar habitats to those found in the proposed development, which were listed as protected or priority species.	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
Great crested newt	European	Local (and legally protected)	Great crested newts have been found in a small number of ponds in the Proposed Development area. The 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 populations.	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.	N
Wintering birds	International	County	A total of 71 bird species were recorded within the solar array area, indicating a county level importance (Fuller 1980).	N
Breeding birds	National	Local (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).	N
Bats; roosting	European	County	Likely that the site could support roosts of small numbers of rarest bats (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 (in accordance with Wray et al. 2010).	N
Otters	European	Local (and legally protected)	Records of otters have previously (latest 2021) been	N

ECOLOGICAL FEATURE	IMPORTANCE: LEGISLATION & POLICY ²	IMPORTANCE: PROPOSED DEVELOPMENT (ESTIMATED)	JUSTIFICATION FOR IMPORTANCE TO PROPOSED DEVELOPMENT	SCOPED OUT OF ASSESSMENT Y/N
Water Vole	National	Local (and legally protected)	Records of water vole have previously (latest 2015) been found within the Site.	N

Future Baseline Conditions

- 7.5.40 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.
- 7.5.41 It is not considered 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

- 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 7.7 outlines how these embedded measures will influence the Ecology assessment.

Table 7.7 - Summary of the Embedded Environmental Measures and how these Influence the Ecology Assessment

ECOLOGICAL FEATURE	CHANGES AND EFFECTS	EMBEDDED MEASURES AND INFLUENCE ON ASSESSMENT
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 will be retained. Hedgerows (except for those where access is required) will be retained. As no mature trees are anticipated 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 2 m) to avoid damage and compaction of roots.
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 6 m) will be set up around all ditches (except where crossings are required for access). These will avoid impacts on otters and water voles.

Assessment of Effects

Construction Phase

The Wash and North Norfolk Coast SAC

- 7.6.2 The Wash and North Norfolk Coast SAC lies approximately 15 km away 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.
- 7.6.3 During the construction of the Proposed Development, there will be the need for the cable and access routes 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. Otters in the area will not be accustomed to human disturbance and it is assumed that individuals up to 100 m from the construction activity could be affected.
- 7.6.4 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

- 7.6.5 Wilsford and Rauceby Warrens SSSI lies 7.3 km west of the site, the other side of the town of Sleaford. The site and SSSI do not appear to be hydrologically linked. During construction the additional traffic required may impact the air quality of the SSSI; calcareous grassland and great crested newts are sensitive to nitrogen deposition (including from transport emissions).
- 7.6.6 Detailed survey will be required to determine the likely additional deposition of nitrogen at the SSSI as a result of the proposed development. However currently road transport accounts for 10 % of all deposition on the SSSI (for comparison livestock is 20% and fertiliser application on farms 11.5 %). Once the construction traffic ceases the addition of nitrogen will cease. Therefore the additional traffic due to construction of the proposed development will have a **temporary very low adverse impact** on Wilsford and Rauceby Warrens SSSI and the resultant effect on its conservation status is **Not Significant**.

Great Hale Eau LWS and South Forty Foot Drain LWS

- 7.6.7 Both Great Hale Eau LWS and South Forty Foot Drain LWS lie within the cable corridor. Whilst it has not yet been confirmed where precisely the cable will be installed at this stage, it will have to cross the South Forty Foot Drain LWS. During the construction phase, it is possible that direct land take of habitats within the LWS will occur.
- 7.6.8 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 in the absence of mitigation. Land take is likely to be relatively small (no more than 50 m out of linear LWS, which are several kilometres long). Therefore, it is expected that the construction of the Proposed Development will have a **temporary low**

adverse impact on Great Hale Eau LWS and South Forty Foot Drain LWS, and the resultant effect on their conservation status is **Not Significant**.

All LWS within 2 km

- 7.6.9 The majority of the LWS within the Site include ditches or drains and are connected to the Proposed Development hydrologically. During construction, 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 suppressing plant growth or altering the species composition in the water bodies.
- 7.6.10 The access routes to the Proposed Development and precise location of the cable installation in the grid connection corridor are not finalised at this stage and it is possible that the LWS present within 2 km could be impacted by dust deposition. Dust can suppress plant growth and severe deposition can change the soil structure and chemistry, altering the species assemblages at the LWS.
- 7.6.11 As the construction materials as well as access and cable routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium 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 **Significant**.

Coastal and Floodplain Grazing Marsh

- 7.6.12 Coastal and floodplain grazing marsh lies within the Proposed Development. During the construction phase it is possible that direct land take of habitats grassland will occur.
- 7.6.13 It is not known at this stage which habitats will be removed (if any), but this grassland habitat is likely to take over 20 years to recover in the absence of mitigation. Land take is likely 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. Therefore, it is expected that the construction of the proposed development will have a **low temporary adverse impact** on coastal and floodplain grazing marsh, and the resultant effect on its conservation status is **Not Significant**.

Standing Water

- 7.6.14 The ponds and other water bodies could be connected to waterbodies onsite. To determine this further hydrological assessment is required as part of the Environmental Statement (Chapter 11), this will be commenced from Winter 2023. Contaminants could be released during construction into the water courses, which may increase the level of silt and/or change the water chemistry of the standing water. As the access and cable routes are not finalised at this stage, there is potential for dust released during construction to be deposited on the ponds and other waterbodies.
- 7.6.15 As the construction materials, and access and cable routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium adverse impact** on standing water because of waterborne and airborne contaminants and the resultant effect on its conservation status is **Significant**.

Invertebrates

- 7.6.16 Invertebrates will use a variety of the habitats found within the Site, including standing and running water, grassland and scrub. Sections of these habitats will be lost during the construction phase to allow for access routes and the cable installation.
- 7.6.17 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 cabling and access routes. 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**.
- 7.6.18 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 suppressing their food plant growth or altering the species composition in the waterbodies.
- 7.6.19 As the construction materials, and access and cable routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium adverse impact** on invertebrates because of water-borne contaminants, and the resultant effect on their conservation status is **Significant**.

Great Crested Newt

- 7.6.20 Great crested newts will 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 routes and the cable installation. In the absence of mitigation, this will result in direct mortality or injury of individuals as well as great crested newts losing habitats for the period it takes for the habitats to recolonise.
- 7.6.21 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 cabling and access routes. Therefore, it is expected that the habitat loss during the construction of the Proposed Development will have a **temporary low adverse impact** on great crested newts, and the resultant effect on their conservation status is **Not Significant**.
- 7.6.22 Great crested newts are dependent on the waterbodies and adjacent habitats during the breeding season. During construction, 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 great crested newts and result in mortality (e.g. toxins killing great crested newts or silts preventing their young from breathing underwater).
- 7.6.23 The construction materials, and access and cable routes to be used have not yet been finalised. Furthermore not all the waterbodies in and around the site have been surveyed for the Proposed Development, and therefore the current

population of great crested newts is not known, it is assumed that there will be a **temporary low adverse impact** on great crested newts as a result of waterborne contaminants, and the resultant effect on their conservation status is **Not Significant**.

Reptiles

- 7.6.24 Reptiles use scrub, grassland and tall ruderal vegetation. Sections of these habitats will be lost during the construction phase to allow for access routes and the cable installation. In the absence of mitigation, this will result in direct mortality or injury of individuals as well as reptiles losing habitats for the period it takes for the habitats to recolonise.
- 7.6.25 Land take is likely to be relatively small. Only short sections of ditch will be crossed for the installation of the cabling and access routes and as part of embedded mitigation buffers of habitat along waterbodies in the solar array area will be retained. Therefore, 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

- 7.6.26 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.
- 7.6.27 The construction order is not yet finalised, but it is likely that 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.
- 7.6.28 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.
- 7.6.29 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**.
- 7.6.30 The construction of the Proposed Development is anticipated to 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.
- 7.6.31 As an indicator species, the population of skylark is relatively low (circa 0.1-0.2 territories per ha in the solar array area). Therefore, for ground nesting

birds, there is anticipated to be a **permanent low adverse impact** because of the loss of nesting habitat with the resultant effect on their conservation status being **Significant**.

- 7.6.32 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**.

Bats

- 7.6.33 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.
- 7.6.34 There may be unavoidable loss of some hedgerows to facilitate access. 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). As the final route of the cable installation, the access roads or the need for lighting are not confirmed at this stage, 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**.

Water Voles and Otters

- 7.6.35 During the construction phase of the Proposed Development, in the absence of mitigation 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 likely need to be crossings for access roads and the cable installation.
- 7.6.36 Overall, there is expected to be a **temporary low adverse impact** on water voles and otters because of land take, with the resulting effects on the conservation status as **Not Significant**.

Operational Phase

- 7.6.37 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 it will not alter so has not been included as an additional operational impact. 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

- 7.6.38 The Proposed Development is assumed to 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 (BNG) on site with appropriate habitats (i.e. of local providence) for the area and site use. 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.
- 7.6.39 The landscape planting details will be determined considering the operational needs of the Proposed Development and in consultation with relevant stakeholders. The BNG will be detailed within the DCO application. 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

- 7.6.40 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

- 7.6.41 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 in the absence of mitigation there will be:
- disturbance due to machinery and personnel required to remove equipment;
 - temporary loss of habitats for the access roads;
 - Risk of mortality or injury of animals using the site;
 - Airborne and water borne contamination.
- 7.6.42 As the cables will not be dug up but pulled through their underground housing, the impacts from installation of the cabling in the construction phase are not expected to be repeated during the decommissioning phase.

The Wash and North Norfolk Coast SAC

- 7.6.43 The Wash and North Norfolk Coast SAC lies approximately 15 km away 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.
- 7.6.44 During the decommissioning of the Proposed Development, there will be the need for access routes 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. Otters in the area will not be accustomed to human disturbance and it is assumed that individuals up to 100 m from the construction activity could be affected.
- 7.6.45 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 and Rauceby Warrens SSSI

- 7.6.46 Wilsford and Rauceby Warrens SSSI lies 7.3 km west of the site, the other side of the town of Sleaford. The site and SSSI do not appear to be hydrologically linked. During decommissioning the additional traffic required may impact the air quality of the SSSI; calcareous grassland and great crested newts are sensitive to nitrogen deposition (including from transport emissions). Detailed survey will be required to determine the likely additional deposition of nitrogen at the SSSI as a result of the decommissioning of the proposed development. However currently road transport accounts for 10 % of all deposition on the SSSI (for comparison livestock is 20% and fertiliser application on farms 11.5 %). Once the decommissioning traffic ceases the addition of nitrogen will cease. Therefore the additional traffic due to decommissioning of the proposed development will have a **temporary very low adverse impact** on Wilsford and Rauceby Warrens SSSI and the resultant effect on its conservation status is **Not Significant**.

All LWS within 2 km

- 7.6.47 The majority of the LWS within the Site include ditches or drains and are connected to the Proposed Development hydrologically. During creation of access routes for decommissioning 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.
- 7.6.48 The access routes for decommissioning of the Proposed Development are not finalised at this stage and it is possible that the LWS present within 2 km could be impacted by dust deposition. Dust can suppress plant growth and severe deposition can change the soil structure and chemistry, altering the species assemblages at the LWS.
- 7.6.49 As the access routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium 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 **Significant**.

Coastal and Floodplain Grazing Marsh

7.6.50 Coastal and floodplain grazing marsh lies within the Proposed Development. During the decommissioning phase it is possible that temporary land take of habitats grassland will occur for the access road.

7.6.51 It is not known at this stage which habitats will be removed (if any), but this grassland habitat is likely to take over 20 years to recover in the absence of mitigation. Land take is likely to be relatively small. Therefore, it is expected that the construction of the proposed development will have a **low temporary adverse impact** on coastal and floodplain grazing marsh, and the resultant effect on its conservation status is **Not Significant**.

Standing Water

7.6.52 The ponds and other water bodies could be connected to waterbodies onsite. Contaminants could be released during construction of access road for decommissioning into the water courses, which may increase the level of silt and/or change the water chemistry of the standing water. As the access and routes are not finalised at this stage, there is potential for dust released during construction to be deposited on the ponds and other waterbodies.

7.6.53 As the access routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium adverse impact** on standing water because of waterborne and airborne contaminants and the resultant effect on its conservation status is **Significant**.

Invertebrates

7.6.54 Invertebrates will use a variety of the habitats found within the Site, including standing and running water, grassland and scrub. Sections of these habitats will be lost during the decommissioning phase to allow for access routes. In the absence of mitigation, this could result in important invertebrate assemblages 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 in the absence of mitigation.

7.6.55 Land take is likely to be relatively small. Only short sections of ditch will be crossed for the installation of the access routes. 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**.

7.6.56 Many of the invertebrate assemblages found in the Site are likely to be dependent on the waterbodies and adjacent habitats. During construction of access for decommissioning, 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 suppressing their food plant growth or altering the species composition in the waterbodies.

7.6.57 As the access routes to be used have not yet been finalised at this stage, it is assumed that there will be a **temporary medium adverse impact** on invertebrates because of water-borne contaminants, and the resultant effect on their conservation status is **Significant**.

Great Crested Newt

7.6.58 Great crested newts will use scrub, hedgerows, grassland, tall ruderal vegetation as well as standing water. Sections of these habitats will be lost during the decommissioning to allow for access routes. In the absence of mitigation, this will result in direct mortality or injury of individuals as well as great crested newts 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 in the absence of mitigation.

7.6.59 Land take is likely to be relatively small. Only short sections of ditch will be crossed for the access routes. Therefore, it is expected that the habitat loss during the construction of the Proposed Development will have a **temporary low adverse impact** on great crested newts, and the resultant effect on their conservation status is **Not Significant**.

7.6.60 Great crested newts are dependent on the waterbodies and adjacent habitats during the breeding season. During construction of access routes for 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 great crested newts and result in mortality (e.g. toxins killing great crested newts or silts preventing their young from breathing underwater).

7.6.61 The access routes to be used have not yet been finalised. Furthermore not all the waterbodies in and around the site have been surveyed for the Proposed Development, and therefore the current population of great crested newts is not known, it is assumed that there will be a **temporary low adverse impact** on great crested newts as a result of waterborne contaminants, and the resultant effect on their conservation status is **Not Significant**.

Reptiles

7.6.62 Reptiles use scrub, grassland and tall ruderal vegetation. Sections of these habitats will be lost during the decommissioning phase to allow for access routes. In the absence of mitigation, 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 in the absence of mitigation.

7.6.63 Land take is likely to be relatively small. Only short sections of ditch will be crossed for the access routes. 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

- 7.6.64 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.
- 7.6.65 It is likely 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. Due 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**.
- 7.6.66 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**.

Bats

- 7.6.67 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.
- 7.6.68 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). As the final route of the access roads or the need for lighting are not confirmed at this stage, 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**.

Water Voles and Otters

- 7.6.69 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 water voles and otters. 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). In the absence of mitigation, it is likely that both water voles and otters 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 water voles and otters. Owing to the presence of similar habitats nearby, the lack of records in the solar array area, and the fact that the works will be no wider than 50 m wide in ditches that are often over 1

km long, the resultant effects on the conservation status of water voles and otters is expected to be **Not Significant**.

7.6.70 As part of embedded mitigation, appropriate stand-off buffers have been included around ditches in the solar array area, although there will still likely need to be crossings for access roads.

7.6.71 Overall, there is expected to be a **temporary low adverse impact** on water voles and otters because of land take for access, with the resulting effects on the conservation status as **Not Significant**.

All Habitats - Biodiversity Net Gain

7.6.72 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.

7.6.73 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 Additional measures (beyond the embedded mitigation discussed in section 7.6.1 above) are proposed to further mitigate the potential impacts of the Proposed Development. These are detailed below and will be secured as part of the DCO Application in due course.

7.7.2 Aside from the additional mitigation measures outlined here, habitat enhancements will be made in support of biodiversity net gain. These enhancements, which have been guided by the biodiversity opportunities laid out in the relevant local plan and landscape scale ecology strategies, are mapped on the Indicative Mitigation Layout (Figure 1.5). They include:

- Creation of areas of locally relevant and nationally important grassland habitats; flood plain grazing marsh and lowland meadows;
- Filling the majority of the remaining Solar Array Area with a medium diversity grassland of benefit to the fauna in the area;
- Improving existing hedgerows (filling gaps and planting new species); and creating new species rich hedges;
- Enhancing the existing woodland creating more diversity of species and age classes, as well as planting up new areas.

Construction Phase Mitigation Measures

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

7.7.3 Construction activities / techniques will be developed to minimise potential impacts through:

- Further surveys to identify important habitats/dwellings and to avoid these where possible;
- Use of techniques and timing to minimise the disturbance and damage generated when fauna species may be present;
- Using acoustic and visual barriers to reduce the disturbance of sensitive features; and
- Excluding animals from the active working areas during the construction phase and creating new habitats away from the disturbing works.

7.7.4 These mitigation techniques will be included within the Construction Environmental Management Plan (CEMP) or equivalent. Where it is necessary to exclude specific fauna species, for example otters, an appropriate licence from Natural England will be sought.

Mitigation of Construction Leading to Ground Nesting Bird Habitat Loss

7.7.5 The Site supports ground nesting birds, including skylark, which prefer open nesting areas. Within the open buffer areas (i.e. adjacent to ditches), the habitats will be improved for this species (e.g. though creation of skylark plots). These should increase the density of birds supported replacing the areas lost. The details of these habitat enhancements will be included in a Landscape Environmental Management Plan (LEMP) or equivalent.

Mitigation of Construction Leading to Waterborne and Airborne Contamination

7.7.6 To avoid contamination of the water and/or air around the Proposed Development, standard pollution prevention guidance (PPG) will be adhered to during the construction phase. The exact measures will be developed as the detailed design is established and will be specified within the CEMP or equivalent, and will include:

- Adopting and adhering to industry approved best working practices at all times;
- Avoiding the use of chemicals (e.g. strong acid or alkaline substances) harmful to wildlife wherever possible;
- Working and storing materials away from sensitive features and watercourses, and within appropriately surfaced and bunded areas (as required);
- Using dust suppression measure as appropriate; and
- Keeping sufficient mitigation equipment (e.g. spill kits) available and in the event of an incident immediately removing all contaminated soil to prevent runoff to watercourses.

Mitigation of Construction Land Take Leading to Habitat loss

7.7.7 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 CEMP or equivalent and will be tailored depending on the habitat(s), including:

- Where possible, hedgerows will be grubbed-up and planted temporarily elsewhere to be replanted after the affecting construction activities are completed;
- The hedgerows will be supplemented by additional planting of native species of local provenance;
- Temporary 'crossings' for bats will be placed in the gaps 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.

Mitigation of Construction Lighting Fragmenting Commuting Corridors

7.7.8 Light pollution may be reduced by preparation and adoption of an appropriate lighting strategy. The purpose of the lighting strategy would be to minimise light spill onto the commuting routes and foraging areas (e.g. hedgerows and ditches) at the height where bats are flying. The strategy will consider the following:

- The need for lighting (e.g. can lights be turned off late evening/early morning when bats are most active);
- Bulb type, using designs that minimise disturbance to bats and emit little ultra-violet light (which attracts insects);
- Designing the height and angles of lamps to minimise light spill; and
- Use lamps designed to minimise the spread of lighting.

Operational Phase Mitigation Measures

7.7.9 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 LEMP.

Decommissioning Phase Mitigation Measures

7.7.10 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 Residual Effects

- 7.8.1 Assuming the mitigation measures set out in Sections 7.7.2 to 7.7.9 are undertaken and monitoring and remedial actions take place, no significant residual negative effects are anticipated, as shown below and in Tables 7.8, 7.9 and 7.10 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.
- 7.8.2 Where damage to dwelling habitats, and noise and visual disturbance to features is minimised through the use of appropriate acoustic and visual fencing, the magnitude of impact on otters (including those using the Wash and North Norfolk Coast SAC), GCN (as a result of land take), reptiles, wintering and breeding birds (except ground nesting), badgers and water voles is considered to be Negligible and the resultant effect on their conservation status is Not Significant.
- 7.8.3 Where a LEMP is produced the magnitude of impact on ground nesting birds is temporary very low adverse and the resultant effect on their conservation status is Not Significant.
- 7.8.4 Where PPG measures are adopted within a CEMP, the impact of exposure to contamination on all LWS present within 2 km of the Site, standing water, GCN and invertebrates is Negligible and the resultant effect on their conservation status is Not Significant.
- 7.8.5 Where a CEMP 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.
- 7.8.6 Where a lighting design 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 7.8 – 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	Considered to be 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	Considered to be Not Significant	None required.	N/A	N/A

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Great Hale Eau LWS, South Forty Foot Drain LWS	Considered to be 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	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during construction.	Negligible	Not significant.
Coastal and floodplain grazing marsh/Semi improved grassland	Considered to be Low adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Standing water	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during construction.	Negligible	Not significant.
Other habitats	Considered to be Not Significant	Creation of new ecologically beneficial habitats, enhance hedgerows planting up gaps.	Negligible	Not significant.
Invertebrates	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during construction. Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Great Crested Newt	Considered to be Low Adverse Significant impact	Avoid suitable habitats where possible. If not, great crested newt will be temporarily excluded from the Proposed Development. Follow standard pollution avoidance during construction.	Negligible	Not significant.
Reptiles	Considered to be 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	Considered to be 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.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Breeding Birds	Considered to be Low Adverse significant Impact	Retention of nesting and foraging habitats. Avoid removal of habitats within the nesting season if possible.	Negligible	Not significant.
Breeding Birds (Ground nesting)	Considered to be Low Adverse significant Impact	Planting of open green spaces to encourage ground nesting bird species.	Very low adverse	Not Significant.
Bats	Considered to be Medium Adverse significant impact	Retention of foraging and commuting routes. Sensitive lighting scheme.	Negligible	Not significant.
Badger	Considered to be 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	Considered to be 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	Considered to be 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.

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

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
The Wash and North Norfolk Coast SAC	Considered to be Not Significant	None required.	N/A	N/A
Other statutory designated Sites	Considered to be Not Significant	None required.	N/A	N/A
Great Hale Eau LWS, South Forty Foot Drain LWS	Considered to be Not Significant	None required.	N/A	N/A

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
All LWS within 2 km	Considered to be Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant.
Coastal and floodplain grazing marsh/Semi improved grassland	Considered to be Not Significant	None required.	N/A	N/A
Standing water	Considered to be Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low beneficial	Significant.
Other habitats	Considered to be Not Significant	Creation of new ecologically beneficial habitats, enhance hedgerows planting up gaps.	Medium beneficial	Significant.
Invertebrates	Considered to be Low Beneficial Significant impact	None required - during operation, agricultural chemical input will be lessened.	Low Beneficial	Significant.
Great Crested Newt	Considered to be Medium Beneficial Significant impact	Proposed Development will create open green spaces for foraging and hibernating newts. During operation, agricultural chemical input will be lessened.	Likely Medium Beneficial	Significant.
Reptiles	Considered to be Medium Beneficial Significant impact	Proposed Development will create open green spaces for foraging and hibernating reptiles.	Likely Medium Beneficial	Significant.
Wintering Birds	Considered to be Not Significant	None required.	N/A	N/A
Bats	Considered to be Low Beneficial Significant impact	Planting of open green spaces to enhance foraging and commuting within the Site.	Low Beneficial	Significant.
Badger	Considered to be Low Beneficial Not Significant impact	Planting of open green spaces.	Likely Medium Beneficial	Not Significant.
Otters	Considered to be Not Significant	None required.	N/A	N/A
Water Vole	Considered to be Not Significant	None required.	N/A	N/A

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

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
The Wash and North Norfolk Coast SAC	Considered to be Very Low adverse Significant impact	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	Considered to be Not Significant	None required.	N/A	N/A
Great Hale Eau LWS, South Forty Foot Drain LWS	Considered to be 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	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during access route construction.	Negligible	Not significant.
Coastal and floodplain grazing marsh/Semi improved grassland	Considered to be Low adverse Significant impact	Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Standing water	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during construction of access route.	Negligible	Not significant.
Other habitats	Considered to be Not Significant	None required.	N/A	N/A
Invertebrates	Considered to be Medium Adverse Significant impact	Follow standard pollution avoidance during construction. Retain habitats as seed bank in topsoil/turfs and restore once works are completed.	Negligible	Not significant.
Great Crested Newt	Considered to be Low Adverse Significant impact	Avoid suitable habitats where possible. If not, great crested newts will be temporarily excluded from areas to be impacted. Follow standard pollution avoidance during construction of access route.	Negligible	Not significant.

ECOLOGICAL RECEPTOR	SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	MITIGATION / ENHANCEMENT	IMPACT AFTER MITIGATION	RESIDUAL EFFECT
Reptiles	Considered to be 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	Considered to be 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	Considered to be Low Adverse significant Impact	Retention of nesting and foraging habitats. Avoid removal of habitats within the nesting season if possible.	Negligible	Not significant.
Bats	Considered to be Medium Adverse significant impact	Retention of foraging and commuting routes. Sensitive lighting scheme.	Negligible	Not significant.
Badger	Considered to be Very Low Not Significant impact	Buffer zones around known badger setts. Mitigation to adhere to relevant legislation.	Negligible	Not significant.
Otters	Considered to be Low Adverse Significant impact	Avoid otter habitats retaining dwellings where possible, minimise disturbance and if necessary, temporarily exclude from the potential development under licence.	Negligible	Not significant.
Water Vole	Considered to be 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.

Monitoring

7.8.7 Monitoring of habitats and species will be undertaken in accordance with the species licences and/or precautionary method statements. To deliver BNG, a LEMP or equivalent will be required and will include monitoring and maintenance of created habitats. Any licences, method statements, LEMP or

equivalent will include measures to determine success of the mitigation / enhancement measures.

7.9 Assessment of Cumulative Effects

Intra-Cumulative Effects

- 7.9.1 As no significant residual effects are expected at this stage on ecological receptors, no intra-cumulative effects are expected.

Inter-Cumulative Effects

- 7.9.2 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.

Triton Knoll Electrical System (EN090019)

- 7.9.3 This development involves the installation of cables and construction of a substation in the vicinity of the Proposed Development. As this development has already received consent and works are taking place, there is expected to be little or no crossover with the Proposed Development and no in-combination impacts with respect to ecological receptors / features. At this stage it is not expected to impact the baseline.

Heckington Fen Solar Park (EN010123)

- 7.9.4 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, great crested newts, 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.
- 7.9.5 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)

- 7.9.6 The proposal includes for the creation of an offshore wind farm with an onshore connection. Little information is available at the time of writing, but as for Heckington Fen Solar Park, potential in-combination impacts could include impacts on watercourses, the LWS, GCN, birds, bats and otters. Additional information is required to determine the likely magnitude of these impacts and whether greater mitigation is required. This will be investigated further and reported (as appropriate) within the ES.

Lincolnshire Reservoir (WA010003)

7.9.7 This development includes construction of a reservoir with ancillary infrastructure. Little information is available at the time of writing and more will be required to 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.

7.10 Summary

7.10.1 The site contains two local wildlife sites with seven more relatively close, it is hydrologically connected 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 great crested newts, reptiles, otters and water voles have been found in the vicinity of the site.

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

- Land take during construction and decommissioning including loss of grassland habitat on LWS, 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).

7.10.3 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.

7.10.4 Mitigation embedded within the development will involve designing in:

- Buffers around woodland, hedgerows and ditches, and any known main badger setts.

7.10.5 Further mitigation will involve:

- Further surveys of the whole site 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;
- Digging up temporarily impacted habitats (e.g. hedgerows and grassland on the cable route), retaining and replanting these after works are complete;
- 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;
- Improving the quality of retained habitats for ground nesting birds (e.g. skylark plot creation) to improve breeding success in the remaining area;
- Considering protected species in lighting design.

7.10.6 The proposed mitigation is anticipated to eliminate any significant 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 LEMP or equivalent. Monitoring of protected species will be as per the licence requirements or LEMP.

7.10.7 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 be explored.

7.10.8 A summary of the likely significant residual effects of the Proposed Development on the receptors considered within this chapter are summarised in Table 7.11 below.

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

ISSUE	DESCRIPTION OF IMPACT	GEOGRAPHICAL SIGNIFICANCE							IMPACT	NATURE	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	N/A
Standing Water	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	N/A
Habitats - General	Operation: Improvements to habitats through Biodiversity Net Gain.				X				Medium Beneficial	Lt, R	N/A
Wetland Habitats and Connected LWS	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	N/A
Invertebrates	Operation: Reduced application of agricultural chemicals.				X				Low Beneficial	Lt, R	N/A

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