

Heckington Fen Solar Park

EN010123

Environmental Statement | Volume 1: Technical Chapters

Chapter 8: Ecology and Ornithology

Applicant: Ecotricity (Heck Fen Solar) Limited

Document Reference: 6.1.8

Pursuant to: APFP Regulation 5(2)(a)

February 2023



CHAPTER 8: ECOLOGY AND ORNITHOLOGY

Document Properties		
Regulation Reference	Regulation 5(2)(a)	
Planning Inspectorate Scheme Reference	EN010123	
Application Document Reference	6.1.8	
Title	Chapter 8: Ecology and Ornithology	
Prepared By	Heckington Fen Energy Park Project Team (Ecotricity)	
Version History		
Version	Date	Version Status
Rev 1	February 2023	Application Version

Table of Contents:

8	ECOLOGY AND ORNITHOLOGY	3
8.1	Executive summary	3
8.2	Introduction	3
8.3	Assessment Approach.....	5
8.4	BASELINE CONDITIONS.....	56
8.5	Assessment of Likely Significant Effects	70
8.6	Implications of climate change.....	91
8.7	Mitigation and enhancement.....	92
8.8	Cumulative and in-combination effects	95
8.9	Summary	96

List of Tables:

Table 8.1:	Ecological surveys – where studies incorporate the Cable Route Corridor – this includes the works at Bicker Fen Substation also.....	7
Table 8.2:	Translation of EIA terminology to equivalent CIEEM classification.....	12
Table 8.3:	National Policy Statement requirements.....	16
Table 8.4:	Requirements of Draft National Planning Statements.....	19
Table 8.5:	Relevant Local Plan Policies in current and emerging local plans	25
Table 8.6:	Specific matters raised to date, including the Scoping Opinion.....	32
Table 8.7	Total number of bat passess recorded by static bat recorders	63
Table 8.8:	Summary of Potential Cumulative Sites and their Potential Cumulative Effects	98
Table 8.9:	Summary of Effects, Mitigation and Residual Effects.....	102

8 ECOLOGY AND ORNITHOLOGY

8.1 EXECUTIVE SUMMARY

8.1.1 Intensive agriculture and climate change have been identified by the UK State of Nature report¹ (Hayhow 2019) as the most significant pressures on wildlife in the UK today. The creation of large areas of renewable energy generation and large areas of species rich grassland is likely to lead to a net biodiversity gain as well contributing to reducing the effects of climate on wildlife throughout the UK. There are no designated sites of international, national or local importance within or adjacent to the Energy Park Site. There is one Local Wildlife Site (The South Forty Foot Drain) which will be crossed by the Off-Site Grid Connection. Direct drilling under the South Forty Foot Drain will ensure no negative effects on this Local Wildlife Site. Initial ecological surveys on the Energy Park Site have revealed that the area where the solar arrays will be located is of low biodiversity value. The design of Proposed Development includes setbacks from watercourses and woodland within the development footprint. A comprehensive Construction and Environmental Management Plan (CEMP) will ensure the risk of disturbance or injury to farmland birds or mammals can be minimised and will ensure no damage to boundary habitats, woodland, ponds or wet ditches outside the area where the solar array, substations and energy storage facilities will be constructed, an Outline CEMP can be found at Document Reference 7.7. The Indicative Site Layout (Figure 2.1 (document reference 6.2.2)) includes the creation of approximately 60.68ha of species rich grasslands within the Energy Park site and 2.1ha of traditional orchard managed specifically for nature conservation. Beneath the solar panels 439.7ha of intensive arable farmland will be converted to species rich sheep pasture. The creation of large areas of permanent species rich grasslands will enhance the biodiversity value of the Energy Park site and will reduce the runoff into the Wash SPA of Agri-chemicals and topsoil associated with intensive agricultural use. There will be an overall significant residual, locally beneficial effect on biodiversity in the area.

8.2 INTRODUCTION

8.2.1 This chapter identifies and proposes measures to address the potential impacts of the development proposal on ecology and nature conservation value (biodiversity features) for the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic (PV) electricity generation and energy storage facility (hereafter referred to as "the Energy Park"), cable route to, and above and below ground works at, the National Grid Bicker Fen Substation (hereafter referred to as "the Proposed Development" (inclusive of Energy Park)) on land at Six Hundreds Farm, Six Hundreds Drove, East Heckington, Sleaford, Lincolnshire.

8.2.2 The Energy Park extends to 524ha which includes a section of the "Cable Route Corridor". The Cable Route Corridor encompasses this section of onsite works, the "Off-Site Grid Connection" and above grounds works at the National Grid Bicker Fen Substation.

8.2.3 This chapter provides an evaluation of relevant important ecological receptors, including nature conservation designations, priority habitats, protected species and scheduled invasive non-native species (INNS) onsite and offsite with each being assigned a nature conservation value (sensitivity value). The potential direct and indirect effects on ecological receptors and their conservation status, inter-relationships, and their contribution to local, county, regional and national nature conservation value are

¹ Hayhow DB, Eaton MA, Stanbury AJ, Burns F, Kirby WB, Bailey N, Beckmann B, Bedford J, Boersch-Supan PH, Coomber F, Dennis EB, Dolman SJ, Dunn E, Hall J, Harrower C, Hatfield JH, Hawley J, Haysom K, Hughes J, Johns DG, Mathews F, McQuatters-Gollop A, Noble DG, Outhwaite CL, Pearce-Higgins JW, Pescott OL, Powney GD and Symes N (2019) The State of Nature 2019. The State of Nature partnership.

identified. This assessment considers avoidance design measures and management activities when determining the significance of potential effects. The requirement for any further mitigation measures is then described and mitigation and monitoring measures are also considered in the assessment of potential residual effects.

8.2.4 The Proposed Development is likely to include the following infrastructure: (i) Solar PV modules; (ii) PV module mounting infrastructure; (iii) Inverters; (iv) Transformers; (v) Switchgear (vi) Onsite underground cabling; (vii) Off-site underground cabling to connect the Energy Park site to National Grid Bicker Fen Substation; (viii) Energy Storage Systems (ESS) (ix) Water Storage Tanks within ESS (x) Onsite substation; (xi) Fencing, Gatehouses and security measures; (xii) Internal Access tracks and construction of new access onto the highway from the Energy Park site; (xiii) Electrical substation improvements at Bicker Fen (including above and below ground equipment; (xiv) extension to Bicker Fen National Grid Substation (SW location) and (xv) Improving existing access points off Highways for construction access for Grid Route. A detailed description of the proposed development is provided in Chapter 3: Site Description, Site Selection and Iterative Design Process (document reference 6.1.3).

8.2.5 Consultation responses and scoping opinions with statutory and non-statutory bodies have been considered during the preparation of this chapter. Consideration is also given to other known projects and activities and specifically to the potential for interaction between the Proposed Development and other projects resulting in cumulative effects.

8.2.6 This chapter is supported by several figures and appendices (which contain figures also) including:

- **Figure 8.1- Survey Areas** (document reference 6.2.8)
- **Figure 8.2- Statutory and Non-Statutory Designated Sites** (document reference 6.2.8)
- **Figure 8.3- Protected and Notable Species** (document reference 6.2.8)
- **Figure 8.4- Phase 1 Habitat** (document reference 6.2.8)
- **Appendix 8.1- Preliminary Ecological Appraisal** (document reference 6.3.8.1)
- **Appendix 8.2- Data search LERC** (document reference 6.3.8.2)
- **Appendix 8.3- Phase 1 Habitat Survey Report - Energy Park** (document reference 6.3.8.3)
- **Appendix 8.4- Further Extended Phase 1 Habitat Survey Report - Energy Park** (document reference 6.3.8.4)
- **Appendix 8.5- Extended Phase 1 Survey Report – Cable Route Corridor** (document reference 6.3.8.5)
- **Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor** (document reference 6.3.8.6)
- **Appendix 8.7- Confidential Badger Report** (document reference 6.3.8.7)
- **Appendix 8.8- Bat Survey Report - Energy Park** (document reference 6.3.8.8)
- **Appendix 8.9- Water Vole Report - Cable Route Corridor** (document reference 6.3.8.9)
- **Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor** (document reference 6.3.8.10) – **Figure 3 is confidential**, Figures 1, 2, 4a, 4b and 4c are available.
- **Appendix 8.11- Great Crested Newts – Energy Park and Cable Route Corridor** (document reference 6.3.8.11)

- **Appendix 8.12- Biodiversity Net Gain Calculation** (document reference 6.3.8.12)
- **Appendix 6.3- Arboricultural Impact Assessment** (document reference 6.3.6.3)
- **Shadow Habitat Regulation Assessment to Inform Appropriate Assessment** (document reference 5.2).

8.2.7 Full details of the study areas, survey methodologies, survey dates and guidance used for each survey are available in the reports as detailed above. A summary of the methods and survey findings is provided in this chapter.

8.3 ASSESSMENT APPROACH

Methodology

Study area

8.3.1 The proposed Energy Park site is comprised of flat, low-lying farmland in intensive arable wheat-production. It is subdivided into rectilinear field parcels by long, linear tracks, grass margins and drainage ditches, the ditches having an engineered profile, some supporting occasional shrubs and trees, reeds and emergent aquatic vegetation. Intermittent hedgerows form additional boundary features in places, tree cover is limited to four small plantation woodland blocks and one line of trees within the centre of the Energy Park.

8.3.2 Connecting the proposed Energy Park to the existing Bicker Fen Substation, the proposed underground cable grid connection runs through a similar agricultural landscape, also intensively arable, supporting a wide variety of crops, primarily wheat and oilseed rape. The requirement for ecological surveys was determined following a Preliminary Ecological Appraisal (PEA) (Appendix 8.1 - Preliminary Ecological Appraisal (document reference 6.8.3.1)). The study area (Figure 8.1 – Study Area (document reference 6.8.1)) includes an assessment of designed sites of international importance with 10km of the Proposed Development, and of national or local importance within 5km of the Proposed Development. These designated areas can be seen on Figure 8.2 - Statutory and Non-Statutory Designated Sites (document reference 6.2.8) Searches for records of protected species extended to 5km from the Proposed Development. Field surveys were carried out within the Order limits of the Energy Park (Figure 8.1 – Study Area (document reference 6.8.1)) taking into account adjoining habitats. The ornithological survey area extended to at least 250m from Order limits boundary and species over flying the area (Appendix 8.10 - Ornithological Survey – Figure 1 (document reference 6.3.8.10)). The field surveys within the Cable Corridor Route (Appendix 8.10 - Ornithological Survey – Figure 2) took place where access was permitted. This covered a wider area than the final Order limits as the Cable Corridor Route has been refined whilst the survey work has been undertaken.

Desk study

8.3.3 A desk study was undertaken to identify nature conservation designations and protected or notable habitats and species potentially relevant to the Proposed Development. Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act (WCA)² Schedules 2 and 4 of the Habitats Regulations³; species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the NERC Act⁴; and other species that are

² HMSO (1981). The Wildlife & Countryside Act 1981. HMSO, London (as updated 2023)

³ The Conservation of Habitat and Species Regulations 2017 <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

⁴ HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London.

Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists⁵ and Biodiversity Action Plans.

8.3.4 The desk study included a search for:

- sites of international conservation value (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites) within 10km of the Proposed Development;
- statutory designated sites of national nature and geological conservation value, e.g., Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs) within 5km of the Proposed Development;
- non-statutory designated sites of nature and geological conservation value, e.g., Local Wildlife Sites (LWSs) (which includes ancient woodland), within 5km of the Proposed Development;
- ancient woodland and other notable habitats within 5km of the Proposed Development; and
- records of protected or notable species within 5km of the Proposed Development.

8.3.5 The Lincolnshire Environmental Records Centre (LERC)⁶ was used to gain information on pre-existing ecological information (i.e. location of LWSs, records of protected and notable species and habitats within 2km of the Proposed Development as well as any invasive non-native species). This data (in respect of age and coverage) was used to inform the scope and extent of further ecological surveys.

8.3.6 Online data resources that were reviewed included:

- Multi-Agency Geographic Information Centre (MAGIC)⁷ for the location (and details) of statutorily designated sites, ancient woodland and notable habitats;
- Joint Nature Conservation Committee (JNCC) website⁸ for details of SACs and SPAs, including site information and designation details; and
- National Biodiversity Network (NBN) Gateway⁹ for details on any protected and/or notable species.

8.3.7 The desk study included a review of ecological surveys and assessment carried out as part of the original approved wind park application conducted between 2007/8 and 2017/18. Whilst data from these earlier surveys is clearly out of date for submission as part of an EcIA, they do provide important background information and knowledge of the survey area. The desk study also reviewed results of Triton Knoll Electrical System ecological surveys Viking Link ecological surveys, and Vicarage Drove Solar Farm ecological surveys.

Field surveys

8.3.8 The requirement for ecological surveys was determined following a Preliminary Ecological Appraisal (PEA) (Appendix 8.1 - Preliminary Ecological Appraisal (document

⁵ Red List in Great Britain <https://jncc.gov.uk/our-work/red-lists-in-great-britain/>

⁶ The Lincolnshire Environmental Records Centre (LERC) [REDACTED]

⁷ Multi-Agency Geographic Information Centre (MAGIC) <https://magic.defra.gov.uk/magicmap.aspx>

⁸ Joint Nature Conservation Committee (JNCC) <https://jncc.gov.uk/our-work/special-protection-areas-overview/>

⁹ National Biodiversity Network (NBN) [REDACTED]

reference 6.8.3.1)). This consisted of a review of the desk study data, the Extended Phase 1 of the Energy Park Site carried out in 2021, a walk over survey, a review of: Triton Knoll Electrical System ecological surveys; Viking Link ecological surveys; Vicarage Drove ecological surveys; a review of the ecological surveys carried out as part of the original wind park application conducted between 2007/8 and 2017/18, an updated Extended Phase 1 survey. Consultation feedback from Natural England, Lincolnshire Wildlife Trust, Lincolnshire County Council, Buglife, North Kesteven District Council (and their advisors AECOM) and members of the public was also given due regard.

8.3.9 The Extended Phase 1 survey for the Energy Park was carried out on behalf of Ecotricity by Ecologist Neil Bostock MIEEM. For the Grid Connection this was completed by RSK Biocensus. The Phase 1 Habitat survey followed the standard method 'Handbook for Phase 1 habitat survey: A technique for environmental audit' ¹⁰(JNCC, 2010). The Energy Park survey was conducted on four dates between 18-23 August 2021 (where access permitted). The survey also incorporated ecological assessment of the Energy Park Site for Great Crested Newt (*Triturus cristatus*), Otter (*Lutra lutra*), Badger (*Meles meles*), Water Vole (*Arvicola amphibius*) and reptiles. In addition, an evaluation of the buildings adjacent to the Energy Park Site, where permitted, for Bat Roosting Potential was carried out; however, this assessment did not examine the buildings internally, or examine any fissures or cracks within the buildings with an endoscope for the presence of roosting bats. The Cable Route Corridor Extended Phase 1 survey was carried out in April 2022 (Appendix 8.5 – Extended Phase 1 Survey Report – Cable Route Corridor – document reference 6.3.8.5) which also assessed the bat roost potential of trees along the Cable Route Corridor.

8.3.10 Following these initial surveys and assessments a number of further surveys were conducted: aquatic plant surveys, arable plant surveys, bat surveys, breeding and wintering bird surveys, great crested newt surveys and further badger, water vole and otter surveys and a re-survey of habitat in the Energy Park as set out in Table 8.1 below.

8.3.11 The definition of Survey Areas was developed using a combination of professional judgement and guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹¹, which define the zone of influence as: "...the area over which biodiversity features may be affected by biophysical changes as a result of the proposed project and associated activities". Field surveys were then undertaken to characterise the ecological baseline within the relevant Survey Areas presented in Figure 8.1 – Study Area (document reference 6.2.8). Further details regarding the definition of these Survey Areas and any limitations are presented in the associated survey reports within Appendices 8.3 - 8.11.

Table 8.1: Ecological surveys – where studies incorporate the Cable Route Corridor – this includes the works at Bicker Fen Substation also.

Survey and appendix	Survey Area and methods	Date of survey period
Phase 1 Survey of Energy Park Site - Appendix 8.3- Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.3)	Energy Park Walkover recording the habitat types and boundary features present followed the standard method 'Handbook for Phase 1 habitat survey: A technique for environmental audit' (JNCC, 2010 revised 2016).	August 2021

¹⁰Handbook for Phase 1 habitat survey. A technique for environmental audit . JNCC (2016)

¹¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, second Edition. Chartered Institute of Ecology and Environmental Management.

Survey and appendix	Survey Area and methods	Date of survey period
Appendix 8.4 Further Extended Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.4)		
Aquatic mammal survey of Energy Park Site Appendix 8.3- Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.3) And Appendix 8.4- Further Extended Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.4)	All the watercourses on the Energy Park Site were searched for evidence of Otter (<i>Lutra lutra</i>). Signs used to establish the presence of Otters included actual observations of animals, 'spraint' latrines deposited on prominent rocks, stones or logs or branches within watercourses (these spraints often contain fish bones and scales and have a sweet odour similar to jasmine tea) and Otter tracks in soft mud adjacent to the watercourses. The ditches and watercourses which permanently held water found on the Proposed Development were searched for evidence of Water Voles. Signs used to establish the presence of Water Voles included actual observations of animals, sounds of voles entering the water, latrines showing discrete piles of droppings, tunnel entrances (above and below the water), cropped 'lawn' around tunnel entrances and feeding stations of chopped vegetation. Targeted locations including watercourse crossing and potential otter sprainting sites (confluences of water courses) were re-surveyed for signs of otters (spraints, holts, couches, track/worn paths into water footprints or evidence of feeding otters (fish scales, remnants of fish).	August 2021 Focussed re-survey during March, June and October 2022
Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants - Energy Park and Cable Route Corridor (document reference 6.3.8.6)	Proposed Development Area National Vegetation Classification (NVC) ¹² surveys of ditches and targeted arable plants surveys using the Plantlife Important Arable Plant Area (IAPA) ¹³ .	May 2022
Appendix 8.7- Confidential Badger Report (document reference 6.3.8.7)	This survey was conducted for the Energy Park site. The entire boundary was searched for evidence of setts, latrines, scratches on trees, Badger hair on barbed wire across animal trails, snuffle holes or feeding activity. Areas such as the grass banks along ditches and drains and grass margins around	August 2021, April 2022. October 2022

¹² Rodwell, J.S. (2006) NVC Users' Handbook, JNCC, Peterborough, ISBN 978 1 86107 574 1.

¹³ Plantlife, (2015a). IAPA Plant List and Scores. Plantlife, Salisbury. Available online at: [REDACTED]

Survey and appendix	Survey Area and methods	Date of survey period
	field, woodland plantations and old hedge-banks received particular attention.	
Appendix 8.8- Bat Survey Report - Energy Park (document reference 6.3.8.8)	Bat surveys include activity transects and the use of static bat detectors in spring, summer and autumn ¹⁴ an assessment of potential roost sites followed by roost emergence surveys.	2021 and 2022
Breeding and wintering bird survey results – Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)	The bird survey methodology was based upon the British Trust for Ornithology’s Common Birds Census methods ¹⁵¹⁶ . The Survey Area included the whole of the Proposed Development Area plus a 250m buffer and birds over flying.	April to June 2021 and April to June 2022 – breeding Sept 2021 to March 2022 – wintering
Appendix 8.11- Great Crested Newts – Energy Park and Cable Route Corridor (document reference 6.3.8.11)	Proposed Development Area using Habitat Suitability Index ¹⁷ , eDNA survey ¹⁸ and where results inconclusive standard presence absence surveys (netting torching and bottle trapping) ¹⁹ .	April-May 2022
Offsite Grid Connection cable route options Extended Phase 1 Survey – Appendix 8.5- Extended Phase 1 Survey Report – Cable Route Corridor (document reference 6.3.8.5)	Walkover recording the habitat types and boundary features present followed the standard method ‘Handbook for Phase 1 habitat survey: A technique for environmental audit’ (JNCC, 2010).	April 2022

¹⁴ Collins (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. Third Edition. The Bat Conservation Trust, London.

¹⁵ British Trust for Ornithology’s Common Birds Census method (Marchant 1983)

¹⁶ Bibby, C.J., Burgess, N.D. and Hill, D.A. (1992) Bird Census Techniques. The University Press, Cambridge

¹⁷ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000), Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4): 143-155.

¹⁸ Biggs, J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. & Dunn F. (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

¹⁹ English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough

Survey and appendix	Survey Area and methods	Date of survey period
Assessment of all Grass strips and Stewardship Scheme areas	An assessment ²⁰ checking the location of all grass field margins on the Energy Park site, including those within, and those outside the Stewardship Scheme.	March, June and October 2022

Assessment of effects

8.3.12 The assessment of effects, detailed in this chapter, has been undertaken in accordance with best practice guidance for Ecological Impact Assessment (EcIA), issued by CIEEM (the CIEEM guidelines)¹¹ entitled 'Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine', as summarised below.

8.3.13 The aims of the ecology assessment are to:

- Identify relevant ecological features (i.e., designated sites, habitats, species, or ecosystems) which may be impacted;
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Proposed Development. Impacts and effects may be positive or negative;
- Facilitate scientifically rigorous and transparent determination of the consequences of the Proposed Development in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- Set out what steps will be taken to adhere to legal requirements relating to the relevant ecological features concerned.

8.3.14 The principal steps involved in the CIEEM approach can be summarised as:

- Ecological features that are both present and might be affected by the Proposed Development are identified (both those likely to be present at the time works begin and those predicted to be present at a set time in the future) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions;
- The importance of the identified ecological features is evaluated, placing their relative biodiversity and nature conservation value into geographic context, which is then used to define the relevant ecological features that need to be considered further;
- The changes or perturbations predicted to result as a consequence of the Proposed Development (i.e. the potential impacts) and which could potentially affect relevant ecological features are identified and their nature described;
- Established best-practice, legislative requirements, or other incorporated design measures to minimise or avoid impacts are also described and are taken into account;
- The likely effects (positive or negative) on relevant ecological features are then assessed, and where possible quantified;
- Measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines) and if necessary, measures to

²⁰ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J (2020) The UK Habitat Classification User Manual Version 1.1 [REDACTED]

compensate for effects on features of nature conservation importance are also included;

- Any residual effects of the Proposed Development are reported; and
- Ecological enhancements.

8.3.15 It is not necessary in the assessment to address all habitats and species with potential to occur in the relevant study area and instead the focus is on those that are "relevant" i.e. ecological features that are considered to be important and potentially affected by the Proposed Development. The CIEEM guidelines makes clear that there is no need to "carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable". This does not mean that efforts should not be made to safeguard wider biodiversity and requirements for this have been considered. National and local planning policy documents emphasise the need to achieve net gains for nature and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution. These considerations have been applied to the assessment methodology in this chapter.

8.3.16 There is a need to determine the scale at which the relevant ecological features identified through the desk studies and field surveys undertaken for the Proposed Development are of value. The value of each relevant ecological feature has been defined with reference to the geographical level at which it matters as set out below.

- International (i.e. Ramsar Sites, SACs and SPAs), normally within the geographic area of Europe;
- UK or national (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in England, with context relative to Great Britain as a whole);
- Regional (East of England) – however, a geographical area for regional importance has not been defined. A feature is of regional importance when it is of greater importance than within the county of Lincolnshire but does not reach the threshold to be of National importance;
- County (Lincolnshire);
- District (North Kesteven District Council and Boston Borough Council); and
- Local (biodiversity features that do not meet criteria for valuation at a district or higher level, but that have sufficient value to merit retention or mitigation e.g. for purposes of ensuring no net loss of biodiversity).

Assessment of significance

8.3.17 The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

8.3.18 Effects should be considered as being significant when an "effect either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats

or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)” CIEEM 2018.

8.3.19 There are a number of approaches for determining the significance of effects on ecological features. The CIEEM guidelines (2018) recommend the avoidance of the use of the matrix approach for categorisation (major, moderate, and minor). However, in order to provide consistency of terminology within this chapter, the findings of the CIEEM assessment have been translated into the classification of effects scale, as outlined in **Table 8.2**.

Table 8.2: Translation of EIA terminology to equivalent CIEEM classification

Effects classification terminology used in other EIA chapters	Equivalent CIEEM assessment
Major beneficial	Beneficial effect on structure / function or conservation status at regional, national, or international level.
Moderate beneficial	Beneficial effect on structure/ function or conservation status at County level.
Minor beneficial	Beneficial effect on structure / function or conservation status at Local level.
Neutral / Negligible	No effect on structure / function or conservation status.
Minor adverse	Adverse effect on structure / function or conservation status at Local level.
Moderate adverse	Adverse effect on structure / function or conservation status at County level.
Major adverse	Adverse effect on structure / function or conservation status at Regional, National, or International level.

Legislative and Policy Framework

The Conservation of Habitats and Species Regulations 2017 (as amended) ²¹

8.3.20 The Conservation of Habitat and Species Regulations 2017 (2017 Habitat Regulations) transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) ²²and certain elements of the Wild Birds Directive (Directive 2009/147/EC)²³ (known as the Nature Directives) in domestic legislation. This provides for the designation and protection of European Sites (and adapts planning and other controls for the protection of these sites). This includes Annex I (including habitats) and Annex II (including species) for which such sites can be designated.

8.3.21 The Habitats Regulations also provide protection for certain European Protected Species (EPS) that are listed on Schedule 2 (animals) or Schedule 4 (plants). Provision is made for the granting of licences that permit certain acts as lawful, providing the appropriate authority is satisfied that there is no satisfactory alternative, and the favourable conservation status of the species will be maintained.

²¹ The Conservation of Habitats and Species Regulations 2017 Uk statutory instruments 1012 <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

²² EC (1992). Habitats Directive, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels

²³ EC (2009). Wild Birds Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). EC, Brussels.

8.3.22 The 2019 amendment to the Habitats Regulations means that Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK no longer form part of the EU's Natura 2000 ecological network, following the UK exit from the EU. The 2019 Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes: existing SACs and SPAs; and new SACs and SPAs designated under these Regulations.

Convention on Biological Diversity²⁴

8.3.23 The United Nations Environmental Programme Convention on Biological Diversity of 1992. Under the Convention, governments undertake to conserve and sustainably use biodiversity. They are required to develop national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development, particularly, important sectors such as energy.

Ramsar Convention²⁵

8.3.24 The Ramsar Convention 1971 is an international treaty to ensure the sustainable use of wetlands which includes the designation of wetlands of international importance. Government policy extends the same level of protection to Ramsar wetlands as that afforded to sites that are designated under the Habitats Directive.

Wildlife and Countryside Act 1981²

8.3.25 The Wildlife and Countryside Act 1981 (as amended) (WCA 1981) is a primary piece of UK wildlife legislation, protecting birds, other animals and plants (including vascular plants, bryophytes, lichens and fungi), allowing for the designation of protected areas including Sites of Special Scientific Interest (SSSIs) and promoting protections for such designated areas. The Wildlife and Countryside Act 1981 also defines a list of invasive non-native species, making it illegal to spread them in the wild.

Countryside and Rights of Way Act 2000²⁶

8.3.26 The Countryside and Rights of Way Act 2000 extends powers relating to the protection and management of SSSIs. This includes powers for entering management agreements, placing a duty on public bodies to further the conservation and enhancement of SSSIs, increasing penalties for conviction, and appeal processes for the notification, management and protection of SSSIs. It also introduced the offence of 'reckless' disturbance of threatened species.

The Environment Act 2021²⁷

8.3.27 The Environment Act allows the UK to enshrine better environmental protection into law. It provides the Government with powers to set new binding targets, including for air quality, water, waste reduction and a new target to reverse the decline in species abundance by the end of 2030. The Environment Act also establishes the Office of Environmental Protection (OEP) which will hold the Government and other public bodies to account and ensure environmental laws are complied with.

8.3.28 Part 6 of the Environment Act makes provision for mandatory 10% biodiversity net gains (BNG) for planning applications under the Town and Country Planning Act 1990

²⁴ Convention on Biological Diversity. United Nations Conference on the Environment and Development Rio de Janeiro 1993

²⁵ The Ramsar Convention 1971

²⁶ HMSO (2000). Countryside and Rights of Way Act 2000. HMSO, London.

²⁷ (HMSO 2021) The Environment Act 2021

and NSIP which, when secondary legislation is released, is likely to come into effect in 2023.

Water Environment (Water Framework Directive) (England and Wales) Regulation 2017²⁸

8.3.29 The EU Water Framework Directive has been transposed into environmental legislation in England by the Water Environment (WFD) (England and Wales) Regulations 2017. The WFD follows a holistic approach to the sustainable management of water by considering the interactions between surface water (including transitional and coastal waters, rivers, streams and lakes), groundwater and water-dependent ecosystems.

Natural Environment and Rural Communities Act 2006²⁹

8.3.30 Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC Act) places a duty on public authorities in England to conserve biodiversity, which includes restoring or enhancing species populations or habitat. In England, Section 41 of the NERC Act requires the Secretary of State for Environment to publish and maintain a list of habitats and species that are of 'principal importance' for the purpose of conserving biodiversity and are regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Protection of Badgers Act 1992³⁰

8.3.31 The Protection of Badgers Act 1992 provides specific legislation to protect Badgers *Meles meles* from cruelty. This means that it is unlawful to knowingly kill, capture, disturb or injure an individual, or intentionally damage, destroy or obstruct an area used for breeding, resting or sheltering by badgers.

Hedgerow Regulations 1997³¹

8.3.32 The Hedgerow Regulations (Defra 1997) provide arrangements for Local Planning Authorities in England and Wales to protect "important hedgerows", by controlling their removal through a system of notification. To be "important" under the regulation hedgerows must meet specific wildlife, historic and landscape criteria.

Salmon and Freshwater Fisheries Act 1975³²

8.3.33 The Salmon and Freshwater Fisheries Act 1975 (as amended) relates to the protection of freshwater fish, including Salmon (*Salmo salar*) and Trout species and their habitats.

Eels (England and Wales) Regulation 2009³³

8.3.34 The Eels (England and Wales) Regulations 2009 (the Eel Regulations) aimed to halt and reverse the decline in the European Eel (*Anguilla anguilla*) stocks through control of harvesting eels and protection of habitats and in particular prevention of obstructions in water course which may impede eel passage.

Animal Welfare Act 2006³⁴

²⁸ Water Environment (Water Framework Directive) (England and Wales) Regulation 2017 <https://www.legislation.gov.uk/ukxi/2017/407/contents/made>

²⁹ HMSO (2006). The Natural Environment and Rural Communities Act. HMSO, London.

³⁰ HMSO (1992). Protection of Badgers Act 1992. HMSO, London

³¹ HMSO (1997). Hedgerow Regulations 1997. HMSO, London

³² Salmon and Freshwater Fisheries Act 1975 <https://www.legislation.gov.uk/ukpga/1975/51>

³³ Eels (England and Wales) Regulation Statutory Instruments 2009 No

334 <https://www.legislation.gov.uk/ukxi/2009/3344/contents/made>

³⁴ Animal Welfare Act 2006 <https://www.legislation.gov.uk/ukpga/2006/45>

8.3.35 The Animal Welfare Act has been enacted to prevent unnecessary suffering to both domestic and wild vertebrates.

Invasive Alien Species (permitting and Enforcement) Order 2019³⁵

8.3.36 The Invasive Alien Species (Enforcement and Permitting) Order 2019 brings the EU Invasive Alien Species Regulation 1143/2014 into domestic legislation. This puts in place measures to manage invasive alien plant and animal species in England and Wales, including the relevant licenses, permits and rules for keeping invasive alien species.

Planning Policy

National Planning Policy Statements

8.3.37 The EIA for this Proposed Development must have regard to the relevant National Policy Statements (NPS) and relevant policies of the National Planning Policy Framework, July 2021 (NPPF).

8.3.38 The Overarching National Policy Statement for Energy (EN-1)³⁶, National Policy Statement for Renewable Energy Infrastructure (EN-3)³⁷ National Policy Statement for Electricity Networks Infrastructure (EN-5)³⁸ were published in 2011. These Policy Statements do not specifically deal with large scale solar development. However, the EIA takes account of the relevant sections within these NPS:

- Overarching National Policy Statement for Energy (EN-1) with particular reference to paragraphs 4.2.2 and 4.2.3, which provide national policy on what an ES for a Nationally Significant Infrastructure Project (NSIP) project should contain; paragraph 4.3.1 which states what the Secretary of State must, under the Conservation of Habitats and Species Regulations 2017 consider when granting a development consent order; and part 5 section 5.3 which sets out guidance on generic impacts relating to biodiversity for the applicant's assessment and decision-making on the application;
- National Policy Statement for Renewable Energy Infrastructure (EN-3) with particular reference to paragraph 2.4.2, which underlines the importance of good design for energy infrastructure in design of the project to mitigate impacts such as noise and effects on ecology; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) with particular reference to paragraph 2.8.9, which details biodiversity considerations when choosing an underground electricity line. This includes the environmental consequences as underground cables can disturb sensitive habitats.

8.3.39 The NPSs set out the Government's energy policy, the need for new infrastructure and guidance for determining an application for a DCO. The NPSs include specific criteria and issues which should be covered by applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts. The relevant NPS requirements, together with an indication of where in the ES chapter the information provided to address these requirements, are provided in **Table 8.3**.

³⁵ HMSO (2019) The Invasive Alien Species (Enforcement and Permitting) Order 2019

³⁶ Overarching Policy Statement for Energy (EN-1) HMSO 2011

³⁷ National Policy Statement for Renewable Energy Infrastructure (EN-3) HMSO 2011

³⁸ National Policy Statement for Electricity Networks Infrastructure (EN-5) HMSO 2011

Table 8.3: National Policy Statement requirements

NPS Paragraph reference	Requirement from the NPS	Where addressed in this EciA
Overarching National Policy Statement for Energy EN-1		
Para 4.3.1	Prior to granting a development consent order, the IPC [now Planning Inspectorate, PINS] must, under the Habitats and Species Regulations, (which implement the relevant parts of the Habitats Directive and the Birds Directive in England and Wales) consider whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects. Further information on the requirements of the Habitats and Species Regulations can be found in a Government Circular. Applicants should also refer to Section 5.3 of this NPS on biodiversity and geological conservation. The applicant should seek the advice of Natural England and/or the Countryside Council for Wales and provide the IPC with such information as it may reasonably require to determine whether an Appropriate Assessment is required. In the event that an Appropriate Assessment is required, the applicant must provide the IPC with such information as may reasonably be required to enable it to conduct the Appropriate Assessment. This should include information on any mitigation measures that are proposed to minimise or avoid likely effects.	This was considered in the scoping stage and considered in Sections 8.3: Assessment Approach and 8.4: Baseline Conditions. Natural England advised that it was unlikely there would be a significant effect of the Wash SPA. However, a precautionary approach has been taken and a shadow HRA was carried out- Shadow HRA to Inform Appropriate Assessment (document reference 5.2).
Para 5.3.3	Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the IPC consider thoroughly the potential effects of a proposed project.	Section 8.3: Assessment Approach and 8.4: Baseline Conditions.
Para 5.3.4	The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.	Section 8.7 Enhancements

NPS Paragraph reference	Requirement from the NPS	Where addressed in this EciA
Para 5.3.6	In having regard to the aim of the Government's biodiversity strategy the IPC should take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity. The policy set out in the following sections recognises the need to protect the most important biodiversity and geological conservation interests. The benefits of nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The IPC may take account of any such net benefit in cases where it can be demonstrated.	Section 8.5: Assessment of likely significant effects
Para 5.3.7	As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in Section 4.4); where significant harm cannot be avoided, then appropriate compensation measures should be sought.	Section 8.5: Assessment of likely significant effects
Para 5.3.8	In taking decisions, the IPC should ensure that appropriate weight is attached to designated sites of international, national, and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment.	Section 8.4: Baseline Conditions.
Para 5.3.9	The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been classified as a Special Protection Area. For the purposes of considering development proposals affecting them, as a matter of policy the Government wishes pSPAs to be considered in the same way as if they had already been classified. Listed Ramsar sites should, also as a matter of policy, receive the same protection	Section 8.4: Baseline Conditions.
Para 5.3.11	Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site's notified special interest features is likely, an exception should only be made where the benefits (including	Section 8.4: Baseline Conditions.

NPS Paragraph reference	Requirement from the NPS	Where addressed in this EciA
	need) of the development at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. The IPC should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.	
Para 5.3.13	Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. The IPC should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.	Section 8.4: Baseline Conditions.
Para 5.3.20	The IPC will need to take account of what mitigation measures may have been agreed between the applicant and Natural England (or the Countryside Council for Wales) or the Marine Management Organisation (MMO), and whether Natural England (or the Countryside Council for Wales) or the MMO has granted or refused or intends to grant or refuse, any relevant licences, including protected species mitigation licences.	Section 8.4: Baseline Conditions.

Draft National Policy Statements

8.3.40 The Government is currently reviewing and updating the Energy NPSs in order to reflect leaving the EU, to ensure its policies and strategic approach for the energy system that is set out in the Energy White Paper (December 2020), and to ensure that the planning policy framework enables the delivery of the infrastructure required for the country's transition to net zero carbon emissions. As part of the Energy NPS review process, the Government published a suite of Draft Energy NPSs for consultation on 6 September 2021.

8.3.41 These include the following Draft NPSs, which are expected to be important and relevant to the Secretary of State's decision, and have therefore been taken into account by the EIA:

- Draft Overarching National Policy Statement for Energy (EN-1);
- Draft National Policy Statement for Renewable Energy (EN-3); and
- Draft National Policy Statement for Electricity Networks Infrastructure (EN-5).

8.3.42 The relevant paragraphs in the Draft NPS are set out in **Table 8.4** below.

Table 8.4: Requirements of Draft National Planning Statements

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
Draft Overarching National Policy Statement for Energy EN-1		
4.5.1	Environmental net gain is an approach to development that aims to leave the natural environment in a measurably better state than beforehand. Applicants should therefore not just look to mitigate direct harms, but also consider whether there are opportunities for enhancements. Biodiversity net gain is an essential component of environmental net gain. Projects should consider and seek to incorporate improvements in natural capital, ecosystem services and the benefits they deliver when planning how to deliver biodiversity net gain.	Section 8.5: Assessment of Likely Significant Effects and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12)
4.5.2	Although achieving biodiversity net gain is not an obligation for projects under the Planning Act 2008, energy NSIP proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity where possible. Applicants are encouraged to use the most current version of the Defra biodiversity metric to calculate their biodiversity baseline and inform their biodiversity net gain outcomes and to present this data as part of their application. Biodiversity net gain should be applied in conjunction with the mitigation hierarchy and does not change or replace existing environmental obligations.	Section 8.5: Assessment of Likely Significant Effects and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12)
5.4.4	The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests. As set out in Section 4.6, the design process should embed opportunities for nature inclusive design. The applicant is encouraged to consider how their proposal can contribute towards Biodiversity Net Gain in line with the ambition set out in the 25 Year Environment Plan. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains. The scope of potential gains will be dependent on the type, scale, and location of each project	Section 8.3: Assessment Approach, Section 8.4: Baseline Conditions, and Section 8.5: Assessment of Likely Significant Effects

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
5.4.5	The Government’s 25 Year Environment Plan marked a step change in ambition for wildlife and the natural environment. The Secretary of State should have regard to the aims and goals of the Government’s 25 Year Environment Plan and any relevant measures and targets. In doing so, the Secretary of State should also take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity. The policy set out in the following sections recognises the need to protect and enhance biodiversity and geological conservation interests. The benefits of nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The Secretary of State may take account of any such net benefit in cases where it can be demonstrated.	Section 8.3: Assessment Approach, Section 8.4: Baseline Conditions, and Section 8.5: Assessment of Likely Significant Effects
5.4.6	As a general principle, and subject to the specific policies below, development should at the very least aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in Section 4.2 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought. If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then the Secretary of State will give significant weight to any residual harm.	Section 8.3: Assessment Approach and Section 8.4: Baseline Conditions
5.4.8	Important sites for biodiversity are those identified through international conventions and the Habitats Regulations. The Habitats Regulations set out sites for which an HRA will assess the implications of a plan or project, including Special Areas of Conservation and Special Protection Areas. As a matter of policy, the following should be given the same protection as sites covered by the Habitat’s Regulations: (a) potential Special Protection Areas and possible Special Areas of Conservation; (b) listed or proposed Ramsar sites; and (c) sites identified, or required, as compensatory measures for adverse effects on other HRA sites.	Section 8.3: Assessment Approach and Section 8.4: Baseline Conditions
5.4.10	Development on land within or outside a SSSI, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits (including need) of the development in the location proposed clearly outweigh both its likely impact on the	Section 8.4: Baseline Conditions and the draft DCO (document reference 3.1) in respect of

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
	features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs. The Secretary of State should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site’s biodiversity or geological interest.	requirements to secure mitigation.
5.4.12	Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Wildlife Sites, are areas of substantive nature conservation value and make an important contribution to ecological networks and nature’s recovery. They can also provide wider benefits including public access (where agreed), climate mitigation and helping to tackle air pollution. National planning policy expects plans to identify and map Local Wildlife Sites, and to include policies that not only secure their protection from harm or loss but also help to enhance them and their connection to wider ecological networks. The Secretary of State should give due consideration to such regional or local designations. However, given the need for new nationally significant infrastructure, these designations should not be used in themselves to refuse development consent. Development will still be expected to comply with the biodiversity and geological conservation requirements set out in this NPS.	Section 8.4: Baseline Conditions
5.4.14	Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, the Secretary of State should maximise such opportunities in and around developments, using requirements or planning obligations where appropriate. This can help towards delivering biodiversity net gain. Wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures.	Section 8.5: Assessment of Likely Significant Effects
5.4.18	The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that: • during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works • the timing of construction has been planned to avoid or limit disturbance to birds during the breeding season • during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements.	Section 8.4: Baseline Conditions and the draft DCO (document reference 3.1) in respect of requirements to secure mitigation and best practice measures including the CEMP outline

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
		(document reference 7.7).
5.4.19	Applicants should consider producing and implementing a Biodiversity Management Strategy as part of their development proposals. This could include provision for biodiversity awareness training to employees and contractors so as to avoid unnecessary adverse impacts on biodiversity during the construction and operation stages.	Section 8.4: Baseline Conditions. An Outline LEMP is included at document reference 7.8
5.4.22	The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered, in order to ensure that any mitigation or biodiversity net gain measures, if offered, are delivered, and maintained. Any habitat creation or enhancement delivered for biodiversity net gain should generally be maintained for a minimum period of 30 years.	Section 8.5: Assessment of Likely Significant Effects. An Outline LEMP is included at document reference 7.8 which secures biodiversity net gain measures.
Draft National Statement for Renewable Energy Infrastructure EN-3		
2.50.2	The applicant’s ecological assessments should identify any ecological risk from developing on the proposed site. Issues that may need assessment include habitats, ground nesting birds, wintering birds, bats, dormice, reptiles, great crested newts, water voles and badgers. The use of an advising ecologist during the design process can ensure that adverse impacts are mitigated, and biodiversity enhancements are maximised, although this is a decision for the individual applicant. The assessment may be informed by a ‘desk study’ of existing ecological records, an evaluation of the likely impacts of the solar farm upon ecological features, and should specify mitigation to avoid or minimise these impacts, and any further surveys required.	Section 8.3: Appropriate Assessment
2.50.3	The assessment should consider earthworks associated with construction compounds, access roads and cable trenching. Where such soil stripping occurs topsoil and subsoil should be stripped, stored, and replaced separately in order to minimise soil damage and to provide optimal conditions for site restoration. Soil handling may be informed through a soil and Agricultural Land Classification (ALC) survey, with detailed guidance available in Defra’s guidance on Construction Code of Practice for the Sustainable Use of Soils on Construction Sites or any subsequent updates.	Chapter 16: Land Use & Agriculture (document reference 6.1.16) with an Outline Soil Management Plan included within the Outline CEMP (document reference 7.7).
2.50.4	The assessment should consider how security and lighting installations may impact on the local ecology. Where pole mounted CCTV facilities are proposed the location of these facilities should be carefully considered in order to minimise impact. If	Section 8.4: Baseline Conditions.

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
	lighting is necessary, it should be minimised and directed away from areas of likely habitat.	
2.50.6	The assessment should consider the impacts of mobile arrays or trackers (if proposed) to avoid animals becoming trapped in moving parts.	Solar panels that move through the day are no longer proposed.
2.50.7	The applicant’s assessment may be accompanied by a Flood Risk Assessment. This will need to consider the impact of drainage. As solar PV panels will drain to the existing ground, the impact will not in general be significant. Where access tracks need to be provided, permeable tracks should be used, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended. Given the temporary nature of solar PV farms, sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses. Culverting existing watercourses / drainage ditches should be avoided. Where culverting for access is unavoidable, it should be demonstrated that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period	Chapter 9: Hydrology, Hydrogeology, Flood Risk & Drainage (document reference 6.1.9)
5.50.8	The assessment should consider enhancement, management, and monitoring of biodiversity. Solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, the increase in biodiversity caused by the repurposing of previously developed or intensively managed land for solar generation may equate to a net positive impact	Section 8.5: Assessment of Likely Significant Effects
2.50.9	The applicant should consider whether they need to provide geotechnical and hydrological information (such as identifying the presence of peat at each site) including the risk of landslide connected to any development work.	Chapter 9: Hydrology, Hydrogeology, Flood Risk & Drainage (document reference 6.1.9)
2.50.10	Proposed enhancements should take account of the above factors and as set out in Section 5.4 of EN1 and aim to achieve environmental and biodiversity net gain in line with the ambition set out in the 25 Year Environment Plan. This might include maintaining or extending existing habitats and potentially creating new important habitats, for example by instating: cultivated strips/plots for rare arable plants, rough grassland margins, bumble bee plant mixes, and wild bird seed mixes. It is advised that an ecological monitoring programme is developed to monitor impacts upon the flora of the site and upon any particular ecological receptors	Section 8.5: Assessment of Likely Significant Effects

NPS Paragraph reference	Requirement from the draft NPS	Where addressed in this EciA
	(e.g., bats and wintering birds). Results of the monitoring will then inform any changes needed to the land management of the site, including, if appropriate, any livestock grazing regime.	
2.50.11	Proposed enhancements should take account of the above factors and as set out in Section 5.4 of EN1 and aim to achieve environmental and biodiversity net gain in line with the ambition set out in the 25 Year Environment Plan. This might include maintaining or extending existing habitats and potentially creating new important habitats, for example by instating: cultivated strips/plots for rare arable plants, rough grassland margins, bumble bee plant mixes, and wild bird seed mixes. It is advised that an ecological monitoring programme is developed to monitor impacts upon the flora of the site and upon any particular ecological receptors (e.g., bats and wintering birds). Results of the monitoring will then inform any changes needed to the land management of the site, including, if appropriate, any livestock grazing regime	Section 8.4: Baseline Conditions and Section 8.3: Appropriate Assessment. An Outline LEMP is included at document reference 7.8.
2.50.12	In addition to Section 5.4 of EN-1 there are specific considerations which should inform Secretary of State decision-making where developments are proposed on peat. In these cases, the Secretary of State should be satisfied that the solar farm layout and construction methods have been designed to minimise soil disturbance when building and maintaining roads and tracks and other infrastructure. This is to ensure the development will result in minimal disruption to the ecology, or release of CO ₂ and that the carbon balance savings of the scheme are maximised	Chapter 16: Land Use & Agriculture (document reference 6.1.16)

National Planning Policy Framework (NPPF)³⁹

8.3.43 The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible.

8.3.44 It specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system.

8.3.45 Section 15 of the NPPF explains the National Planning Policy with regard to conserving and enhancing the natural environment and how local planning authorities should determine planning applications with regard to ecology and biodiversity. The policies set out in the NPPF to a large extent mirror those that are explained in NPS EN-1.

Local planning policy

³⁹ Nation Planning Policy Framework, Ministry of Housing, Communities & Local Government 2021 HMSO

8.3.46 Local planning policy has been considered when assessing potential ecological constraints and opportunities identified by the desk study and field surveys; and, when assessing requirements for further survey, design options and ecological mitigation. The local planning policy documents relevant to the Proposed Development are presented in Table 8.5.

8.3.47 The Central Lincolnshire Local Plan 2012-2036 was adopted by the Central Lincolnshire Joint Strategic Planning Committee (CLJSPC) on 24 April 2017 and encompasses the Local Plans of the City of Lincoln, West Lindsey and North Kesteven District Councils. The Central Lincolnshire authorities are preparing a new Local Plan to replace the Local Plan adopted in 2017.

8.3.48 Table 8.5 set out the policies in the current local and emerging local plan for the Energy Park (Central Lincolnshire Local Plan) and the Grid Connection (Southeast Lincolnshire Local Plan)

Table 8.5: Relevant Local Plan Policies in current and emerging local plans

Local Plan	Policies
2013 The Central Lincolnshire Green Infrastructure Study Biodiversity Opportunity Mapping Study	To provide spatial biodiversity opportunity evidence in support of Local Plan making in accordance with the National Planning Policy Framework objectives, with specific reference to the emerging Central Lincolnshire Core Strategy and Lincolnshire Minerals and Waste Plan; To identify strategic biodiversity enhancement projects, including cost estimates for consideration in the development of the Infrastructure Delivery Plan for Central Lincolnshire.
2017 Central Lincolnshire Local Plan	<p>Policy LP20: Green Infrastructure Network</p> <p>The Central Lincolnshire Authorities will aim to maintain and improve the green infrastructure network in Central Lincolnshire by enhancing, creating and managing multifunctional green space within and around settlements that are well connected to each other and the wider countryside. Development proposals which are consistent with and help deliver the opportunities, priorities and initiatives identified in the latest Central Lincolnshire Green Infrastructure Study and Biodiversity Opportunity Mapping Study, will be supported. Proposals that cause loss or harm to this network will not be permitted unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be permitted if suitable mitigation measures for the network are provided. Development proposals should ensure that existing and new green infrastructure is considered and integrated into the scheme design from the outset. Where new green infrastructure is proposed, the design should maximise the delivery of ecosystem services and support healthy and active lifestyles. Development proposals must protect the linear features of the green infrastructure network that provide connectivity between green infrastructure assets, including public rights of way, bridleways, cycleways and waterways, and take opportunities to improve such features. Development will be expected to make contributions proportionate to their scale towards the establishment, enhancement and on-going management of green infrastructure by contributing to the development of the strategic green infrastructure network</p>

Local Plan	Policies
	<p>within Central Lincolnshire, in line with guidance set out in LP12.</p>
<p>2017 Central Lincolnshire Local Plan</p>	<p>Policy LP21: Biodiversity and Geodiversity</p> <p>All development should:</p> <ul style="list-style-type: none"> • protect, manage, and enhance the network of habitats, species, and sites of international, national, and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; • minimise impacts on biodiversity and geodiversity; and • seek to deliver a net gain in biodiversity and geodiversity. <p>Development proposals that will have an adverse impact on a European Site or cause significant harm to a Site of Special Scientific Interest, located within or outside Central Lincolnshire, will not be permitted, in accordance with the NPPF. Planning permission will be refused for development resulting in the loss, deterioration, or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss or harm.</p> <p>Proposals for major development should adopt an ecosystem services approach, and for large scale major development schemes (such as Sustainable Urban Extensions) also a landscape scale approach, to biodiversity and geodiversity protection and enhancement identified in the Central Lincolnshire Biodiversity Opportunity Mapping Study.</p> <p>Development proposals should create new habitats, and links between habitats, in line with Biodiversity Opportunity Mapping evidence to maintain a network of wildlife sites and corridors to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Development should seek to preserve, restore, and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Lincolnshire Biodiversity Action Plan and Geodiversity Action Plan.</p> <p>Where development is within a Nature Improvement Area (NIA), it should contribute to the aims and aspirations of the NIA.</p> <p>Development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings.</p> <p>Mitigation</p> <p>Any development which could have an adverse effect on sites with designated features and / or protected species, either individually or cumulatively, will require an assessment as required by the relevant legislation or national planning guidance.</p> <p>Where any potential adverse effects to the biodiversity or geodiversity value of designated sites are identified, the proposal will not normally be permitted. Development proposals will only be supported if the benefits of the</p>

Local Plan	Policies
	<p>development clearly outweigh the harm to the habitat and/or species.</p> <p>In exceptional circumstances, where adverse impacts are demonstrated to be unavoidable, developers will be required to ensure that impacts are appropriately mitigated, with compensation measures towards loss of habitat used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be in place before development activities start that may disturb protected or important habitats and species.</p>
<p>Central Lincolnshire Local Plan Review Proposed Submission</p>	<p>Policy S60 Protecting Biodiversity and Geodiversity</p> <p>All development should:</p> <ul style="list-style-type: none"> a) protect, manage, enhance, and extend the ecological network of habitats, species, and sites of international, national, and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; b) minimise impacts on biodiversity and features of geodiversity value; c) deliver measurable and proportionate net gains in biodiversity in accordance with Policy S61; and d) protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat. <p>Part One: Designated Sites.</p> <p>The following hierarchy of sites will apply in the consideration of development proposals:</p> <ol style="list-style-type: none"> 1. International Sites: The highest level of protection will be afforded to internationally protected sites. Development proposals that will have an adverse impact on the integrity of such areas, will not be supported other than in exceptional circumstances, in accordance with the NPPF. Development proposals that are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the site’s integrity. 2. National Sites (NNRs and SSSIs as shown on the Policies Map): Development proposals should avoid impact on these nationally protected sites. Development proposals within or outside a national site, likely to have an adverse effect, either individually or in combination with other developments, will not normally be supported unless the benefits of the development, at this site, clearly outweigh both the adverse impacts on the features of the site and any adverse impacts on the wider network of nationally protected sites. 3. Irreplaceable Habitats Planning permission will be refused for development resulting in the loss, deterioration, or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless there are wholly exceptional reasons, and a suitable compensation strategy will be delivered.

Local Plan	Policies
	<p>4. Local Sites (LNR, LWS and LGS as shown on the Policies Map) Development likely to have an adverse effect on locally designated sites, their features, or their function as part of the ecological network, will only be supported where the benefits of the development clearly outweigh the loss, and the coherence of the local ecological network is maintained. Where significant harm cannot be avoided, the mitigation hierarchy should be followed.</p> <p>Part Two: Species and Habitats of Principal Importance</p> <p>All development proposals will be considered in the context of the relevant Local Authority’s duty to promote the protection and recovery of priority species and habitats.</p> <p>Development should seek to preserve, restore, and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Natural Environment and Rural Communities Act 2006, Lincolnshire Biodiversity Action Plan, Lincolnshire Geodiversity Strategy and Local Nature Recovery Strategy.</p> <p>Where adverse impacts are likely, development will only be supported where the need for and benefits of the development clearly outweigh these impacts. In such cases, appropriate mitigation or compensatory measures will be required.</p> <p>Part Three:</p> <p><u>Mitigation of Potential Adverse Impacts</u></p> <p>Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative.</p> <p>Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable to the Local Planning Authority in terms of design and location and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement.</p> <p>If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.</p>
<p>Central Lincolnshire Local Plan Review Proposed Submission</p>	<p>Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains</p> <p>Following application of the mitigation hierarchy, all development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings with consideration to the construction phase and ongoing site management.</p> <p>Development proposals should create new habitats, and links between habitats, in line with Central Lincolnshire Biodiversity Opportunity and Green Infrastructure Mapping evidence, the</p>

Local Plan	Policies
	<p>biodiversity opportunity area principles set out in Appendix 4 to this Plan and the Local Nature Recovery Strategy (once completed), to maintain and enhance a network of wildlife sites and corridors, to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Proposals for major and large-scale development should seek to deliver wider environmental net gains where feasible.</p> <p>All qualifying development proposals must deliver at least a 10% measurable biodiversity net gain attributable to the development. The net gain for biodiversity should be calculated using Natural England’s Biodiversity Metric.</p> <p>Biodiversity net gain should be provided on-site wherever possible. Biodiversity offsetting schemes should only be used in exceptional circumstances, where net gain cannot be achieved within the site boundary or where greater gains can be delivered off-site where the improvements can be demonstrated to be deliverable and are consistent with the Local Nature Recovery Strategy.</p> <p>All development proposals must provide clear and robust evidence for biodiversity net gains and losses in the form of a biodiversity gain plan, which should be submitted with the planning application, setting out:</p> <ul style="list-style-type: none"> a) information about the steps to be taken to minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat. b) the pre-development biodiversity value of the onsite habitat.
<p>South East Lincolnshire Local plan 2011-36</p>	<p>Policy 28: The Natural Environment</p> <p>A high quality, comprehensive ecological network of interconnected designated sites, sites of nature conservation importance and wildlife-friendly greenspace will be achieved by protecting, enhancing, and managing natural assets:</p> <p>1. Internationally-designated sites, on land or at sea:</p> <ul style="list-style-type: none"> a. development proposals that would cause harm to these assets will not be permitted, except in exceptional circumstances, where imperative reasons of overriding public interest exist, and the loss will be compensated by the creation of sites of equal or greater nature conservation value; b. all major housing proposals within 10km of The Wash and the North Norfolk Coast European Marine Site, including the Sustainable Urban Extensions in Boston (site Sou006 & Wes002), Spalding (site Pin024/Pin045) and Holbeach West (site Hob048), will be the subject of a project-level Habitats Regulations Assessment (HRA) to assess the impact of recreational pressure on The Wash and North Norfolk Coast European Marine Site. This should include: <ul style="list-style-type: none"> i. locally-specific information relating to access and site sensitivities; <p>Where the project-level HRA concludes that avoidance and/or mitigation measures are required, it is expected that:</p> <ul style="list-style-type: none"> ii. Suitable Alternative Natural Greenspace (SANGs) should be provided on site Sou006 and Wes002, site

Local Plan	Policies
	<p>Pin024/Pin045 and site Hob048 as part of their package of mitigation measures; or</p> <p>iii. all other major housing proposals should provide SANGs on-site and/or through a financial contribution to provide and/or enhance natural greenspace in the locality;</p> <p>iv. Suitable Alternative Natural Greenspaces should be designed in accordance with capacity and facility requirements in relation to the developments they mitigate for, best practice elsewhere and relevant evidence.</p> <p>2. Nationally or locally-designated sites and protected or priority habitats and species:</p> <p>a. development proposals that would directly or indirectly adversely affect these assets will not be permitted unless:</p> <p>i. there are no alternative sites that would cause less or no harm; and ii. the benefits of the development at the proposed site, clearly outweigh the adverse impacts on the features of the site and the wider network of natural habitats; and</p> <p>iii. suitable prevention, mitigation and compensation measures are provided.</p> <p>3. Addressing gaps in the ecological network: a. by ensuring that all development proposals shall provide an overall net gain in biodiversity, by:</p> <p>i. protecting the biodiversity value of land, buildings, and trees (including veteran trees) minimising the fragmentation of habitats;</p> <p>ii. maximising the opportunities for restoration, enhancement and connection of natural habitats and species of principal importance;</p> <p>iii. incorporating beneficial biodiversity conservation features on buildings, where appropriate; and maximising opportunities to enhance green infrastructure and ecological corridors, including water space; and</p> <p>iv. conserving or enhancing biodiversity or geodiversity conservation features that will provide new habitat and help wildlife to adapt to climate change, and if the development is within a Nature Improvement Area (NIA), contributing to the aims and objectives of the NIA.</p>

Natural England and Department for Environment, Food and Rural Affairs (Defra) Standing Advice (Protected Species)⁴⁰

8.3.49 Standing advice from Natural England and Defra provides guidance on protected and notable species and includes reference to the best practice approaches to survey, mitigation and compensation. Guidance is also provided on the procedure for obtaining protected species licences.

⁴⁰ Natural England and Department for Environment, Food and Rural Affairs (Defra) Standing Advice (Protected Species) <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications>

8.3.50 This advice has informed the planning of surveys and the approach to mitigating impacts upon protected species, including where necessary the requirement for Natural England mitigation licences.

UK Biodiversity Framework⁴¹

8.3.51 The UK Biodiversity Action Plan (UKBAP) was launched in 1994 and established a framework and criteria for identifying species and habitat types of conservation concern. The UKBAP was subsequently succeeded by the UK Post-2010 Biodiversity Framework (July 2012). The UK list of 943 priority species and 56 habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats and species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UKBAP is still used as one of the criteria to assist in assigning national value to an ecological receptor.

8.3.52 The UK Post-2010 Biodiversity Framework is relevant within England in the context of Section 40 of the NERC Act 2006 meaning that Priority Species and Habitats are material considerations in planning. These habitats and species are identified as those of conservation concern due to their rarity or a declining population trend. The objectives of this framework have been considered in this chapter.

Birds of Conservation Concern (BoCC)⁴²

8.3.53 The Birds of Conservation Concern (BoCC) is an assessment of the conservation status of all regularly occurring British birds which is updated every 5 to 6 years. The lists (Red, Amber and Green), that indicate the level of conservation importance for each species, are derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available, and criteria include conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance.

8.3.54 The most recent version Birds of Conservation Concern has been compiled by the Birds of Conservation Concern partnership, a coalition of the UK's leading bird conservation and monitoring organisations, which comprises the British Trust for Ornithology (BTO), Game and Wildlife Conservation Trust, Joint Nature Conservation Committee (JNCC), Natural England, Northern Ireland Environment Agency, Natural Resources Wales, NatureScot, and the Royal Society for the Protection of Birds (RSPB).

Local Nature Recovery Strategy (LNRS)

8.3.55 LNRSs are a system of spatial strategies for nature which will support the delivery of biodiversity net gain and provide a focus for a strengthened duty for all public authorities to conserve and enhance biodiversity. The LNRS will:

- agree priorities for nature's recovery, and
- map the most valuable existing habitat for nature, and map specific proposals for creating or improving habitat for nature and wider environmental goals.

8.3.56 The Greater Lincolnshire Nature Partnership (GLNP)⁴³ has adopted the following policies:

⁴¹ UK Post-2010 Biodiversity Framework <https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/>

⁴² Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Lindlet, P., McCulloch, N., Noble, D., Win, I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and the Isle of Man and second IUCN Red List assessment of extinction risks for Great Britain. British Birds 11. December 2021 723-747

⁴³ The Greater Lincolnshire Nature Partnership Nature Strategy

- No net loss of Priority or other semi-natural habitat by 2025;
- 10% land area of Greater Lincolnshire is Priority habitat by 2045;
- 25% land area of Greater Lincolnshire is semi-natural habitat within a functioning ecological network.

8.3.57 Work has begun on the preparation of a LNRS for Greater Lincolnshire, which will replace the Biodiversity Action Plan (BAP).

Scoping Criteria

8.3.58 A scoping request was submitted to The Planning Inspectorate on 7th January 2022. Formal written responses to this scoping request with regard to Ecology and Ornithology have been received from the Planning Inspectorate, Environment Agency, Natural England, North Kesteven District Council and Lincolnshire County Council.

8.3.59 Comments have separately been received from Lincolnshire Wildlife Trust and Buglife, and are included in Table 8.6.

8.3.60 A number of the matters raised in response were generic matters covered by legislation and policy requirements. Specific matters raised in response to the consultation are listed in Table 8.6.

Table 8.6: Specific matters raised to date, including the Scoping Opinion

Specific matter raised – summarised	How matter has been addressed
The Planning Inspectorate	
Scoping - The Wash Special Protection Area (SPA) and Ramsar sites: The ES should consider the potential for the Proposed Development site to provide functionally linked land for bird species associated with the Wash SPA and Ramsar sites, or flight paths in the event that overhead line infrastructure is proposed.	Winter Bird surveys have been conducted on the Energy Park site and Cable Route Corridor at time of high tide on the Wash SPA in order to assess potential use of the area by species included in the SPA designation to allow an assessment of any potential effects including any effects should overhead infrastructure be proposed. Details of surveys are included at Appendix 8.10 – Ornithology Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10).
Scoping - Vegetation Clearance: The ES should explain how phasing and methods of vegetation disturbance will avoid disturbance of protected species. Relevant measures should be secured by a DCO requirement.	An Outline LEMP is available at document reference 7.8 and is secured by DCO requirement (document reference 3.1).
Scoping - Best practice guidance: Paragraph 8.57 [of the Scoping Report] states that following best practice guidance during construction, operation, and decommissioning phases will enable any significant effects on ecology to be avoided or minimised. The ES should set out what best practice and other guidance will be followed, how this has been used to inform the design of the Proposed Development and any	The guidance and best practice to be followed in Sections 8.3: Appropriate Assessment, Section 8.4: Baseline Conditions and Section 8.5: Assessment of Likely Significant Effects. Table 8.7 describes proposed mitigation

Specific matter raised – summarised	How matter has been addressed
mitigation measures proposed and where and how these are secured.	measures and how these will be secured.
Scoping - Biodiversity Net Gain (BNG): Paragraph 8.59 [of the Scoping Report] states that a full BNG calculation using Biodiversity Metric 3.0 will accompany a draft Landscape and Ecological Management Plan (LEMP) as part of the EIA. The ES should distinguish between measures intended to avoid or reduce the potential for likely significant effects, or those which have been identified for enhancement only.	The BNG assessment is set out in Section 8.7 and Appendix 8.12: Biodiversity Net Gain Calculation (document reference 6.3.8.12).
Scoping - Methodology: The Scoping Report notes that survey data has been collected over a period of time. Should the ecological impact assessment seek to rely on older datasets, the ES should explain whether this approach has been agreed with relevant consultation bodies and why these surveys remain representative of the current situation on site.	Up to date surveys have been carried out as set out in Section 8.3: Appropriate Assessment. Reference to previous surveys from 2010 and 2017 is only used to provide background information and help put any new surveys in context of any longer term changes within the area.
Scoping - Veteran trees: Veteran trees are not referenced in the Scoping Report. The ES should identify any veteran trees which may be affected by the Proposed Development and assess any likely significant effects.	An Arboricultural Impact Assessment of the Energy Park and Cable Route Corridor was carried out during summer 2022. This included an assessment of potential effects of Veteran Trees – see Appendix 6.3: Arboricultural Impact Assessment (document reference 6.3.6.3).
Scoping - Panel Spacing: The ES should explain the relationship between panel spacing and vegetation growth on site and how spacing will be designed to avoid shading of vegetation.	The spacing between solar panels is considered in Chapter 4: Proposed Development (document reference 6.1.4). The panels will reduce the light levels and less fluctuation in daily and annual temperature beneath the panels. This will result changes in growth rates and species composition of habitats beneath the panels as set out Section 8.4: Baseline Conditions in this chapter.
Scoping - Confidential annexes: Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information	Noted: Details about protected species that could be subject to disturbance, damage, persecution, or commercial exploitation will be included in confidential appendices. This includes Appendix 8.7 – Confidential Badger Report (document reference 6.3.8.7) and Location of Schedule 1

Specific matter raised – summarised	How matter has been addressed
<p>should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.</p>	<p>Species (Barn owl, Kingfisher and Marsh Harrier) – Figure 3 of Appendix 8.10 – Ornithological Survey – Energy Park and Cable Route (document reference 6.3.8.10).</p>
<p>Natural England</p>	
<p>PEIR - The PEIR has assessed the potential impacts on designated sites. At the time of writing survey work is still ongoing however Natural England agree that given the extensive foraging areas used by the Wash pink-footed Goose population that it is unlikely that there would be any effect on the conservation status of the SPA.</p> <p>Natural England has produced standing advice (https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications) to help planning authorities understand the impact of particular developments on protected species. We advise you to refer to this advice. Natural England will only provide bespoke advice on protected species where they form part of a SSSI or in exceptional circumstances.</p> <p>Natural England welcome the commitment to submit a Biodiversity Net Gain (BNG) calculation using Biodiversity Metric 3.0 as part of the draft Landscape and Ecological Management Plan (LEMP).</p> <p>Mitigation and Enhancement - Natural England welcome the measures outlined in paragraphs 8.6.1 to 8.6.15.</p>	<p>The results of the winter birds surveys are presented in Appendix 8.10 – Ornithological Survey – Energy Park and Cable Route (document reference 6.3.8.10) and any potential effects considered in Section 8.5: Assessment of Likely Significant Effects of this chapter</p> <p>The BNG calculation is presented in Section 8.7: Mitigation and Enhancement and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12)</p> <p>Habitat and species enhancements are section out in Section 8.7: Mitigation and Enhancement of this chapter.</p>
<p>Scoping - The proposed development is not within any Impact Risk Zone for European Designated sites: thus we would not anticipate any adverse impact to European designated sites or need for HRA.</p>	<p>Noted. The Proposed Development is over 15km from the Wash SPA/SAC. Wintering bird surveys have been conducted at high tide to assess whether any wetlands birds included in the designation depend on the area as a high tide feeding or roosting area.</p>
<p>Scoping - Recommend that an in combination / cumulative of other large solar project in the area namely Mallards Pass and Cottam is carried out.</p>	<p>Cumulative aspects in relation to ecology and ornithology are assessed in Section 8.8: Cumulative and In-Combination Effects.</p>
<p>Scoping - It is recognised that due to the nature of solar panels a good proportion of the agricultural land affected by the development will not be <i>permanently</i> lost. However, the large development area and development lifetime give rise to a number of concerns with regard to agricultural productivity to both the long term potential of this land and safeguard all soil</p>	<p>The strategic land use and impact on agriculture are consider in Chapter 16: Land Use & Agriculture (document reference 6.1.16).</p>

Specific matter raised – summarised	How matter has been addressed
<p>resources and retain important function and ecosystem services. The ES should consider the following issue:</p> <ul style="list-style-type: none"> • The degree to which soil are disturbed or damaged • The extent to which agricultural land would be disturbed or lost ad with BMV would be impacted • Set out details of how any adverse impacts on BMV can be minimised through design <p>Set out details of how any adverse impacts on soils can be avoided or minimised by management and design to minimise soil handling and maximise sustainable use to achieve successful after use and minimise off-site impacts.</p>	
<p>Scoping - The ES should include a Biodiversity Net Gain Assessment and Habitat Management Plan explaining how the site will be managed for the lifetime of the development and how it would contribute to the wider Nature Recovery Network.</p>	<p>A Biodiversity Net Gain assessment using the Natural England metric version 3 is set out in Section 8.7: Enhancements and Appendix 8.12: Biodiversity Net Gain Calculation (document reference 6.3.8.12), and habitat management will be included in an Outline LEMP in which is secured by DCO requirement (document reference 7.8).</p>
<p>Scoping - The ES should contain details of decommissioning and after use of the site and how this will avoid impact on soils and ensure the land can be restored to its form condition.</p>	<p>The legal agreement with the landowner is for 40 years after which it is expected the land will return to its previous use. Given the rapidly changing climate it is not possible to define what crops or type of agricultural land use could occupy the area in 40 years from the operation of the Proposed Development. The ES will set out how the decommissioning will minimise negative impacts on the soils in Chapter 16: Land Use & Agriculture (document reference 6.1.16).</p>
<p>North Kesteven District Council / AECOM</p>	
<p>PEIR – Table 8.5 - The ES should also consider/refer to CLLP policy LP20 Green Infrastructure Network and the CL Biodiversity Opportunity Mapping Study.</p>	<p>The potential to contribute to delivery of LP20 is set out in Chapter 5: Planning Policy and considered in Section 8.7: Mitigation and Enhancement of this chapter. A new permissive path is proposed with the Proposed Development. The site falls within a targeted opportunity area for the</p>

Specific matter raised – summarised	How matter has been addressed
	creation and restoration of: - wetland habitat - wetland buffer zones - linear wetland corridors - wetland stepping stones. Water levels within the main drains of the Energy Park are under control of the IDB - therefore opportunities to create new wetlands are very limited.
PEIR – Table 8.6 - The discussion doesn't directly address PINS comment in the ES Scoping which relates to light/space/water availability to underlying arable land/vegetation; rather it is focussed on whether light is reflected onto the panels.	Beneath the solar panels there will be a reduction light level and less fluctuation in temperature compared to open areas. The effects of solar panels on the underlying vegetation is considered in Section 8.5: Assessment of Likely Significant Effects.
PEIR – 8.5.4 - The focus of the BNG summary/proposals seems to be on seeding the ground rather than planting of trees, shrubs etc. A seed mix is proposed for both the 96ha BNG habitat and the area underlying the panels on the energy park site. There is reference to local sheep flock low density grazing. Can 'low density' be defined and is there any comparable agricultural 'value' assigned to reverting from arable cropping to low grazed pasture (see also below in relation to agricultural land impacts). How will grazing be guaranteed/secured? The proposed BNG area appears to have only seasonal grazing i.e. lesser intensity than the energy park site (although relative stocking densities/relative periods or % of time that sheep will be grazed across the BNG area and energy park site is not directly stated). The scope for agricultural continuance on the BNG land therefore seems (deliberately) more reduced than compared with the main energy park site.	This is set out Section 8.7: Mitigation and Enhancement of this chapter. The proposed habitat enhancements are largely related to grasslands surrounding the Energy Park. The grasslands within the Energy Park will become a vital element of an integrated commercial grazing scheme where a flying flock rotates between different crop residues. The Energy Park will provide crucial grazing during periods when other local crops are not available. In time the land within the Energy Park may become more vital for this sheep farming business as they currently use the land within the zone proposed by Anglian Water for a new reservoir as shown on Figure 2.2b Cumulative Sites – Shortlisted (Document Reference 6.2.2). Grazing will be secured in the final LEMP, an outline of which has been included with the Application (document reference 7.8) and referred to in the DCO requirements (document reference 3.1).
PEIR – 8.5.19 - The ES should identify where the 500m section subject to potential root compaction or disturbance is by reference to a full BS:5837 Tree	This is addressed in Section 8.7: Mitigation and Enhancement of this chapter.

Specific matter raised – summarised	How matter has been addressed
<p>Survey and constraints plan which should accompany the DCO application. Given the modest areas of woodland cover as a proportion of the overall 586ha site area NKDC would expect that there is no incursion into any RPAs given the ability for localised re-routing/re-siting of tracks and infrastructure.</p>	<p>A root protection zone will be applied to all mature trees (BS 5837). If root encroachment is unavoidable appropriate root protection system (Geoweb or similar) will be installed to avoid compaction.</p>
<p>PEIR - 8.5.43 - Presumably the 8m/9m buffer around edge of retained hedgerows and ditches is sufficient to enable continued bat foraging?</p>	<p>This is assessed in Section 8.7: Mitigation and Enhancement of this chapter. The buffer along all field boundaries will be larger than existing field buffer therefore will be an increase the area high quality bat foraging habitat within the Energy Park site. Common pipistrelle which are the most frequently recorded species on the Energy Park site forage both close to habitat but also in open situation above the height of the panels.</p>
<p>PEIR - 8.5.102 + 8.5.104 - As referred to above and in relation to 'alternatives' the ES should describe and detail the degree/intensity of grazing and subsequent management of the BNG land. Whilst in isolation the BNG % which is deemed deliverable is potentially significant, this might be tempered by the loss of continuance of agricultural activity on the BNG land which is assessed as largely ALC 1 and 2 categories (Fig. 16.1).</p>	<p>In response to consultation the area for Biodiversity Net Gain has been reduced slightly in order to keep the land in agricultural use. The legal requirement for BNG is 10%. The development will deliver greater BNG, as referred to in the outline LEMP (document reference 7.8).</p>
<p>PEIR – 8.5.110 - See above with reference to paragraph 8.5.19. Some inconsistency in terms of whether woodland will be impacted or not?</p>	<p>The assessment highlighted a potential risk to woodlands prior to mitigation but with appropriate mitigation as set out in Section 8.7: Mitigation and Enhancement there will be no significant effect on woodlands.</p>
<p>PEIR – 8.5.119 - The ES should correlate areas of proposed retained/reinforced and new hedgerow planting with the location of infrastructure that needs to have external lighting for operational purposes and then propose details of the type of lighting, lux levels, cowling, the means of operation (e.g. PIR etc).</p>	<p>This is assessed in Section 8.7: Mitigation and Enhancement of this chapter. Details of hedgerow planting are provide in the outline LEMP which has been included with the Application (document reference 7.8) and referred to in the DCO requirements (document reference 3.1).</p>
<p>PEIR – Section 8.3 need define the study area or potential zone of influence. In clarifying this later, a distinction between what is appropriate and precautionary to define the baseline, and what is relevant to the impact assessment. Clarification of the</p>	<p>This is assessed in Section 8.7: Mitigation and Enhancement.</p>

Specific matter raised – summarised	How matter has been addressed
likely worst-case zone of influence (likely dispersion of emissions to air and noise and visual disturbance during construction) will support review and agreement of the subsequent impact assessment.	
PEIR – Preliminary Ecological Appraisal not provided with the PEIR – it is needed to provide clarity on the approach to survey and assessment (including the clarifications requested during previous phases of consultation).	The primary audience for a PEA is the developer and relevant members of the project team to identify key ecological constraints, mitigation measures and enhancements opportunities. The document was not included as part of the PEIR but has been provided at Appendix 8.1 (document reference 6.3.8.1) and was used to inform the further survey work.
PEIR – good practice is not referenced within the reports. Details should be provided of the species and habitat specific good practice followed, as well as consideration of the over-arching requirements set out in the CIEEM Guidelines for PEA and British Standard BS42020 Biodiversity.	The methods used for survey are summarised in Table 8.1 and detailed in Appendices 8.3 to 8.11.
PEIR - Ecological Impact Assessment (EcIA) approach has not been fully applied. The ecological features identified in the baseline have not been assigned a geographic value, and the standard terminology for impacts and effects has generally not been utilised. In many cases the nature of the potential impacts, and their extent, magnitude, duration and reversibility (permanence) of these impacts is not sufficiently described or quantified.	Correct - the PEIR was produced before all surveys had been completed. The value of ecological features identified in the baseline have been assessed in terms of their geographical area in Section 8.4: Baseline Conditions and Section 8.5: Assessment of Likely Significant Effects.
PEIR - A clear assessment is not currently provided of the potential impacts and effects of the qualifying interest features of the SPA. The assessment is not clear if there is a meaningful impact on the relevant qualifying feature (pink footed goose) that needs mitigation. If mitigation is needed, then this should be relevant to the source of impact e.g. sensitive timing to prevent disturbance leading to displacement of geese from foraging habitat. I do not think that denying geese access to foraging habitat so that they forage beyond the zone of influence is appropriate or proportionate mitigation for a disturbance impact that has the same effect. Provision of alternate foraging areas would be more appropriate if this is necessary and securable.	The potential effect on the qualifying interest features of the SPA are assessed in Appendix 8.10 – Ornithological Survey – Energy Park and Cable Route (document reference 6.3.8.10) and in Section 8.5: Assessment of Likely Significant Effects of this chapter. And also considered in the Shadow HRA
PEIR - The impact assessment sections on designations and birds needs to be split out so that specific impacts on specific features (individual sites and species) are transparently assessed. The breeding bird sections in particular are hard to follow.	The potential effect on the qualifying interest features of the SPA are assessed in Appendix 8.10- Ornithological Survey – Energy Park and

Specific matter raised – summarised	How matter has been addressed
<p>Relevant impacts need to be more clearly identified, quantified and assessed. Clarity is also needed on whether mitigation is needed and if it is feasible/securable. The bird assessment could group the bird species based on their relative sensitivities/habitat affinities. Not all of the bird species are of comparable nature conservation importance, and they will vary in their sensitivity to the proposed large scale shift from arable farmland to grassland that will arise from this development. For some species the impact may be neutral or beneficial (dependent on grassland management regimes) while other species may be lost from the site.</p>	<p>Cable Route Corridor (document reference 6.3.8.10) and in Section 8.5: Assessment of Likely Significant Effects of this chapter.</p>
<p>PEIR – No precautionary assessment of great crested newt included - this is not of specific concern given that the application will confirm the presence/absence of this species.</p>	<p>The assessment of the presence of GCN is detailed in Appendix 8.11- Great Crested Newts – Energy Park and Cable Route Corridor (document reference 6.3.8.11).</p>
<p>PEIR - Extended Phase 1 Habitat Survey Report does not meet minimum requirements for a habitat survey report and is not adequate as an evidence base to support the BNG assessment. Currently, the level of information provided does not afford transparency in what was done and found, and the evidence presented is not sufficient to permit 3rd party verification of the conclusions presented. Much of the report focusses on screening the potential for protected species to occur, rather than meeting the core purpose of a phase 1 habitat survey which is to characterise the baseline habitat conditions and the intrinsic biodiversity value of these habitats (on their own merits rather than as vessels for protected animal species). Insufficient description and botanical information is provided for most habitats, including the grasslands. The phase 1 habitat map and descriptions do not appear to address all habitats present. An example of given of a corridor of grassland and field boundaries with features resembling hedgerows. These are not described in the report (e.g. through provision of target notes and photographs), and the latter have been mapped as scattered scrub. It might be that these features are retained but, as they are within the red line, they have a potential bearing on the BNG assessment as well as the understanding of the impact on site suitability for protected species.</p>	<p>The habitat within the Energy Park site has been re-mapped and classified into UK Habitat definitions suitable for use to estimate BNG in Appendix 8.12- Biodiversity Net Gain Calculation (document reference 6.3.8.12). Further assessment of potential effects on these habitats has been considered in Section 8.5: Assessment of Likely Significant Effects.</p>
<p>PEIR - The level of detail on the site suitability for protected species indicates that this report may also be covering the remit of a PEA. However, this is not stated definitely. If so, the report does not currently meet all requirements for a PEA, or the underpinning requirements set out in BS 42020. The method statements provided for the protected species surveys do not state what good practice</p>	<p>The potential for the presence and location of water vole and otter are assessed in Appendix 8.3 - Phase 1 Habitat Survey Report (document reference 6.3.8.3) Appendix 8.11 - Great Crested Newts (document reference 6.3.8.11) and</p>

Specific matter raised – summarised	How matter has been addressed
<p>methods were followed or explain the divergences from these (e.g. current good practice for water vole survey requires an early and a late season survey). No method statement is provided for the bat roost suitability assessment. Further, there are no statements on any limitations encountered.</p> <p>The extent of the otter and water vole survey is not clear, especially as the two watercourse types are not readily apparent from the Phase 1 habitat map. A figure should be provided to show the locations of the watercourses surveyed.</p> <p>I am not satisfied with the rationale for scoping out water vole surveys on many of the ditches, which relies on water levels at the time of survey (August). The vegetation descriptions otherwise suggest the presence of suitable habitat, and this species can occupy minor drains (albeit often at much lower density). However, as the chapter clarifies that only one drain needs to be crossed and that suitable stand-offs will otherwise be applied I do not think this needs further discussion/action. The relevant ditch should be surveyed before construction to confirm the status of water vole and the need for mitigation, and a commitment should be provided in the DCO application to this effect.</p>	<p>Section 8.4: Baseline Conditions of the chapter and detailed in Appendix 8.9- Water Vole Report - Energy Park and Cable Route Corridor (document reference 6.3.8.9). Appendix 8.4 Further Extended Phase 1 Habitat Survey Report</p> <p>The need for preconstruction surveys is set out in the Chapter and in the oCEMP (document reference 7.7).</p>
<p>PEIR - Ornithological Survey Methods and Results - a little more clarity/explanation is needed on the survey methods and timings adopted, particularly in relation to Schedule 1 bird species. Specifically, I am not clear if:</p> <ul style="list-style-type: none"> • hobby has been sufficiently considered. This species was recorded but not considered to breed in the area. However, I understand this species to be relatively late breeding. Could breeding activity have been missed given the surveys concluded in early June? • it is reasonable to scope quail out given that the BTO indicates that peak calling by males of this secretive species is early July i.e. a month later than the last survey visit. • the appraisal of the local breeding status of barn owl considered all of the features identified in Appendix 8.1. Appendix 8.2 indicates buildings were approached and examined, but it does not state that an internal inspection was made for barn owl. <p>The viewsheds for each of the identified vantage points should be shown on the plan provided with the report to provide clarity on the land visible from each location. In addition, it should be clarified that both surveyors were present at VP1, as it would not have been possible for a single surveyor to maintain constant observation at this location (given the need to look both north and south at the same time). The results obtained for each VP, along with plans to illustrate the distribution of the bird survey results, should be provided with the final DCO application.</p>	<p>The methods used in the ornithological surveys are detailed in Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10). Appendix 8.10 contains a plan which shows the viewpoint locations. These locations were shown due to the position. They offered clear views over the landscape to ensure all areas were visible for the survey.</p>

Specific matter raised – summarised	How matter has been addressed
<p>PEIR - Preliminary BNG Calculation - No evidence has been provided to permit verification of the very high (>200%) BNG predicted. The site condition assessment data and the metric workbook (macro enabled version) should be provided to the Council to support verification of the calculations. The outline LEMP is also needed to allow verification that the proposals are realistic and securable.</p> <p>This is not to suggest that the indicated BNG is not feasible on this large site, only that more information needs to be provided in accordance with the relevant good practice guidance. This includes a need to meet good practice data requirements to evidence the baseline habitat conditions entered into the metric (see comment on this under Appendix 8.1). The guidance accompanying the metric should be referred to when compiling the evidence for the baseline site condition assessment, and when evaluating the post-development habitat conditions.</p> <p>In addition, Natural England advises that “the metric is not a total solution to biodiversity decisions”. While the metric will record a large gain from conversion of arable farmland to another habitat type, it otherwise needs to be demonstrated that this habitat change is the wider best interests of biodiversity at this location. This needs to be considered in relation to the species dependent on the arable fields to be affected, including birds and scarce arable flora. The output from the metric does not change existing levels of species protection and it does not replace regulatory processes for species protection.</p>	<p>The area of the Energy Park site and proposed land use has changed in direct response to consultation and a revised BNG calculation is provide in Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12).</p> <p>Further surveys of the Energy Site were conduct Appendix 8.4 to assess grass margins as classified following UK Habitat Classification system.</p>
<p>PEIR - Badger Survey Report - report should be updated to support review and understanding by third parties. Specifically:</p> <ul style="list-style-type: none"> • Clear summary information should be provided for each of the setts present, including provision of a description of each sett, and categorisation of the type of sett (i.e. outlier/subsidiary/main). • A plan should be provided showing the distribution of setts (with the sett number) and other field signs. The current plan is not easy to review given it requires cross referencing back to target notes in the main sett. There is no need to refer back to historic survey information e.g. prior sett numbers. This data is too old to be relied on and it is confusing to have two different sett numbering systems referred to. 	<p>An updated badger survey is provided at Appendix 8.7- Confidential Badger Report (document reference 6.3.8.7). The Badger population on the site appears to be highly mobile with sett changing between 3 surveys conducted in 2021 & 2022. In light of the dynamic nature of the Badger activity within the Energy Park. It is recommended that preconstruction Badger surveys are conducted in the oCEMP (document reference 7.7).</p>
<p>Scoping - Provided that direct impacts on LWS are avoided through use of directional drilling and that there is no potential for significant indirect effects, then it is agreed that these LWS can be scoped out. This should be confirmed by the applicant later.</p>	<p>The details of crossing the LWS South Forty Foot Drain by direct drilling are set out in Chapter 4: Proposed Development. Where hydraulic drilling is required, a launch pit swathe of 30m x 30m is</p>

Specific matter raised – summarised	How matter has been addressed
	<p>anticipated. These will be setback from the South Forty Foot Drain within fields either side of the Drain (Section 8.5) The land will return to its previous use, with the exception of the link boxes which will be a ground level access to the joint bays</p>
<p>Scoping - The proposed development is not located within an area identified within the Local Plan policies map as an area suitable for landscape scale biodiversity enhancement but there are several small woodlands that are individually identified as suitable for enhancement. These woodlands would not be affected by the proposed development, so there are no conflicts in relation to any defined "Biodiversity Opportunity Areas".</p>	<p>Noted.</p>
<p>Scoping - The habitat data gathered should be suitable to evidence the BNG site condition assessment. This should be provided with the BNG assessment for all relevant on and off-site habitat parcels</p>	<p>An extended phase 1 survey has been carried out for the Energy Park (Appendix 8.4- Further Extended Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.4) and for the Off-site Grid Route (Appendix 8.5- Extended Phase 1 Survey Report – Cable Route Corridor (document reference 6.3.8.5)) which has informed the BNG assessment in Section 8.5 (and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12)). The Energy Park has also been re-surveyed to identify all the grass margins within the site and classified using UK Habitat Classification (UKhab) suitable for use to estimate BNG.</p>
<p>Scoping - More information is needed to permit us to agree that notable flora are not likely to be present. The suitability of the existing baseline will depend on the botanical expertise of the surveyors and the timing of the surveys. Currently, the information presented is insufficient to confirm that scarce arable flora can be scoped out (the proposed land use change will result in widespread losses of arable habitats). The drains could also support notable flora, and these could (if sufficiently localised in occurrence) be affected by new bridges, culverts or installation of cables using open cut methods.</p>	<p>Assessment of areas which may potentially support rare arable plants was made and a rare arable plant survey was carried out in 2022 and reported in Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor (document reference 6.3.8.6).</p>

Specific matter raised – summarised	How matter has been addressed
<p>Scoping - It is not clear if specific consideration has been given to Schedule 1 bird species. Survey methods for these may diverge from those suitable for a more general breeding bird survey. Prior surveys for the wind farm identified quail, marsh harrier, hobby and barn owl. At least some of these species could be affected by construction activities and/or the permanent change in land use. They may also be a consideration in relation to agreement of public access routes.</p>	<p>Specific consideration of Schedule 1 species has been included in the breeding and wintering bird surveys and potential effects will be assessed when survey complete. The same ornithologist that conducted the survey for the previous wind farm application to ensure continuity of survey methods and knowledge of the areas.</p>
<p>Scoping - The potential for barn owl nest sites to occur in trees along the grid connection corridor should be considered, and this could be scoped at the same time as the proposed bat roost assessment.</p>	<p>The breeding birds survey of the Off-Site Grid Connection included an assessment for nesting Barn Owl. Two Schedule 1 species have been recorded on the Energy Park Site. These include a single Barn Owl territory and one single sighting of foraging Hobby.</p>
<p>Scoping - Similar to the above point, but with a lesser level of legal protection, prior surveys have recorded a variety of notable bird species that will also be a specific consideration in relation to land use change. Losses of habitat for corn bunting are a potentially important consideration given the species is in rapid national decline.</p>	<p>Breeding bird surveys on the Energy Park Site in 2021 failed to record breeding Corn Bunting. This species was recorded breeding on Energy Park site during the surveys conducted prior the wind farm application in 2010 possibly reflecting the national decline as noted by NKDC. Corn Bunting were recorded along the Grid Connection Corridor. The habit in the Energy Park is considered likely to be suitable corn bunting.</p>
<p>Scoping - We agree that it is not likely to be proportionate to require wintering bird surveys for the grid connection corridor, provided that areas of potential sensitivity are otherwise identified, and details are provided on how any potential constraints will be managed. Similarly, we agree that bat activity surveys are not relevant to the grid connection corridor as long as potential roosting sites are identified and protected</p>	<p>Noted: However, winter birds surveys were carried out at high tide on The Wash SPA to assess whether significant number of birds included in the SPA designation use the areas as a high tide roost or foraging area are considered in Section 8.3 - 8.4 and Appendix 8.10-Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10).</p>

Specific matter raised – summarised	How matter has been addressed
<p>Scoping - The submitted project scope (ecology) does not provide detail on the proposed approach to ecological impact assessment (EcIA). We therefore advise that this should be undertaken in accordance with current good practice which is the Guidelines for ecological impact assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management, 2019).</p>	<p>The ecological impact assessment (EcIA) will be undertaken in accordance with current good practice which is the Guidelines for ecological impact assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management, 2019) as set out in Section 8.3: Assessment Approach and Section 8.4: Baseline Conditions.</p>
<p>Scoping - The assessment should identify and show regard to relevant planning policy and related guidance, including and particularly National Policy Statements (NPS) EN-1, EN-3 and Planning Inspectorate Advice Note Ten in relation to Habitats Regulations Assessment (HRA). NPS EN-4 is not likely to have direct relevance (as its remit is pipelines), but its requirements in relation to ecology are potentially equally applicable to cable laying for grid connection e.g., requirements in relation to reinstatement of habitats, and avoidance of important hedgerows.</p>	<p>The relevant planning policy and guidance being used in the assessment are set out in in Section 8.3: Assessment Approach and Section 8.4: Baseline Conditions.</p>
<p>Scoping - Given the progress made to date on ecological surveys, we consider that it will be possible to submit a relatively comprehensive and complete EcIA with the PEIR (as opposed to a more high-level assessment). We would encourage this approach, to permit detailed review and advice in advance of submission of the DCO application.</p>	<p>Details of all surveys and assessments available were included in the PEIR, and within the ES.</p>
<p>Scoping - While we understand the rationale for scoping out European Sites and other statutory sites, and agree that this is likely to be correct, this should not be undertaken based solely on considerations of relative distance from the proposed development. Instead, regard should be given to the site-specific Impact Risk Zones defined by Natural England. It should be noted that some form of HRA will be required to accompany the DCO application even where European Sites are not likely to be adversely affected. The relevant requirements are set out in Advice Note Ten.</p>	<p>This is noted. Natural England as noted above have stated: <i>“The proposed development is not within any Impact Risk Zone for European Designated sites: thus we would not anticipate any adverse impact to European designated sites or need for HRA”</i>. The Energy Park and Off-Site Grid Connection are over 16km from the Wash SPA. Wintering bird surveys have been conducted at high tide to assess whether any wetlands birds included in the designation depend on the area as a high tide feeding or roosting area.</p>
<p>Scoping - All potentially significant direct and indirect impacts and effects should be identified and assessed. Species could be affected by the long-term habitat changes arising from the proposed development, as well as by impacts occurring during construction. The</p>	<p>All potentially significant direct and indirect impacts and effects have been identified and assessed and set out in Section 8.5: Assessment of</p>

Specific matter raised – summarised	How matter has been addressed
<p>proposed development represents a substantive change in land use, and it is unlikely that the habitats within the solar array would be suitable to maintain all the species associated with the large arable fields currently present. For example, given the scale and nature of the proposed development impacts to farmland birds should be thoroughly assessed. If significant effects are identified, then appropriate options to mitigate these effects should be identified.</p>	<p>Likely Significant Effects include any effects during construction and long-term changes result from the installation of solar panels and the change will be assessed.</p>
<p>Scoping - The species assessment should also consider the effects of solar panelling and associated infrastructure on birds, bats, and general ecology during the operation of the proposed development. The potential for the proposed development to attract or displace populations, and impacts associated with collision risk and barrier effects, should be assessed where significant effects are likely to occur. Security fencing is a specific consideration in relation to potential barrier effects and the known presence of badger. Any necessary mitigation measures, such as mammal gates, should be described</p>	<p>Assessment of the potential effects of solar panels and security fencing in term of collision risk and barrier effects has been carried out as set out in Section 8.5: Assessment of Likely Significant Effects.</p>
<p>Scoping - More detail will need to be provided in relation to potential impacts on watercourses from new crossings. Consideration should also be given to any design requirements specified by the Internal Drainage Boards (IDBs) as this may also have relevance to the impact assessment. We have received guidance in the past that has necessitated lining of the channel to limit scope for vegetation growth under bridge crossings where it would be inaccessible during drainage maintenance works.</p>	<p>Section 8.5: Assessment of Likely Significant Effects. Water crossings will be carried out in close liaison with Black Sluice IDB, and the DCO includes protective provisions for the IDB (document reference 3.1)</p>
<p>Scoping - In specific relation to the grid connection corridor, we consider that impact avoidance measures should be explored first before considering habitat removal. Options for the use of directional drilling should be considered in relation to avoidance of all higher quality habitats, and explanation should be provided where this is not considered feasible. Such an approach would be consistent with guidance on protecting priority habitats within EN-1.</p>	<p>The assessment of potential effects along the Off-Site Grid Connection route will follow the mitigation hierarchy of avoid, minimise, restore, and offset with detailed reasons and justification provided where avoidance measures will not be used. The initial design of the Proposed Development will involve directional drilling under South Forty Foot Drain LWS.</p>
<p>Scoping - We agree with the list of proposed new habitats, although it also needs to be clarified how these will be suitably managed long-term in support of the biodiversity gain reported in the DCO application. Consideration should also be given to enhancement of drain habitats where these are falling out of condition or otherwise would benefit from reprofiling.</p>	<p>An Outline Landscape Ecological Management Plan (oLEMP) is included with the DCO application (document reference 7.8) which details the long-term management and monitoring of habitats within the Energy Park Site. This will give the opportunities to support the delivery of the objectives of the Lincolnshire</p>

Specific matter raised – summarised	How matter has been addressed
	Biodiversity Action Plan and the emerging Greater Lincolnshire Nature Strategy and National Pollinator Strategy.
<p>Scoping - The draft LEMP should provide more detail on how the proposed habitats will be created, established, and managed long-term. In refining the proposed approach further, regard should be given to the Lincolnshire Biodiversity Action Plan and the Greater Lincolnshire Nature Strategy. The applicant has already identified the potential to support the aims of the National Pollinator Strategy, and in relation to this the proximity of the site to a 'B-Line' identified by the nature conservation charity Buglife is of potential relevance.</p>	<p>The Outline LEMP (document reference 7.8) includes details of the long-term management and monitoring of the grasslands. This will give the opportunities to support the delivery of the objectives of the Lincolnshire Biodiversity Action Plan and the emerging Greater Lincolnshire Nature Strategy and National Pollinator Strategy.</p>
<p>Scoping - The indicative site zones plan provides an indication of where new habitats would be located, although we cannot identify what is proposed in each area. In addition, it is not clear if the northern public access areas would also be managed for biodiversity. This would be desirable given that they are adjacent to the Head Dike Biodiversity Opportunity Area (see the baseline section, above). However, and while acknowledging the desirability of a circular amenity route, we are not satisfied that the identified areas are appropriate. The northern access areas are locations that are currently remote from roads and habitation so are locations where habitat enhancement could be achieved for sensitive species such as marsh harrier or otter. In comparison, the off-site areas to the south of the proposed solar park are much closer to roads and habitation. Please could more consideration be given to possible access routes that would permit realisation of such biodiversity opportunities.</p>	<p>The proposed habitat enhancements are shown on Figure 4.1e: Ecological Enhancements. The proposed circular path is connected to the existing footpath network (HECK/15/1) and has been extended following consultation. It should be noted that it is the existing footpath that runs along the Head Dike, albeit the bridge was removed c. 2005. The proposed permissive path is away from sensitive habitats on the Head Dike. The Head Dike land is outside the Proposed Development Boundary and the applicant has no control over the management of this area. As a Flood Management Structure the management comes under the responsibility of the landowner, Black Sluice IDB, and Environment Agency.</p>
<p>Scoping - In addition, a potentially greater gain for biodiversity and landscape connectivity might be achieved by relocating the enhancement areas to the north (along Head Dike) and pulling the solar array further south, while still permitting access via the circular amenity route. Please could this be considered further, if only to explain how the layout has been derived. The proposed point of access onto the amenity route also needs to be identified, as presumably allowance for parking will be necessary and this may have additional habitat impacts.</p>	<p>The Head Dike is outside the Proposed Development boundary and applicant has no control over the management of this area. The Proposed Development is separated from southern bank of the Head Dike (main river) by a Black Sluice IDB managed watercourse which requires continuous access for management. Including the</p>

Specific matter raised – summarised	How matter has been addressed
	<p>setback from IDB controlled drain, the distance will be over 30m.</p> <p>The access to the permissive path will be via the existing public right of way HECK/15/1. No public car parking will be provided for access to this permissive path to avoid increasing emissions by people driving to use it.</p>
<p>Scoping - Clarity will be needed on whether the proposed habitats, particularly the grasslands, will be managed solely for biodiversity or if some form of agricultural use is also proposed. If agricultural use is proposed then potential conflicts between biodiversity and agricultural use should be carefully considered, and a realistic assessment should be provided of the BNG achievable under agricultural regimes.</p>	<p>An Outline LEMP (document reference 7.8) will be submitted with the DCO application which will detail those areas with the Energy Park which will be managed principally for biodiversity and those areas where agricultural practices will continue. The current proposal would see a majority of Energy Park grazed.</p>
<p>Scoping - Establishment of off-site habitats before the start of construction is encouraged, particularly where this would help offset some of the impacts on protected and notable species during construction e.g., impacts on ground nesting birds</p>	<p>An Outline LEMP (document reference 7.8) details the areas within the Energy Park which will be managed principally for biodiversity gain.</p>
<p>Scoping - In addition to the new habitats and the associated benefits arising from these for a broad suite of flora and fauna, specific enhancement measures for specific species are also identified by the applicant. We recommend that these be reviewed further once the potential impacts and effects on species have been assessed. Impacts on the baseline species interest of the site should be mitigated as fully as possible, and a clear distinction should be maintained between this essential mitigation and enhancement. Proposals for species enhancement also need to be realistic and therefore are best targeted at species already present or that are reasonably likely to colonise in the near future.</p>	<p>The changes in habitat as result of the Proposed Development are set out in Section 8.5: Assessment of Likely Significant Effects. Mitigation and enhancement measures are set out in Section 8.7.</p>
<p>Scoping - It cannot be assumed that all of the proposed new habitats will contribute to BNG, as to demonstrate this the applicant first needs to quantify the habitat losses to the proposed development and related requirements for habitat compensation to achieve no net loss. This will be provided later by the applicant in the form of a Biodiversity Net Gain (BNG) calculation. The current iteration of the Natural England metric (Metric 3.0) should be used to make the BNG calculation. All permanent habitat losses should be quantified, including within the grid connection corridor. Where habitat impacts are scoped</p>	<p>The changes in habitat as result of the Proposed Development are set out in Section 8.4: Baseline Conditions. The biodiversity net gain assessment is set out in Section 8.7 and 8.9 and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12).</p>

Specific matter raised – summarised	How matter has been addressed
<p>out on the basis that they are temporary, they should be evidenced with reference to a clear description of the habitats concerned and realistic assumptions on the ability to reinstate these habitats within the applicable timeframe (within 2 years from point of habitat removal, see the guidance accompanying Biodiversity Metric 3.0).</p>	
<p>Scoping - Potential Cumulative Ecological Effects Given the characteristics of the affected landscape and its habitats, and the prior species data collected for Heckington Fen Wind Farm, I cannot identify any likely cumulative effects arising in combination with onshore works for Triton Knoll. The Triton Knoll website indicates that the onshore cabling works are now completed, so there would be no overlap in construction periods between the two developments. Both projects have or will utilise directional drilling to avoid impacts on important habitats. Triton Knoll has achieved BNG, so there would be no cumulative habitat losses with the proposed development that are likely to produce a significant adverse effect on biodiversity.</p>	<p>Noted: An assessment of potential cumulative effects is detailed to Section 8.8: Cumulative and In-Combination Effects.</p>
<p>Lincolnshire Wildlife Trust</p>	
<p>PEIR - The following comments should be taken in conjunction with previous LWT comments for this proposal sent on 15th Feb 2022 and are informed by BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Green and Natural England Technical Information Note TIN101 © Natural England 2011 First edition 9th September 2011 - Solar parks: maximising environmental benefits. We would also refer readers of these comments to National Policy Statements EN-1, EN-3 and EN-5, NPPF (2021) paragraphs 8c, 174, 180, 182, the Central Lincolnshire Local Plan Policy LP21 Biodiversity and Geodiversity and South East Lincolnshire Local Plan 2011-2036 Policy 28 - The Natural Environment.</p>	<p>Noted.</p>
<p>PEIR – encouraged to read that “<i>No areas of the Development are proposed to be continuously lit during the operational phase of this development</i>” in Paragraph 4.5.33 as well as Paragraph 6.3.25 which states that “<i>There is no permanent lighting proposed as part of the Proposed Development except for localised emergency security lighting in proximity to the substations and control buildings</i>”. LWT take the position detailed in Draft EN-3 which states “Projects should minimise the use of security lighting. Any lighting should utilise a passive infrared (PIR) technology and should be designed and installed in a manner which minimises impact” which is of particular importance considering the effect continuous lighting would have on nocturnal species, especially bats, within and around the Energy Park throughout its operational phase.</p>	<p>Details of security lighting are assessed in Section 8.5: Assessment of Likely Significant Effects.</p>

Specific matter raised – summarised	How matter has been addressed
<p>PEIR - LWT agree with the statement in Paragraph 8.1.1 stating <i>“The creation of large areas of renewable energy generation and large area of species rich grassland is likely to lead to a net biodiversity gain...”</i> and acknowledge the inclusion of the headline results of the BNG calculations in Appendix 8.4. While the percentage gain in area habitats is notably high (205.83%) we would expect to see additional net gains in hedgerow units for the ‘on-site post intervention’ section as a result of the 10.19km of new and 1.98km of enhanced hedgerows as shown in Figure 1.4e.</p>	<p>The layout of the site and habitats have been modified in response to consultation and revised BNG calculation is provided in Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12). There is a very significant gain in BNG for hedgerow in Appendix 8.12.</p>
<p>PEIR - LWT acknowledge that Table 8.6 states there are <i>“no conflicts in relation to any defined ‘Biodiversity Opportunity Areas’”</i>. This is consistent with the most recent Biodiversity Opportunity Mapping conducted by the Greater Lincolnshire Nature Partnership (GLNP) on behalf of the Local Planning Authority.</p>	<p>Noted.</p>
<p>PEIR - We note that in Paragraph 8.1.1 you state that <i>“There are no designated sites of international, national or local importance within or adjacent to the Energy Park Site.”</i> In Paragraph 8.4.5 it is stated that <i>“The route for the proposed off-site Grid Connection has not been finalised.”</i> and that <i>“Both cross the A17, the South Forty Foot Drain and the railway”</i>. We are encouraged to read that <i>“Direct drilling under the South Forty Foot Drain will ensure no negative effects on the Local Wildlife Site”</i> as stated in Paragraph 8.1.1.</p>	<p>Noted and confirmed that directional drilling will be used to provide a route for the grid connection to Bicker Fen Substation.</p>
<p>PEIR - We acknowledge the description of ecological enhancements intended for the site regarding the <i>“drought resistant species rich seed mix suitable for low density sheep grazing with no additional fertiliser”</i> in Paragraph 8.5.4 and that a <i>“nature conversation species rich seed mix will be used in the areas between the fenced Energy Park and the drainage ditches”</i>. This demonstrates where the most practicable gains in biodiversity can be found on solar farms and is consistent with the advice and recommendations given in BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene and Natural England Technical Information Note TIN101 © Natural England 2011 First edition 9th September 2011 - Solar parks: maximising environmental benefits.</p>	<p>Noted.</p>
<p>PEIR - Paragraph 8.5.105 states that both the 96ha of BNG land and 46ha of land between the fenced area and drainage ditches <i>“will be sown nature conservation seed mix to provide nesting habitat for farmland birds and habitat for insects and pollinators.”</i> Given the stark decline in farmland birds since the 1970s LWT reiterate the point made during the previous comments for optimal ground-nesting habitat of sufficient size for breeding birds particularly those that require large expanses around them, such as lapwing and skylark. We would also support ‘skylark plots’ to be incorporated into the LEMP as mitigation in the form</p>	<p>The layout of the site and habitats have been modified in response to consultation and BNG calculation is provided in Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12). There is 60ha large open areas of grassland between the security fencing and drainage ditches will be retained. The continued use of land around</p>

Specific matter raised – summarised	How matter has been addressed
<p>of species-rich grassland managed in close proximity to more species rich grassland among arrays which would provide additional, higher quality foraging habitat. These two habitat requirements are essential, not one or the other. We want the solar industry to work together within Greater Lincolnshire to collectively address the need for creating habitat for the ground nesting birds that require large vistas to address cumulative impacts the industry may have on those species.</p>	<p>the south and west, outside the Order limits of approximately 62ha for arable agriculture can include two skylark plots per ha which could be used by skylark and yellow wagtail.</p>
<p>PEIR - Paragraph 8.5.106 notes “shade tolerant species, including agricultural weed species such as dock and thistle, [may start becoming] established beneath the array strings and outcompeting other species”. Where ‘shade-cuts’ might be required for panel arrays, we would highlight this as opportunity to maintain ‘flowering lawns’ which would incorporate only native species including butterfly foodplants – with examples of such given, including ones to avoid: Perennial Rye-grass and White Clover. This would result in extending the flowering season of these strips and maximising native species-rich grassland area.</p>	<p>Noted. The seed mixes used within to Energy Park will include shade tolerant species and will be selected after advice from a local agronomist and the Lincolnshire wildlife trust as detailed in the Outline LEMP (document reference 7.8).</p>
<p>PEIR - LWT note boundaries should ideally feature occasional standard trees and more trees on northern boundaries where appropriate. Trees should be allowed to mature and senesce as safety permits. We would recommend that where possible, standing dead wood should be retained, even as monoliths. If felling must be undertaken for safety, this should be minimised and we would call for dead wood to be retained in boundaries as habitat.</p>	<p>Noted. There will be no loss of existing trees on site. However, allowing existing hedgerow species to mature into standard trees is likely to be in conflict of the provision of suitable nesting conditions for farmland birds. Extra mature trees will provide nesting and perches for predators such crows and magpies. Details of the boundary habitat and tree management are set out in the Outline LEMP (document reference 7.8).</p>
<p>PEIR - LWT would prefer to see opportunities taken to enhance wet boundaries with native herbaceous vegetation and to maintain high light levels to enhance riparian and aquatic habitat. The presence of mink is noted and presents the opportunity for further enhancement of riparian habitat through invasive species control and should be strongly considered by the Applicant. We would be happy to offer guidance on invasive species control based on providers we have worked with successfully in the past.</p>	<p>Noted. Details of the management of the boundary habitat is set out in the Outline LEMP (document reference 7.8).</p>
<p>PEIR - Following our previous comments, we would insist that any fencing would not extend below the ground surface where this would conflict with Badger activity and that ‘Badger gates’ would be considered for ensuring site boundary permeability for this species. To further this point LWT also insist a 30m buffer established from setts through panel layout design as is stated in the scoping report Paragraph</p>	<p>The security fencing will allow for movement of badger, European hare, and other small mammals across the site and detailed in the Outline LEMP (document reference 7.8).</p>

Specific matter raised – summarised	How matter has been addressed
<p>8.49. We also note that Paragraph 8.5.2 states “the fence design will include gaps to allow mammals to pass underneath at strategic locations”, this is of particular importance when considering the lifespan of the project and the species recorded during site surveys. LWT agree with the mitigation described for badgers and would stress the importance of consulting with Natural England for mitigation in the LEMP and CEMP.</p>	
<p>PEIR - LWT acknowledge the GCN eDNA survey, carried out in April 2022, returned no conclusive results pertaining to the presence of GCN within the site boundary. LWT also acknowledge that a District Licence scheme for GCN mitigation may apply to Lincolnshire during the application process and would stress that best practice is adhered to at all times and we will look to consult where appropriate if matters progress under mitigation licence or under a District Licence Scheme where applicable.</p>	<p>Noted.</p>
<p>Scoping - LWT supports and insists that you will include data requests to the Lincolnshire Environmental Records Centre (LERC), and you will consult the National Biodiversity Network (NBN) as part of the desk study to inform the Preliminary Environmental Information Report and Environmental Statement.</p>	<p>A data request has been made as part of the desk study. Data on designated sites and protected and notable species within 5km of the Application Site is listed in Appendix 8.2 - Data Search LERC (document reference 6.3.8.2) and shown on Figure 8.2 – Statutory and Non-Statutory Designated Sites (document reference 6.2.8).</p>
<p>Scoping - We would wish to see a comprehensive geo-referenced assessment of all nearby site designations, with an assessment of proximity and biodiversity risk posed by the proposed development in each case in accordance with CIEEM Ecological Impact Assessment guidance.</p>	<p>Location of statutory and non-statutory designated sites are shown on Figure 8.2 (document reference 6.2.8). An assessment of potential effects on these sites is set out in Section 8.5: Assessment of Likely Significant Effects.</p>
<p>Scoping - We see that it has so far been determined (Paragraph 8.12) that there are “no conflicts in relation to any defined “Biodiversity Opportunity Areas.” We are not sure at this stage whether this is based on the Biodiversity Opportunity Mapping Study for central Lincolnshire 2013 or whether the Greater Lincolnshire Nature Partnership has been consulted for the most up-to date information. We would insist that this assessment is made on the basis of the latest available data and analysis.</p>	<p>Greater Lincolnshire Nature Partnership website cites the Biodiversity Opportunity Mapping Study for Central Lincolnshire which was completed in 2013 by CBA Consultants and forms part of the evidence base for the combined Local Plan. The Biodiversity Opportunity Mapping was a follow-on study from the Green Infrastructure study of 2011. The Energy Park is not within any area identified within this study although it is classified as an</p>

Specific matter raised – summarised	How matter has been addressed
	area with <i>"soils most suitable for wetland habitat creation"</i> .
<p>Scoping - The Lincolnshire Wildlife Trust calls for a minimum of 10% Biodiversity Net Gain under the requirements of the Environment Act 2021. This is applicable to NSIPs and would need to be determined by UK Habitats Assessment methodology, scored by the latest version of the DEFRA Biodiversity Metric, and supported by appropriate post-intervention habitat monitoring and management for a minimum 40-year period.</p>	<p>A Biodiversity Net Gain assessment is set out in Section 8.5 (and Appendix 8.12 Biodiversity Net Gain Calculations (document reference 6.3.8.12)) using the latest iteration of the Natural England metric (Metric 3.0). A habitat monitoring and management plan will be part of the Outline LEMP (document reference 7.8) in the DCO Application.</p>
<p>Scoping - We expect any mitigations for Water Voles and Otters would relate to protection of riverbanks and margins from disturbance and damage by buffering and mitigated risk of pollution events. We will expect these to be built into CEMPs for each phase. As a reasonable approach, we would call for a minimum stand-off of 5m from any ditch and 10m from any larger or natural watercourse.</p>	<p>There are no historic records of water vole on the site and Mink are recorded as present. To date surveys have not recorded water vole or otter on the Energy Park Site. However, a precautionary approach of a minimum 9m stand-off from all drainage board water courses/ditches, and 8m from all other ditches to the fence line has been included within the Site Layout as set out in Section 8.4. The phase 1 survey of the grid connection route has yet to be completed. However, the initial design of the Proposed Development will involve directional drilling under South Forty Foot Drain LWS.</p>
<p>Scoping - We would want to see GCN eDNA surveys undertaken between April and June of all accessible ponds within red line boundaries and land within 250m.</p>	<p>GCN eDNA surveys have been carried out during April 2022 and set out in Section 8.3: Assessment Approach. Due to the samples returning inconclusive, caused by the water chemistry. Presence absence surveys (torching, netting and bottle trapping population assessments) have been carried out between April and June 2022. No evidence of GCN was recorded. There have been no positive records of GCN recorded within the Energy Park Site since 2010 and no positive records found during ecological surveys for the Viking Link, Triton Knoll or</p>

Specific matter raised – summarised	How matter has been addressed
	the Vicarage Drove (Solar) planning application.
Scoping - LWT supports Paragraph 8.54 [of the Scoping Report] which states that 'The potential impact of the security fencing in relation to potential barrier to mammal movements will be assessed.' We would call for this to take Brown Hare into account	Appropriate gates and or gaps will be placed in the fencing at appropriate locations to allow free passage of Brown Hare across the site.
Scoping - If Badger setts and/or Badger activity has been identified on or close to any part of the site, LWT would expect to see Natural England consulted on the need for a licence and full measures for Badger mitigation proposed within the PEIR, LEMP and CEMP. We would insist that any fencing would not extend below the ground surface where this would conflict with Badger activity and that 'Badger gates' would be considered for ensuring site boundary permeability for this species	Natural England guidance in relation to Badger has been followed as set out in Section 8.3 Assessment Approach and Section 8.4 Baseline Approach and 8.7 Mitigation and Enhancements. Appropriate gaps or gates will be placed in the fencing to allow free passage of badgers across the site as set out in Section 8.4. These will be close to existing setts and identified Badger tracks.
Lincolnshire County Council	
PEIR - the approach taken thus far appears reasonable and we have no specific comments to offer at this stage other than the following: <ul style="list-style-type: none"> • Paragraph 8.5.3 onwards - the area of land for the Energy Park is 586.85ha which includes the biodiversity net gain area (96ha) and a Community Orchard (1.8ha). The area where the solar panels and associated equipment will be located covers an area extending to around 440ha. Paragraph 8.5.102 confirms that the Energy Park will be built entirely within the current arable fields and that these will be seeded to create grass pasture to be grazed by local sheep flocks at low density. Whilst the change from intensive arable agriculture to grassland habitat may offer benefits in terms of biodiversity those benefits must be balanced against the impact/loss of this land from productive use. Low density sheep grazing of the same area is not a like for like replacement in terms of value and more information is therefore required on what low density grazing means in order that a comparison of agricultural 'value' between the current arable use and proposed pasture use is understood – see later comment under Land Use and Agriculture 	<p>In response to consultation the layout and area of land has changed with removal of areas in the south and west of the Energy Park. This area originally included biodiversity net gain areas but will now be used for arable production.</p> <p>The grasslands within the fenced area of the Energy Park will become a vital element of an integrated commercial grazing scheme where a flying flock rotates between different crop residues. In time the land within the Energy Park may become more vital for this sheep farming business, as the business is currently based within the zone allocated by Anglian Water for a new reservoir.</p>
Scoping - The Council is generally agreeable to the methodology and approach detailed within the Scoping Report however notes that paras 8.4, 8.7 and 8.41 suggest that updated breeding and wintering bird surveys are not proposed to be carried out in relation to the main solar park and energy storage area.	Updated breeding and wintering bird surveys have been completed and are presented in Section 8.5: Assessment of Likely Significant Effects and presented in Appendix 8.10 – Ornithology Survey – Energy

Specific matter raised – summarised	How matter has been addressed
	Park and Cable Route Corridor (document reference 6.3.8.10). It is proposed that pre-construction survey are carried out prior to each phases of construction.
Scoping - Consultation is being carried out on the BNG process and therefore should the version of the metric change or the approach to BNG alter because of this consultation then this will need to be reflected.	Noted.
Environment Agency	
Scoping - Particularly interested in opportunities around the Head Dike. We recognise the challenge here is that the bigger watercourses are high level carriers so significant habitat improvement on these would most likely need to consider the more complex setting back of embankments to create habit. This may or may not be feasible within the scheme and if this is an option that can be considered a range of permissions would be required for this including our own flood environmental permit. Our Partnership and Strategic Overview team would be happy to engage in conversations to find a way forward on any flood risk implications.	The Head Dike is outside the Proposed Development boundary and applicant has no control over the management of this area. The Proposed Development is separated from southern bank the Head Dike (main river) by a Black Sluice IDB managed watercourse which requires continuous access for management. Including the setback from IDB controlled drain, the distance will be over 30m. Ecotricity has continued to engage with the Environment Agency Teams for habitat enhancements opportunities.
Scoping - On a smaller scale and for general habitat within the smaller drainage network there are potential ways of improving habitat to be considered, for example to increase the wet marginal areas on the existing drains. This would require consultation with Black Sluice IDB as well as the usual checks and permissions including ecological, water voles especially. There are also some further guides out there for artificial drainage networks that have ideas at varying levels of ambition.	Noted. Ecotricity has met with The Black Sluice IDB to consider opportunities for habitat enhancements on 30 th June 2022 on site and a further online meeting on 13 th December 2022
Scoping - If an ambition is to wet the landscape a bit more around the solar farm then the applicant may want to speak with the Lincolnshire Wildlife Trust who have a big focus on the Fens through the Fens for the future project as they will have lots of ideas for environmental enhancement and ways to capture BNG.	Noted. Ecotricity has engaged with Black Sluice IDB on 30 th June 2022 and online on 13 th December 2022 to consider habitat opportunities which are detailed further in Section 8.7: Mitigation and Enhancements.
Buglife	
Scoping - Having looked at the area it does not fall into any of the designated Important Invertebrate Areas or indeed the B-Lines so unlikely to hold much invertebrate interest at present. Reference made to	Noted.

Specific matter raised – summarised	How matter has been addressed
<p>'A manual for the survey and evaluation of the aquatic plant and invertebrate assemblages of grazing marsh ditch systems' Version 6. Consideration should be given to sowing a low growing pollinator friendly mix.</p>	
<p>Member of the public</p>	
<p>PEIR - There is no problem with carbon dioxide being added to the atmosphere, CO₂ is the building blocks of life plus we manufacture CO₂ daily and it also gets pumped into greenhouses to make plants. You take away CO₂ it would harm the plants and animals on the Earth.</p>	<p>Noted – the Proposed Development will not specifically remove CO₂ from the atmosphere although grasslands will sequester more CO₂ than current intensive arable farming (Natural England Report NERR094)⁴⁴</p>
<p>PEIR – Appreciate the limitations that arise from a leasehold site and pressure to make profit, I think you could be more imaginative with regard to optimising wildlife benefits.</p>	<p>Noted.</p>
<p>PEIR - New hedgerow planting is great. The new orchard is rather small; I hope it will be organic. NB: I have been told that old E Midlands varieties may not be the most appropriate to plant now - old Devon varieties may be better suited to the changed climate.</p>	<p>Prior to commencement advice will be sort from local experts as to the most appropriate varieties, and grafting agreed varieties onto suitable root stock will be commissioned to allow growth before planting.</p>
<p>PEIR - The site layout could encourage people to walk and cycle to and around the area including engaging with nature in the biodiversity wildlife areas.</p>	<p>Noted. Site access is detailed in Chapter 14: Transport and Access (document reference 6.1.14).</p>
<p>PEIR - We are concerned about storage of solar energy on site of the 'park'. Having heard only recently of wild fires in Holland on solar energy installations - with drought conditions more evident in the future how will Ecotricity mitigate dangers of outbreaks of fire on tinder dry grassland around and beneath solar infrastructure? Photos in the booklet show long grass/wild flowers beneath solar panels.</p>	<p>The fire mitigation measures to prevent fires and their control is detailed in Chapter 18 – Miscellaneous (document reference 6.1.18). The site will be grazed which will also reduce grass growth.</p>
<p>PEIR - Again, this is clean and quickly accessible technology with minimal impact on the visual look of the countryside (not that I mind turbines, but know they are an issue for many). I also don't believe the line that sustainable energy installations use up farming land - I know of farmers who graze sheep or have free-range chickens in the fields where solar panels provide shade and the land is still productive. There could also be biodiversity gains if wildflowers etc were allowed to grow</p>	<p>Noted</p>
<p>PEIR - It appears to be well thought out with low visual impact and encourages rewilding areas. I particularly like the possibility of grazing sheep on the site.</p>	<p>Noted</p>

⁴⁴ Natural England Research Report NERR094 Carbon storage and sequestration by habitat: a review of evidence (second edition) 2021

Specific matter raised – summarised	How matter has been addressed
PEIR - An orchard is a great idea - but it a Fen, the right place to site an orchard?	Noted – small pockets of woodland already present on the Energy Park site.

Limitation to the Assessment

8.3.61 Although best practice was followed for the field surveys, some of the species in question are secretive animals and it possible that some field signs may have been overlooked. In addition, usage of the Proposed Development by bird species for foraging, shelter and as a transit route varies with season, and the surveys carried out therefore represent only ‘snapshots’ of activity within the Survey Area at the time of the survey (see Figures 1 + 2 in **Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor** (document reference 6.3.8.10) for the Survey Area).

8.3.62 In order to reduce this issue in relation to mobile mammals, static bat detector surveys were conducted to increase the time to record bat activity throughout the Energy Park Site. Walked transect can detect bats over a large area as they cover a the majority of the site. However bat activity is recorded for only a 2-3ha period after sunset on one night each month. At each wait point on walked transect bat activity is recorded for 3 minutes, a maximum of 9 minutes during three surveys. In comparison a static recorder is deployed in a fixed location for 5 nights in spring, summer and autumn recording 30minute before sunset and 30 minutes after sunset. Static recorders will be recording for approximately 7,200 minutes during the three periods providing a much greater opportunity to bats species only occasionally visiting the Energy Park site.

8.3.63 It should also be noted that absence of recorded field signs is not necessarily evidence that a particular species is not utilising an area. However, this report will identify the probable value of the Proposed Development for the pertinent species, based upon the survey data gathered.

8.3.64 It was noted that the original Extended Phase 1 habitat survey failed to accurately quantify the grass margins around those field in Mid-Tier Countryside Stewardship Scheme. These were re-assessed using the UK Habitat Classification system and mapped during subsequent site visits to ensure an appropriate habitat baseline for the Biodiversity Net Gain calculation.

8.4 BASELINE CONDITIONS

Site Description and Context

8.4.1 The Energy Park Site is bounded by a drainage ditch which lies directly to the south of the Head Dike, which runs along the northern boundary, Holland Dike to the east, the A17 Sleaford to Holbeach road to the south and B1395 Sidebar Lane and agricultural land to the west, extending to approximately 524ha. The Energy Park Site lies wholly within North Kesteven District, abutting Boston Borough boundary along the eastern edge.

8.4.2 Land within the Energy Park Site is in arable use and is subdivided into rectilinear parcels by long linear drainage ditches that lie principally north-south, connected east-west by shorter ditches including Labour in Vain Drain. The ditches have an engineered profile, colonised in part by emerging aquatic plant species. The Energy Park Site is very flat and low-lying at between 2m and 3m above Ordnance Datum (AOD) and is predominantly within Flood Zones 2 and 3, with a narrow ribbon of Flood Zone 1 occurring along the southern edge and south-western corner of the Energy Park Site.

8.4.3 Six Hundreds Farm lies in the eastern third of the Energy Park Site, with access gained from Six Hundreds Drove via the A17. Two further access tracks lie off the A17 adjacent Rectory Farm in the centre of the Energy Park Site and at Elm Grange in the southwest corner, these in turn connect to Crab Lane toward the northeast corner of the Energy Park Site, and then to Sidebar Lane. The access tracks follow ditch alignments.

8.4.4 Land within Six Hundreds farms on the eastern side of the Energy Park Area has been brought into Mid-Tier Countryside Stewardship Scheme with the provision of 4-6m grass margins around the majority of field boundaries. There are also grass tracks around a number of the fields on Elm Grange on the western section of the Energy Park Area (see Appendix 8.4: Further Phase 1 Habitat Report (document ref: 6.3.8.4)). Intermittent shrubs and gappy defunct hedgerows occur along six field margins of the Energy Park Site. There are four small plantation woodland blocks and a number of isolated trees (36) in the field boundaries within the Energy Park.

8.4.5 The Cable Route Corridor for the proposed Off-Site Grid Connection will run south from the Energy Park Site, from the east of the Energy Park. This then crosses the A17, the South Forty Foot Drain and the railway. The underground cable will connect into the existing Bicker Fen Substation.

Baseline Survey Information

Energy Park Site

Desk study

8.4.6 There are no internationally important statutory designated sites (Ramsar, SAC & SPA) within 10km of the Energy Park Site. The Wash, situated approximately 16km to the East of the Energy Park Site at its nearest point, is the nearest SAC/ SPA and Ramsar site.

8.4.7 Wash SPA is internationally important for 14 wintering wetland birds species (17,000 dark-bellied brent geese (*Branta bernicla bernicla*) (12% of the European wintering population), 7,300 pink-footed geese (*Anser brachyrhynchus*) (7%), 16,000 shelducks (*Tadorna tadorna*) (12%), 1,700 pintails (*Anas acuta*) (2%), 24,000 oystercatchers (*Haematopus ostralegus*) (3%), 5,500 grey plovers (*Pluvialis squatarola*) (7%), 500 sanderlings (*Calidris alba*) (3%), 7,500 knots (*Calidris canutus*) (21%), 29,000 dunlins (*Calidris alpina*) (1%), 8,200 bar-tailed godwits (*Limosa lapponica*) (1%), 3,700 curlews (*Numenius arquata*) (1%), 4,331 redshanks (*Tringa totanus*) (5%) and 980 turnstones (*Arenaria interpres*) (2%), and five nationally important number of species of wetland birds (3,900 wigeon (*Anas penelope*) (2% of the British wintering population), 220 goldeneye (*Bucephala clangula*) (1%), 130 gadwall (*Anas strepera*) (3%), 830 common scoters (*Melanitta nigra*) (2%), 260 black-tailed godwits (*Limosa limosa*) (6%) and several gull species (*Larus*).

8.4.8 The Norfolk Coast and Wash Special Conservation Area (SAC) is the largest embayment in the UK. It is connected via sediment transfer systems to the north Norfolk coast. Together, the Wash and North Norfolk Coast form one of the most important marine areas in the UK and European North Sea coast, and include extensive areas of varying, but predominantly sandy, sediments subject to a range of conditions.

8.4.9 **The Qualifying habitats:** The SAC is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Coastal lagoons*
- Large shallow inlets and bays

- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*). (Mediterranean saltmarsh scrub)
- Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
 - Reefs
 - Salicornia and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand)
- Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks)

8.4.10 Qualifying species: The SAC site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Common seal (*Phoca vitulina*)
- Otter (*Lutra lutra*)

8.4.11 The nearest SSSI is Horbling Fen SSSI located 11.5km to the southwest of the Energy Park, designated for its geological interest.

8.4.12 A data search was requested from the Lincolnshire Environmental Records Centre (LERC) for local designated sites and species recorded with 5km of the Energy Park Site (Appendix 8.2- Data search LERC (document reference 6.3.8.2). There are no non-statutory designation within the Energy Park Site. There are four Local Wildlife Sites (LWS) within 5km of the Energy Park Site. The South Forty Foot Drain LWS (the 'Drain') is located approximately 1km to the south of the Energy Park Site. This is a man-made watercourse with bankside vegetation comprising rough neutral grassland, scrub, and trees. The Drain supports large populations of many aquatic plants occur in the watercourse, such as shining Pondweed, (*Potamogeton lucens*) and perfoliate pondweed (*Potamogeton perfoliatus*), whorled water-milfoil (*Myriophyllum verticillatum*), rigid hornwort (*Ceratophyllum demersum*), mare's-tail (*Hippuris Vulgaris*), arrowhead (*Sagittaria sagittifolia*), water-crowfoot (*Ranunculus aquatilis*), common duckweed (*Lemna minor*), ivy-leaved duckweed (*Lemna trisulca*), fat duckweed (*Lemna gibba*), and water-starwort (*Callitriche* spp.). The water's-edge is dominated by a broad strip of reed sweet-grass (*Glyceria maxima*) in many places, usually with smaller numbers of branched bur-reed (*Sparganium erectum*), reed canary-grass (*Phalaris arundinacea*), greater pond-sedge (*Carex riparia*), bulrush (*Scirpoides holoschoenus*), and in the south by club-rush (*Schoenoplectus lacustris*). The Drain is a good corridor linking the centre of Boston with the River Witham. There are records of otter and European Eel (*Anguilla anguilla*) on from the South Forty Foot Drain.

8.4.13 The three further LWS within 5km are Great Hale Eau, Broadhurst Drain East, Old Forty Foot Drain. These are 1.5-4km south of the Energy Park Site. These are all drainage ditches supporting a range of aquatic plants and some section of the banks species typical of unimproved grasslands such as common knapweed (*Centaurea nigra*), greater knapweed (*Centaurea scabiosa*), common sorrel (*Rumex acetosa*) and meadow vetchling (*Lathyrus pratensis*) lesser trefoil (*Trifolium dubium*), selfheal (*Prunella vulgaris*), smooth meadow-grass (*Poa pratensis*), cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*) and creeping bent (*Agrostis stolonifera*), mixed with typical plants of bare patches, such as colt's-foot (*Tussilago farfara*), beaked hawk's beard (*Crepis vesicaria*).

8.4.14 The Old Forty Foot drain LWS supports a population of the globally-threatened fine-leaved water-dropwort, and a range of aquatic plants species including are lesser water plantain (*Baldellia ranunculoides*) and narrow-leaved water-plantain (*Alisma gramineum*), water-violet (*Hottonia palustris*), water-crowfoot horned pondweed (*Zannichellia palustris*), fennel pondweed (*Stuckenia pectinata*), waterstarwort, duckweed, mare's-tail, stonewort and other algae. The water's edge holds water-cress

(*Nasturtium officinale*), water mint (*Mentha aquatica*), water-plantain (*Alisma plantago-aquatica*), creeping-Jenny (*Lysimachia nummularia*), purple loosestrife (*Lythrum salicaria*), yellow iris (*Iris pseudacorus*), meadowsweet (*Filipendula ulmaria*), branched bur-reed, reed sweet-grass, reed canary-grass, common reed, common spike-rush (*Eleocharis palustris*), tufted-sedge (*Carex lenticularis*), false fox-sedge (*Carex otrubae*) and greater pond-sedge (*Carex riparia*).

8.4.15 Heckington Grassland SNCI is located approximately 5km to the west of the Energy Park Site. This SNCI consists of grassland bordered by hedgerows and is used by a variety of breeding and over-wintering birds. Old Wood South Kyme SNCI is located approximately 5km to the north of the Energy Park site, and is an area of woodland with Ash coppice, scrub, Elm, and tall herbs. A plan showing the location of these designations Figure 8.2 - Statutory and Non-Statutory Designated Sites (document reference 6.2.8).

8.4.16 The LERC hold no records of protected, national priority or local priority mammals species within the Energy Park although there is a record of an otter spraint from the Skerth Drain just outside northern boundary of the Energy Park Site.

8.4.17 There are records of five protected or priority mammals within 5km of the proposed Energy Park Site, including European Hare (*Lepus europaeus*)(66), Badger(*Meles meles*) (38), Otter *Lutra lutra* (7), Water Vole (*Arvicola amphibius*) (224), and Hedgehog (*Erinaceus europaeus*) (46) held by LERC. Most of the records of Water Vole are over ten years old although there are six Water Vole records in the last 10 years with several from Great Hale Eau drain approximately 1.5km south of the Energy Park Site and one from Car Dyke approximately 1.6km from the Energy Park Site. The Black Sluice Internal Drain Board which all the manages all the main drainage ditches in this area have confirmed that have not recorded water vole with 5km of the proposed development (Appendix 8.4).

8.4.18 The LERC lists 81 records of at least eight bat species from with 5km of the Energy Park Site. Of those identified to species level Common Pipistrelle (*Pipistrellus pipistrellus*) are frequently recorded (11 plus 8 pipistrelle *sp.* records), there are also seven records of Daubenton's bat (*Myotis daubentini*), three records of Myotis sps, three records of Noctule bat (*Nyctalus noctula*) and two records of brown long eared bat (*Plecotus auritus*).

8.4.19 LERC has records of 68 bird records within 5km of the Energy Park Site. Of these, 27 are protected under national and international legislation. With the exception of those classified as 'non native' the remainder are of national or local priority status (Appendix 8.3).

8.4.20 The Wash SPA is internationally important for 14 wintering wetland birds species. The LERC has provided a small number of records of four of these species two records of curlew within 5km of the Energy Park between 1998-2016, one record of dark bellied brent goose in 2017, seven records of gadwall between 2009-2019 and 39 records of pink footed geese between 1998-2020.

8.4.21 There are records of four amphibians; common frog (*rana temporaria*) (9), Common Toad (*Bufo bufo*) (7), Great Crested Newt (*Triturus cristatus*) (2) and Smooth newt (*Lissotriton vulgaris*) (2) held by LERC within 5km of the Energy Park Site. One of the Great Crested Newt records date back to 1976 and the second is a field observation from a pond approximately 1.5km to the south of the Energy Park Site.

8.4.22 There are records European Eel (*Anguilla anguilla*) from the South Forty Foot Drain and there are also records of Spined Loach (*Cobitis taenia*) from the Kyme Eau and the Withan catch to the north of the Proposed Development.

8.4.23 There are no records held by LERC of protected plant species or invertebrates within 5km of the Energy Park Site. The data search revealed a small number of invertebrate records with just one beetle species, four species of butterfly, one bee species, four species of moth and seven species of mollusc within 5km of the Energy Park Site.

Habitats

Arable land

8.4.24 The Energy Park site consists of intensively farmed arable fields which are currently growing winter wheat predominantly for the animal feed market. The majority of arable fields on Elm Grange, the western part of the Energy Park, were generally cultivated right up to the field margins, whereas on the Six Hundreds Farm (the eastern part of the Energy Park site) there are 4-6m grass strips around the fields, associated with a Mid-Tier Stewardship Scheme. The rough grassland strips were relatively species poor but do provide foraging habitat for badger, European hare, roe deer (*Capreolus capreolus*), farmland birds and bats. Intensive arable farmland is generally of a low nature conservation value. The arable plant survey concluded that the area was lacking in plant communities of conservation importance with no areas meeting the criteria for county importance (Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor (document reference 6.3.8.6)).

Grasslands

8.4.25 The arable fields on Six Hundreds Farm are bordered by a 4-6m rough grassland under a Mid-Tier Stewardship Scheme, further narrow strips of rough grassland run along a number of farm tracks. There are also grass margins adjacent to the IDB managed drainage ditches in the western part of the Energy Park. These grassland include False Oat-grass (*Arrhenatherum elatius*), Cockfoot (*Dactylis glomerata*) Black Grass (*Alopecurus myosuroides*), Yorkshire-fog (*Holcus lanatus*), Perennial Rye-grass (*Lolium perenne*) and Creeping Bent (*Agrostis stolonifera*) and a number of herbs species including Nettle (*Urtica dioica*), Creeping Thistle (*Cirsium arvense*), Horse-radish (*Armoracia rusticana*), Fat Hen (*Chenopodium album*), Cow Parsley (*Anthriscus sylvestris*) and Hogweed (*Heracleum sphondylium*). A number of these grass strips are used as access tracks with a greater level of disturbance these include species such as Annual Meadow-grass (*Poa annua*), Pineappleweed (*Matricaria discoidea*), Common Whitlowgrass (*Erophila verna*) Common Mouseear (*Cerastium fontanum*) and Greater Plantain (*Plantago major*).

8.4.26 The two fields either side of the woodland were rough grassland in autumn 2022. These are floristically of low nature conservation value but do provide foraging areas for farmland birds, European Hare, Roe Deer and Badger. There is a small area of semi-improved grassland within the Bicker Fen Substation.

8.4.27 A small area of grassland potentially of higher conservation value was identified the centre of the site which was subject detailed arable plant survey in Summer 2022 (Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor (document reference 6.3.8.6) found mostly common species with no notable or protected species were identified during these surveys. The grasslands within the Energy Park are considered to be of only local conservation importance.

Hedgerows and boundary habitat

8.4.28 The majority of the fields are separated by drainage ditches; many of these are less than 1m in depth and 1.5m in width and were dry during the 2021 survey and the 2022 re-survey period. These dry ditches were often choked with vegetation including

Great Reed Mace (*Typha latifolia*), Common Reed (*Phragmites australis*), canary reed grass (*Phalaris arundinacea*) Sedges, rank grasses, willow, and some bramble.

8.4.29 There is a raised bank up to 2m high dominated by rough grassland Cockfoot Black Grass, Yorkshire-fog, Perennial Rye-grass, Creeping Bent, Nettle Creeping Thistle Cow Parsley, Hogweed and brambles in the centre of Energy Park which is bounded water filled drained ditches either side.

8.4.30 The major IDB managed drains were also present being more than 2m in depth and up to 3.5m in width which permanently held water.

8.4.31 There are seven boundaries with small sections of defunct, species-poor hedgerow, comprising mainly of Hawthorn, (*Crataegus monogyna*), and Goat willow (*Salix caprea*). Elder (*Sambucus nigra*) and dog rose (*Rosa canina*) with very occasional semi mature trees (Ash, Goat willow Oak (*Quercus robur*), field maple, (*Acer campestre*) Lombard poplar (*Populus nigra italica*) (). The ground flora of the hedgerow was largely dominated by Nettle, Cow parsley, and rough grassland. The conservation value boundary habitat within the Energy Park is very limited and is considered of only local importance Arboricultural Survey, Impact Assessment and Protection Plan (AIA Report)Appendix 6.3 (document reference 6.3.6.3)

Woodland

8.4.32 Tree cover is limited to four small plantation woodland blocks containing Ash (*Fraxinis excelsior*), Field maple (*Acer campestre*), Sycamore (*Acer pseudoplatanus*) and Bird cherry (*Prunus Padus*), Hawthorn Oak), White poplar (*Populus alba*). These appear to have been planted by a previous landowner for game cover and are not present on pre-1960 maps.⁴⁵ There are number of more mature Ash, Oak and Horse Chesnut (*Aesculus hippocastanum*) trees in plantation woodland in the southeast section which may well have been trees within the garden of the now demolished Six Hundred Acre farm. This block of woodland is identified on the Priority Habitat Inventory as Deciduous Woodland (England). Priority Habitats are those which have been deemed to be of principal importance for the purpose of conserving biodiversity, being listed in the UK Biodiversity Action Plan. There is no formal national legal protection given to priority habitat and with maintenance and restoration of these habitats being promoted through agri-environment schemes or through local plans which aim to preserve, restore, and re-create priority habitats. There are a number of isolated trees (36 in total) on boundary ditches, wetlands and watercourses. Full details of the trees present within the Proposed Development are detailed in the AIA Report Appendix 6.3 (document reference 6.3.6.3) The woodland habitat within the Energy Park is therefore considered to be of district importance.

Wetlands and water courses

8.4.33 There is one pond in the centre of the Energy Park site which is relatively open with steep sides with Common Pond Sedge and Reed Sweet Grass surrounded by dense ruderal vegetation including dense stands common nettle). This pond dried out the summer of 2022.

8.4.34 There are some major drains present which are more than 2m in depth and up to 3.5m in width which permanently hold water and contained plants such as Frogbit (*Hydrocharis morsus-ranae*) and Broad-leaved Pondweed) as well as Common Reed Reed Sweet Grass and contained plants such as Frogbit) and Broad-leaved Pondweed. Most of the species found during aquatic plant survey (Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor (document reference 6.3.8.6) are commonly occurring with Mare's-tail (*Hippuris vulgaris*) Nuttall's

⁴⁵ [REDACTED]

Waterweed (*Elodea nuttallii*) and Thread-leaved Water-crowfoot (*Ranunculus trichophyllus*), Starwarts at the majority sample locations, Frogbit) and Broad-leaved Pondweed Common Reed, as well as Reed Sweet Grass are also found in many of these drains. No notable species were recorded and there were extensive sections dominated by duckweed and floating algae indicating eutrophic conditions. Ditches and drainage are a common feature of the surrounding landscape and the wetlands within the Energy Park are considered to only meet the criteria for local importance.

Species

Otter

8.4.35 The Head Dike and Holland Dike to the north and east of the Energy Park, as well as some of the deeper IDB ditches which permanently held water present on the Energy Park Site provide suitable foraging habitat for Otters. No evidence of otter was recorded during the initial phase 1 habitat survey. Subsequent surveys of areas of soft mud and potential sprainting sites during 2022 did record evidence of their presence. Although not recorded during the survey on the Energy Park, given the lifespan of the project and the suitable habitat with the Energy Park Site otters are included in this assessment. This species is a protected species targeted for conservation nationally.

Water Vole

8.4.36 Recent survey data (2020 and 2021) provided by Black Sluice for the whole of their area indicated that the closest water vole population are approximately 20km to the south of the Energy Park. No evidence of Water Vole was observed at the Energy Park Site during 2021 and 2022 (Appendix 8.3- Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.3 and Appendix 8.4- Further Extended Phase 1 Habitat Survey Report - Energy Park (document reference 6.3.8.4); however, several main drains and ditches on the Energy Park Site are suitable for Water Voles. American Mink (*Neovison vison*) (a major predator with the potential to cause extinction of local Water Vole populations) were observed on the Energy Park Site in 2017 (during previous surveys related to the wind farm). Dead mink was found on the A1121 4km to the east of the Energy Park in July 2022 and mink was observed swimming along a drainage ditch on the north east boundary of the Energy Park to the west of Holland Dike in October 2022 which may explain the absence of water vole despite the suitable habitat. The Waterlife Recovery East project aims to humanly remove American Mink from East Anglia with a buffer zone extending close to the Energy Park Site. Therefore, given the proposed 40-year life span of the solar park it is possible that water vole could recolonise the Energy Park site at some point in the future. Water Voles are included in this assessment. This species is a protected species targeted for conservation nationally and is also a local priority species.

Hazel Dormouse

8.4.37 There is no suitable habitat for Hazel Dormouse (*Muscardinus avellanarius*) within the Energy Park site. The Energy Park site is in an area of England where Hazel Dormouse has been extinct (or never present) since at least 1885. Therefore, this species has been scoped out of this assessment.

European Hare

8.4.38 Although no specific surveys for European Hare were conducted, Hare have been record on the Energy Park site during site visits and a minimum of seven individuals were recorded during further badger surveys conducted in April 2022. The home range of Brown Hare ranges between 20 and 190ha depending on the quality of the habitat. A number of Brown Hare present may be entirely dependent on the habitat, although it is likely that

many may range beyond the limits of the Energy Park site. This species is a priority species targeted for conservation nationally and is considered to be of Local Importance.

Badgers

8.4.39 The Badger surveys conducted in 2021 and 2022 recorded positive evidence of the presence of Badgers and a considerable degree of movement between setts. Full details are available in the confidential Appendix 8.7- **Confidential** Badger Report (document reference 6.3.8.7).

Hedgehog

8.4.40 No hedgehog or signs of hedgehog (dropping or footprints) were recorded on the Energy Park. The grass margins and habitat along the drains could provide suitable foraging habitat. However, the heavy use of agri-chemicals is likely to limit potential prey for hedgehog.

Bats

8.4.41 The initial desk study and assessment concluded the Energy Park site was low suitability for bats. Bat roost surveys conducted in 2021 and 2022 recorded a small number Common Pipistrelle and one long-eared bat emerging from the semi derelict farm building at Six Hundreds farm. Common pipistrelle were as recorded emerging from that building in 2010. No bats were recorded emerging for potential roost site in trees.

8.4.42 Walked activity transect recorded 3 bats species whilst static bat surveys record up to maximum of 12 species of bat. The vast majority of bat passes recorded on these surveys were common pipistrelle (98% of passes on walked transect surveys and 83% of passes on static surveys).

Table 8.7 Total number of bat passess recorded by static bat recorders

Species	Conservation status	Number of passes	Number of passes as % of total bat activity
Common Pipistrelle	W&Act, Hab Regs	3859	83.8
Noctule	W&Act, Hab Regs & Section 41 Nerc Act	278	6.0
Soprano Pipistrelle	W&Act, Hab Regs & Section 41Nerc Act	191	4.1
Leisler	W&Act, Hab Regs	153	3.3
Brown Long-eared	W&Act, Hab Regs & Section 41 Nerc Act	44	1.0
Natterer’s	W&Act, Hab Regs	19	0.4
Serotine	W&Act, Hab Regs	18	0.5
Daubenton's	W&Act, Hab Regs	17	0.4
Brants/whiskered	W&Act, Hab Regs	17	0.4
Barbastelle	W&Act, Hab Regs & Section 41 Nerc Act	6	0.2
Nathusius Pipistrelle	W&Act, Hab Regs	4	0.1

8.4.43 The highest level common pipistrelle was recorded close the identified roost in derelict farm building in the centre of the site. There was a moderate level of common

pipistrelle activity over water filled ditches (average 26.9 passes per night range 2-187) compared to dry ditches (average 4.2 passes per night range 0 -60) Overall, the level of activity other bat species recorded by static recorder was very low typically less than an average of less than 5 bat passes per night.

8.4.44 . Further details are available in Appendix 8.8- Bat Survey Report - Energy Park (document reference 6.3.8.8).

8.4.45 With the exception of the derelict buildings in the centre of the site there is very limited opportunities for bats to roost. While there are a number of less common bats being occasionally recorded on the Energy Park site the overall the conservation value of bats populations is no more than local importance. Although there is considerable potential to improve the overall value of habitat within the Energy Park for bats through habitat enhancement and provision of suitable roost sites.

Other mammals

8.4.46 European rabbit (*Oryctolagus cuniculus*) were observed within the Energy Park area. There is also a small population of Roe deer (*Caperolus caperolus*) with the Energy park and surrounding area. Evidence of Brown rat (*Rattus novegicus*) was recorded close to some of the farm buildings

Breeding birds

8.4.47 Breeding bird surveys were conducted in 2021 throughout the whole of the Proposed Development Area from April to June 2021 by Kevin Shepherd Ornithological Consultants (Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10). The breeding bird survey method was based upon the British Trust for Ornithology’s Common Birds Census method¹⁵.

8.4.48 A total of 68 species were recorded breeding during the breeding bird surveys of which 56 species bred. The majority of these were common farmland birds nesting the banks of drainage ditches, woodland, Copse and farm buildings or along hedgerows.

8.4.49 Three Schedule 1 / Annex I species⁴⁶ was found breeding in the area during the surveys (one pair of marsh harrier, three pairs of barn owl and one pair of kingfisher). Twelve Birds of Conservation Concern (BOCC) Red List species (Stanbury *et al* 2021) were found breeding (16 pairs of grey partridge, two lapwing, 380 skylark, four starling, two mistle thrush, 16 tree sparrow, seven house sparrow, 29 yellow wagtail, five greenfinch, 87 linnet, 25 corn bunting and 55 yellowhammer), the locations of which are shown in Figure 4a, 4b and 4c in Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10). Within the Energy Park are just 7 species grey partridge (1), Linnet (3), Skylark (123), Starling (3), Tree sparrow (1), Yellow wagtail (4), Yellow Hammer (7) (Figure 4a).

Wintering birds

8.4.50 Wintering birds on the Energy Park site were surveyed once per calendar month during September 2021 - March 2022 by Kevin Shepherd Ornithological Consultants. Surveys were conducted to coincide with the time period around high tide on the Wash SPA. A total of 71 bird species were recorded on/around the Energy Park Site during the winter months, including nine Annex I species, 3 (Golden Plover, Great White Egret, Marsh Harrier, Montagu’s Harrier, Red Kite, Short-eared Owl, Kingfisher, Merlin and Peregrine), two additional Schedule 1 species, four (Barn Owl and Hobby) and 13 BOCC Red List

⁴⁶ i.e. species listed in Schedule 1 of the Wildlife and Countryside Act 1981 and/or on Annex I of EC Directive 79/409/EEC on the Conservation of Wild Birds 1979

species (Stanbury *et al* 2021; Grey Partridge, Lapwing, Herring Gull, Skylark, House Martin, Starling, Mistle Thrush, Tree Sparrow, House Sparrow, Greenfinch, Linnet, Corn Bunting and Yellowhammer). However, numbers of birds involved were small and generally representative of insignificant proportions of highly mobile, much larger wintering populations present in the wider countryside. The range and number of bird species found wintering on the Energy Park site are typical of the arable landscape within Lincolnshire and are assessed as being of local importance.

Great Crested Newt

8.4.51 Great crested newt surveys were conducted by Biocensus (RSK) ecological Consultants during spring 2022 – see Appendix 8.11- Great Crested Newts – Energy Park and Cable Route Corridor (document reference 6.3.8.11). HSI (habitat suitability index) score for the pond in the centre of the Energy Park Site was classified below average suitability in 2022. HSI score for a number of ditches on the Energy Park site were classified as poor suitability in 2022. eDNA samples taken in April 2022 for the pond and a sample from three ditches all came back as inconclusive due to water chemistry. Standard torching and bottle trapping recorded a small number of Smooth newts, Common Frog and Toads. Previously Great Crested Newt surveys, conducted as part of the original wind farm planning application in 2010 and pre wind farm construction surveys conducted in 2017, did not record Great Crested Newts on the Energy Park site.

8.4.52 There are records of four amphibians; common frog (*rana temporaria*) (9), Common Toad (*Bufo bufo*) (7), Great Crested Newt (2) and Smooth newt (2) held by LERC within 5km of the Energy Park site. One of the Great Crested Newt records dates back to 1976 although the second is a field observation from a pond approximately 1.5km to the south of the Energy Park site.

Reptiles

8.4.53 The intensive arable habitat within the Energy Park site is largely unsuitable to sustain reptile populations apart from perhaps Grass Snake along drainage ditches or possible grassy banks which contain the canalised Skerth Drain. These areas may possibly support a relict population of Slow Worm or Common Lizard. However, this area is beyond the development footprint and will not be affected by the Energy Park construction. The potential for significant reptile populations at the Energy Park site is minimal.

Invertebrates

8.4.54 The data search revealed existing records of just 10 species of common and widely distributed insects (1 beetle; 4 butterflies; 1 bee; and 4 moths). Habitats at the margins and boundaries of the fields are likely to be of value for a range of invertebrate species typical of wetlands, grasslands and hedgerows. The wet ditches and drains on the Energy Park site are also likely to support a small range of aquatic invertebrates tolerant of high nutrient and chemicals. Assemblages of invertebrates supported by the arable fields comprising the vast majority of the Energy Park site are likely to be poor, particularly for pollinating species.

8.4.55 A number of common and widespread invertebrates recorded during site visit including Large Skipper (*Ochlodes sylvanus*) Ringlet (*Aphantopus hyperantus*), Meadow Brown (*Maniola jurtina*), Red Admiral (*Vanessa atalanta*), Peacock (*Aglais io*), Small Tortoiseshell (*Aglais urticae*), Comma (*Polygonia c-album*), Migrant Hawker (*Aeshna mixta*), Emperor Dragonfly (*Anas imperator*), Common Blue Damselfly (*Enallagma cyathigerum*), Common Darter (*Sympetrum striolatum*).

Off-site Grid Connection**Designated sites**

8.4.56 There are no internationally important statutory designated sites (Ramsar, SAC & SPA) or national sites (SSSI, NNR, LNR) within 10km of the Cable Route Corridor. The nearest SSSI is Horbling Fen SSSI located 5km to the southwest of the Substation Extension location at Bicker Fen. This SSSI is designated for its geological interest. The Wash is the nearest SAC/SPA/Ramsar site, situated approximately 15km at its nearest point to the southeast of proposed substation extension at Bicker Fen.

8.4.57 There are nine Local Wildlife Sites (LWS) within 5km of the Grid Connection Route: The South Forty Foot Drain; Great Hale Eau; Broadhurst Drain East; Old Forty Foot Drain; Old Forty Foot Drain to South Forty Foot Drain; Mill Drain; Willow Farm Drain; Cole's Lane Ponds; and Mackay's Pit.

8.4.58 The Cable Route Corridor will cross the South Forty Foot Drain LWS. This is a man-made watercourse with bankside vegetation comprising rough neutral grassland, scrub, and trees. The Drain supports large populations of many aquatic plants occur in the watercourse, such as shining pondweed, perfoliate pondweed, whorled water-milfoil, rigid hornwort, mare's-tail, arrowhead, water-crowfoot, common duckweed, ivy-leaved duckweed, fat duckweed, and water-starwort. The water's-edge is dominated by a broad strip of reed sweet-grass in many places, usually with smaller numbers of branched bur-reed, reed canary-grass, greater pond-sedge, bulrush, and in the south by club-rush. The Drain is a good corridor linking the centre of Boston with the River Witham. There are otter and European Eel records from the South Forty Foot Drain.

8.4.59 Great Hale Eau; Broadhurst Drain East; Old Forty Foot Drain to South Forty Foot Drain; Mill Drain; and Willow Farm Drain are all drainage ditches to the west of the South Forty Foot Drain. They all support a range of aquatic plants and some section of the banks species typical of unimproved grasslands such as common knapweed, greater knapweed, common sorrel and meadow vetchling lesser trefoil, selfheal, smooth meadow-grass, cock's-foot, false oat-grass and creeping bent, mixed with typical plants of bare patches, such as colt's-foot, beaked hawk's beard.

8.4.60 The Old Forty Foot drain LWS supports a population of the globally-threatened fine-leaved water-dropwort, and a range of aquatic plants species including the lesser and narrow-leaved water-plantain, water-violet, water-crowfoot, horned and fennel pondweed, water starwort, duckweed, mare's-tail, stonewort and other algae. The water's edge holds water-cress, water mint, water-plantain, creeping-Jenny, purple loosestrife, yellow iris, meadowsweet, branched bur-reed, reed sweet-grass, reed canary-grass, common reed, common spike-rush, tufted-sedge, false fox-sedge and greater pond-sedge.

8.4.61 Mackay's Pit LWS is to the east of the A17 in the parish of Swineshead. The pit has been dredged and will be re-stocked with fish. Fishing platforms are available, and fishing is allowed all year round.

8.4.62 Cole's Lane Ponds lie of Station Road in the village of Swineshead to the east of the A17. The LWS comprise amenity ponds and wildflower meadows.

Habitats**Arable land**

8.4.63 The majority of the Cable Route Corridor is intensive arable land with crops of Barley, Oilseed Rape, Wheat and Root Beet (*Beta vulgaris ssp. vulgaris*) in evidence, as well as some fallow ground and other fields in varying stages of ground preparation. Arable

weeds were few at the time of the survey, and mostly comprised of common species such as Field Pansy (*Viola arvensis*), Common Fumitory (*Fumaria officinalis*), Shepherd's-purse (*Capsella bursa-pastoris*), Black Medick (*Medicago lupulina*), Common Field-speedwell (*Veronica persica*) and Groundsel (*Senecio vulgaris*). A few plants of the rare casual Eastern Groundsel (*Senecio vernalis*) were found in a field planted with 'green manure' (Appendix 8.6- Botany Report including Aquatic Plants and Rare Arable Plants – Energy Park and Cable Route Corridor (document reference 6.3.8.6).

Grasslands – semi-improved

8.4.64 There are several areas of semi-improved grasslands mostly narrow strips bordering the extensive network of drains that surround most fields and an area within the Bicker Fen Substation. These grassland areas largely species-poor, dominated by False Oat-grass (*Arrhenatherum elatius*), with other grass species including Yorkshire-fog (*Holcus lanatus*), Perennial Rye-grass (*Lolium perenne*) and Creeping Bent (*Agrostis stolonifera*). Tall herbs such as Nettle, Creeping Thistle (*Cirsium arvense*), Horse-radish (*Armoracia rusticana*), Cow Parsley (*Anthriscus sylvestris*) and Hogweed (*Heracleum sphondylium*) were often present, as were plants typical of arable margins such as Red Dead-nettle (*Lamium purpureum*), Scentless Mayweed (*Tripleurospermum inodorum*) and Bristly Oxtongue (*Helminthotheca echioides*) and arable escapes such as Oilseed Rape (*Brassica napus* ssp. *oleifera*) and Two-rowed Barley (*Hordeum distichon*).

8.4.65 Areas of compacted ground contained plants such as Annual Meadow-grass (*Poa annua*), Pineappleweed (*Matricaria discoidea*), Common Whitlowgrass (*Erophila verna*) and Greater Plantain (*Plantago major*).

8.4.66 More extensive areas of semi-improved grazing pasture were found bordering the South Forty Foot Drain as well as in fields north of North Drove at Bicker Gauntlet and north of Timms Drove. These had Perennial Rye-grass, Crested Dog's-tail (*Cynosurus cristatus*) and Red Fescue (*Festuca rubra*) as the dominant grass species, with some Broad-leaved Dock (*Rumex obtusifolius*), Clustered Dock (*Rumex conglomeratus*), Common Ragwort (*Jacobaea vulgaris*), Common Knapweed (*Centaurea nigra* agg.), White Clover (*Trifolium repens*) and Common Mouseear (*Cerastium fontanum*). The grassland habitat within the Cable Route Corridor is considered to be of local importance.

Grasslands - improved

8.4.67 The area of pasture forming part of the footprint of Bicker Fen Wind Farm consisted of improved grassland, with a low, species-poor sward dominated by Perennial Rye-grass and White Clover. A second area to the east of Vicarage Drove was planted as a ley, with a lush sward consisting of Perennial Rye-grass, Meadow Foxtail (*Alopecurus pratensis*), Cock's-foot (*Dactylis glomerata*), Creeping Buttercup (*Ranunculus repens*), Creeping Thistle and Clustered Dock.

Boundary habitat

8.4.68 The majority of field boundaries are comprised of ditches. There are intact/functional hedgerows along margins of the South Forty Foot Drain and one hedgerow around a domestic property, a short section along Bicker Drove and Vicarage Drove and around one grass pasture field. These hedgerows had little to no connectivity to the wider landscape. Hedgerows were comprised of abundant Hawthorn and Blackthorn (*Prunus spinosa*), with other lesser quantities of other shrubby plants including Elder, English Elm, Dogwood (*Cornus sanguinea*), Ash (*Fraxinus excelsior*), Grey Willow (*Salix cinerea*), Dog-rose (*Rosa canina*), Bramble and Ivy, with some climbing Honeysuckle (*Lonicera periclymenum*) and White Bryony (*Bryonia dioica*). Species in the field layer included Herb-robert (*Geranium robertianum*), Wood Avens (*Geum urbanum*) and Lesser Celandine (*Ficaria verna*). AIA Report, Appendix 6.3 (document reference 6.3.6.3). There

is very limited boundary habitat within Cable Route Corridor and what is present is only considered to be of local importance.

Woodlands

8.4.69 There are a number of small fragmentary areas of broadleaved woodland in a largely arable landscape. In most cases these consisted of lines of trees or narrow bands of woodland retained as a shelter belt, with little connectivity to the wider landscape AIA Report in Appendix 6 .3 (document reference: 6.3.6.3 . Canopy species included Ash Field Maple Sycamore, Pedunculate Oak (*Quercus robur*) and Wild Cherry (*Prunus avium*), with occasional planted specimens of Horse Chestnut (*Aesculus hippocastanum*) and Lawson's Cypress (*Cupressus lawsoniana*). The understorey and ground layer were typically dense, Elder (*Sambucus nigra*) was common and abundant wherever woodland had been left to develop, while other shrubby species included Wild Privet (*Ligustrum vulgare*), Blackthorn (*Prunus spinosa*), Wayfaring-tree (*Viburnum lantana*) and Dog-rose (*Rosa canina*). The field layer was often dominated by Common nettle, Cow Parsley Wood Avens (*Geum urbanum*) and Hogweed.

8.4.70 A partial line of native old (Graded as B2 in the AIA Report in Appendix 6.3 (document reference: 6.3.6.3) Black Poplars (*Populus nigra ssp. betulifolia*) was found just south of the A17 adjacent to the Labour in Vain Drain, with an understorey of Elder and Nettle. There is a small area of woodland adjacent to the Bicker Fen Substation consisting Goat willow, Ash and Field Maple. There is a small area of woodland adjacent to the Bicker Fen Substation. The woodland habitat within the Cable Route Corridor is considered to be on only local importance.

Wetlands and water courses

8.4.71 The Off-Site Grid Connection crosses a number of wet ditches and drains Ditches which varied in water availability, forming a continuum from wet, via seasonally-wet to dry, with different communities found in each. Common obligate aquatic species included Mare's-tail Reed Sweet-grass Small Pondweed (*Potamogeton berchtoldii*), Curled Pondweed Broad-leaved Pondweed and Bur-reeds (Sparganium species). Indicators of eutrophication such as Duckweeds (Lemna species) and algae such as Tape Weed (*Ulva flexuosa*) and Water-net (*Hydrodictyon reticulatum*) were locally frequent but not ubiquitous.

8.4.72 Bankside and channel management regimes were varied but the vegetation of most banks was analogous with the semi-improved grassland which typically formed a strip between the ditch and adjacent field, with some plants of wetter habitats on the lower slopes such as Common Reed, False Fox-sedge (*Carex otrubae*), Greater Pond-sedge (*Carex riparia*) and Reed Canary-grass (*Phalaris arundinacea*). Dwarf Elder (*Sambucus ebulus*), Horseradish, Bargeman's Cabbage and Oilseed Rape were locally frequent. The wetlands within the Cable Route Corridor are of County Importance due the presence of the South Forty Foot Drain being designated as Local Wildlife Site.

Species

Otter

8.4.73 There is suitable habitat for otter along the South Forty Foot Drain and several drainage channels and an adult otter was observed during causal site visit in October 2022. This species is a protected species targeted for conservation nationally.

Water Vole

8.4.74 Although no evidence of Water Vole was observed during the aquatic plant surveys suitable habitat for Water Vole was identified. A detailed Water Vole survey was undertaken in September 2022 on these identified ditches, however no evidence of Water Vole was found. Black Sluice Internal Drainage Board manage and survey a number of the watercourse within the Proposed Development area and have up to date information on the distribution of Water Vole. Recent data from 2020 and 2021 provided by Black Sluice IDB identified the nearest recent records of Water Vole 15km to the south of Bicker Fen Substation. This species is a protected species targeted for conservation nationally. Further detail is available at **Appendix 8.9- Water Vole Report - Energy Park and Cable Route Corridor** (document reference 6.3.8.9).

European Hare

8.4.75 The arable fields along the Cable Route Corridor are suitable for European Hare and whilst no specific surveys have been carried out, European Hare have been observed throughout the area.

Badgers

8.4.76 There are a number of badger setts in the wider landscape and on the western banks of the South Forty Foot Drain outside the survey area. Surveys by Biocensus during summer 2022 found no evidence of badger activity within or adjacent to the Off-Site Grid Connection within the Cable Route Corridor (Appendix 8.5- Extended Phase 1 Survey Report – Cable Route Corridor (document reference 6.3.8.5)).

Bats

8.4.77 The majority of open intensive farmland through the Cable Route Corridor was considered to be of low value for bats with exception of the South Forty Foot Drain. The combination of relatively still sheltered water fringed by semi-improved grassland and scrubby hedgerow is potentially good foraging habitat for bats. The Phase 1 survey identified 23 trees with low to moderate suitability for roosting bats were identified within the Cable Route Corridor (Appendix 8.5- Extended Phase 1 Survey Report – Cable Route Corridor (document reference 6.3.8.5)).

Great Crested Newts

8.4.78 Surveys of the one suitable pond at Bicker Fen Substation conducted by Biocensus (RSK) returned negative results. The Phase 1 survey identified no further potentially suitable water bodies (Appendix 8.11- Great Crested Newts – Energy Park and Cable Route Corridor (document reference 6.3.8.11)).

Breeding birds

8.4.79 Breeding bird surveys were conducted in 2021 throughout the whole of the Proposed Development Area from April to June 2021 by Kevin Shepherd Ornithological Consultants (Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)). A total of 68 species were recorded breeding during the breeding bird surveys of which 56 species bred. Three Schedule 1 / Annex I species was found breeding in the area during the surveys (one pair of marsh harrier, three pairs of barn owl and one pair of kingfisher). Twelve Birds of Conservation Concern (BOCC) Red List species were found breeding (16 pairs of grey partridge, two lapwing, 380 skylark, four starling, two mistle thrush, 16 tree sparrow, seven house sparrow, 29 yellow wagtail, five greenfinch, 87 linnets, 25 corn bunting and 55 yellowhammer), the locations of which within the Cable Route Corridor are shown in Figure 4b and 4c in Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10).

Wintering birds

8.4.80 Wintering birds on the Cable Route Corridor were surveyed once per calendar month during September 2021 - March 2022 by Kevin Shepherd Ornithological Consultants. The proposed grid connection lies within 15km of parts of The Wash SPA/SAC/SSSI, a site of exceptional importance for wintering waterbirds. Some of these waterbirds are highly mobile, particularly around high tide when estuarine habitats on The Wash are covered with water. Surveys were conducted to coincide with the time period around high tide on The Wash. Land surrounding all potential grid connections was therefore carefully checked for evidence of any use by wintering waterbirds from The Wash SPA/SSSI (a wider area than the Order limits was considered as shown on Figure 1 of Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)). A total of 19 species of waterbird and raptor was recorded using ground on/around all potential grid connection routes during October 2021 – March 2022 (See Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)).

8.4.81 Two species forming the qualifying interest of The Wash SPA/SSSI (pink-footed goose, Bewick's swan) were recorded during winter birds surveys of the Cable Route Corridor route. One observation of Bewick's swan was made on just one occasion of an immature (first-winter) bird recorded foraging on an agricultural field in grid connection Search Area 2 (Figure 2 of Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)) on 5th February 2022. One observation was made of pink-footed goose using ground in the vicinity of the proposed grid connection; of a flock of 56 birds feeding in a wheat stubble field in grid connection Search Area 1 (Figure 2 of Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10)) on 12th November 2021. This flock was transitory; when flushed by a dog-walker, the birds flew several kilometres eastwards to join larger numbers feeding distantly from the proposed development.

8.5 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS**Construction**

8.5.1 Solar PV and energy storage technologies are rapidly evolving. As a result, the project parameters are required to maintain the flexibility to allow the latest technology to be utilised at the time of construction.

8.5.2 The Development is likely to include the following infrastructure:

- Solar PV modules- Bifacial panels which absorb light energy from both the top and underside of the panel no matter which final height or design of panels will be used;
- PV module mounting infrastructure will be fixed south facing. The height of the solar panels will vary across the site, with broadly the northern half up to 0.5m taller at the lower edge, than that in the south of the site, whereby panels will be approximately 1m at their lowest edge. This is based on the hydraulic modelling results and the requirement to ensure the site can remain operational in a 1 in 1000 year, plus 20% for climate change flood event, which in this case is considered to be a breach of the Head Dike. The upper height of panels will therefore be 3 and 3.5m. The panels in the northeast section of the Energy Park site will have the taller 3.5m panels. The spacing between panels will be approximately 3-5m between panels.
- Inverters;
- Transformers;
- Onsite cabling underground;

- Off-site underground cabling to connect the Energy Park Site to National Grid Bicker Fen Substation;
- Fencing and security measures; the fence design will include gaps to allow badgers and other small mammals to enter the Energy Park at strategic locations.
- Access tracks and construction of a new access point onto the highway (A17);
- An electrical compound comprising:
 - An energy storage facility (expected to be formed of batteries storing electrical energy)- an area of 10 ha is set aside for this element of the Energy Park Development in one location, with a maximum height of 4.5m;
 - 1 x 400kV substation 135m x 90m x 15m high;
 - 4 no. security / storage buildings within the Energy Park. Based on the Rochdale Envelope Principle, the size of the buildings are expected to be approximately 15m x 10m x 3m height.
- Water storage tanks and lagoon – Up to 10 water tanks each 10mx4m and if needed a lagoon measuring up to 120mx30mx2m.
- Equipment facilitating electrical connection to the National Grid Bicker Fen Substation.

8.5.3 The area of land for the Energy Park is 524ha. Included in this area are the buffers between the security fences and watercourses, biodiversity net gain areas which in total will amount to approximately 60.29ha, and a community orchard of some 2.15ha. The area where the solar panels and associated equipment will be located will be surrounded by a security fence. This area will be approximately 435ha. Within this area the energy storage, inverters and transformers will cover approximately 10ha.

8.5.4 The fenced area of the Energy Park of some 440ha will be re-seeded prior to construction with a drought resistant species rich seed mix suitable for sheep grazing with no additional fertiliser. The grasslands within the fenced area of the Energy Park will become a vital element of an integrated commercial grazing operation as the 'flying flock' rotates between different crop residues. The Energy Park will provide crucial grazing during periods when other local crops are not available and may in time provide a new base for this farming enterprise if the plans for the Anglian Water reservoir proceed.

8.5.5 Within the Energy Park there will a minimum standoff from all Black Sluice IDB maintained drainage ditches of 9m and all other ditches of 8m, which in total will amount to approximately 30ha in addition there will be an area to the north of the site and along the route of the high pressure gas main totalling approximately 60ha that will be managed specifically for biodiversity gain. These biodiversity areas will be seeded / or over seeded in the existing grass margins with nature conservation species rich seed mix to provide habitat for insects and pollinators as well as nesting farmland birds and foraging habitats for birds and mammals. This will be managed as a nature conservation pasture with late winter sheep grazing/cut; no grazing/cutting during spring until birds have finished nesting and flowers seeded followed by a hay cut and potentially aftermath grazing. An area of 1.8ha will be developed as a community orchard with a species rich meadow beneath. The orchard species to be planted will be sourced locally. Following granting of the DCO, the Applicant will commission a sufficient number of suitable varieties for the orchard.

8.5.6 There is currently 6.5km of farm track within the Energy Park Site. During the construction phase, temporary construction compounds will be required as well as access tracks to facilitate access to all parts of the Energy Park with a total length approximately 16.8km.

8.5.7 The construction phase of the Development is currently anticipated to last up to 30 months but will be dependent on the final design and the findings of the access and traffic assessment. The types of construction activities required will be:

- Importing of construction materials;
- Culverting one ditch on the site;
- The establishment of the construction compound – this will likely move over the course of the construction process as each phase is built out;
- Creation of new access point of the site (A17);
- Installing the security fencing around the Energy Park Site; the perimeter security fence will be implemented early in the construction phase. The fence design will include gaps to allow mammals to pass underneath at strategic locations. This fence will also prevent construction activity in proximity to retained vegetation;
- Importing the PV panels and the energy storage equipment;
- Delivery and erection of PV frames and modules;
- Delivery and construction of the energy storage equipment and water tanks;
- Digging cable trenches and laying cables (on and off site);
- Cable route for the grid connection will involve digging a trench approximately 1.2-5m deep and some 1-3m wide.
- Where directional drilling is required a launch pit swathe of 30m x 30m is anticipated.
- Installing transformer cabins;
- Construction of onsite electrical infrastructure for the export of generated electricity;
- Creation of the permissive path; and
- New habitat creation.

8.5.8 The potential effects of construction of the Proposed Development on species and habitats may include:

- Injury or mortality to species using the areas due to construction activities for example site clearance.
- Changes in level disturbance to species resulting from changes in normal farming practices (cultivation, sowing, spraying harvest) to construction activities (e.g., noise, vibration, human activity, light).
- Loss or gain of habitat during construction resulting from changes in land use. Temporary change in habitat during construction associated with site clearance, access tracks or construction compounds.
- Habitat degradation due to direct or indirect effects resulting in a reduction in the ecological condition of habitats and suitability for some species it supports, for example changes in water quality, or changes in surface or ground water flow.
- Changing structure of area due to construction of vertical structures (solar panels and supports, substations, energy storage facilities, fencing etc).

Construction: Designated Sites

8.5.9 The nearest SSSI is Horbling Fen SSSI located 5km to the southwest of Bicker Fen Substation. This SSSI is designated for its geological interest. The Wash is the nearest SAC/SPA site, situated approximately 15km to the east of Bicker Fen Substation its nearest point. The construction of the Proposed Development will not result in any loss of habitat within any internationally or nationally important site.

8.5.10 Two species forming the qualifying interest of The Wash SPA/SSSI (pink-footed goose, Bewick's swan) were recorded during winter bird surveys of the Cable Route Corridor. A single immature (first-winter) Bewick's swan was recorded on one occasion foraging on an agricultural field. One flock of 56 pinkfooted goose was observed feeding in a wheat stubble field. This flock was transitory and when flushed by a dog-walker, the birds flew several kilometres eastwards to join larger numbers feeding distantly from the Proposed Development. It was concluded that the Proposed Development is not a high tide roost or important qualifying species from the Wash SPA/SSSI. It is considered that construction of the Proposed Development will have no effect on any qualifying features of the Wash SPA. The effect is therefore determined to be Not Significant.

8.5.11 The network of drains and watercourses throughout the Proposed Development drain into the South Forty Foot Drain. This drain joins the Witham River at Boston 11 km to the east of the Proposed Development before entering The Wash a further 5km downstream. Whilst the Proposed Development is a considerable distance from The Wash SPA/SAC there is a hydrological link therefore there is a low risk of silt or pollution run-off entering the SPA/SAC during construction.

8.5.12 There are no Local Wildlife Sites within or adjacent to the Energy Park. It is considered that construction of the Energy Park will have no effect on any LWS. The effect is therefore determined to be Not Significant.

8.5.13 The Cable Route Corridor for the grid connection will require crossing the South Forty Foot Drain Local Wildlife Site (LWS) therefore prior to mitigation there is a potential for a significant negative effect.

Mitigation

8.5.14 The initial design of the Energy Park includes a 9m stand off from IDB maintained drains and an 8m stand-off from all other drainage ditches. The cessation of cultivation and addition of Agri-chemicals will significantly reduce the potential for silt and pollution runoff.

8.5.15 The negative impacts of possible dust deposition or silt runoff on the drainage ditches within the Energy Park Site will be mitigated for by the implementation of a CEMP. This will restrict working during periods of heavy rain and outline the installation of silt fencing, if required. This will avoid any extra silt runoff along any ditches.

8.5.16 A precautionary approach has been taken with the initial design ensuring that the grid connection will be placed under all major watercourses including the South Forty Foot Drain removing any collision risk of waterfowl flowing along the drain or risk of damage to the LWS.

8.5.17 Where hydraulic drilling is required a launch pit swathe of 30m x 30m is anticipated. These will be setback from the South Forty Foot Drain within fields either side of the Drain. The land will return to its previous use, with the exception of the link boxes which will be at ground level access to the joint bays. The joint bays are required every 400-500m and will be placed at field edges so far as possible.

8.5.18 There will be a temporary disturbance of arable land each side of the boundary of the South Forty Foot Drain LWS to allow for directional drilling which will have no effect on the conservation status of the LWS. These areas will be returned to the previous land use after construction. The outline CEMP (document reference 7.8) provides further detail on construction and drilling methods.

Residual effect

8.5.19 Implementation of these measures will ensure there will be no effect on conservation status of The Wash SPA/SAC or the South Forty Foot Drain. With this mitigation in place there will be a Neutral / Negligible effect and would be Not Significant.

Construction: Habitats

Arable land

8.5.20 Site clearance activities and cessation of arable farming practices across the Energy Park Site would result in the loss of cultivated arable land. The change from intensive arable to a mosaic 440ha grassland habitat will be a be significant biodiversity benefit at least at local level. Approximately 7ha of arable will be converted to access tracks and a further 10ha will be required for substations and energy storage. In nature conservation EIA terms the overall change in land use this would be classified as Minor to Moderate beneficial. The effect is therefore determined to be Not Significant.

8.5.21 The Offsite-Grid Connection will cross approximately 7 km of agricultural land of low nature conservation value. This will be returned to previous agricultural use therefore there will be no change in the nature conservation value of this area. The disturbance of field margins that are not cultivated in the season following construction may provide temporary habitat for arable plants which may be a minor beneficial effect. However overall the effect is therefore determined to be Not Significant.

Grasslands

8.5.22 The areas of grassland within the Energy Park Site are largely restricted to field margins and two fields within Mid-Tier Stewardship Scheme. These areas are currently dominated by coarse grass species of low conservation value although some of the drainage ditch banks grassland are a greater species diversity. There is potential for damage to these habitats due to vehicle movement and construction activity.

8.5.23 There are very limited areas of grassland with the Cable Route Corridor, with the exception of one improved pasture field close to Bicker Fen Substation. There are a number of narrow strips of semi-improved grasslands bordering the network of drains around the arable fields. There is an area of semi-improved grassland on the Cable Route Corridor on the banks of the South Forty Foot Drain. The proposed location of the new substation at Bicker Fen Substation is currently an area of semi-improved grassland.

8.5.24 The area of semi-improved grassland on the banks of the South Forty Foot Drain will be unaffected because the cable route will be directionally drilled beneath South Forty Foot Drain but the small area of semi-improved grassland within the Bicker Fen Substation will be lost through construction of the substation extension.

8.5.25 The design of the Proposed Development will result in a significant increase in the area of grassland from 13ha to over 500ha. The increase in the area's grassland habitat will be a significant biodiversity benefit at least at a local level and potentially greater.

8.5.26 The areas of rough grassland adjacent to watercourses will be fenced off from construction activity. Any impacts of damage on these grassland areas will only be short term as the vegetation would be expected to quickly re-establish. Given the existing vegetation present, this area will invariably suffer less damage from churning up/compaction of the ground than arable land free of vegetation.

8.5.27 In EIA terms the Proposed Development will result in an overall Moderate Beneficial Effect. The effect is therefore determined to be a positive **Significant** effect.

Boundary habitat

8.5.28 The Energy Park will be built entirely within the current arable fields and will not require the removal of any of the gappy hedgerows, although the Offsite Grid Connection may require the removal and replacement of small sections of hedgerow depending on the exact route. The boundary ditches in the Energy Park will be largely unaffected although there may be a need to cross one boundary with security fencing and create one new ditch crossings within the Energy Park.

8.5.29 Energy Park construction activities could lead to a small amount of noise and possibly light disturbance to the species within the boundary habitats, however, this would be temporary. There is the potential for some dust deposition or runoff on the hedgerow flora generated by the traffic moving into and around the construction zone. Such effects would be temporary and reversible in the short-term. It should also be noted that a certain amount of noise disturbance, dust deposition and runoff would be anticipated as a result of routine annual agricultural activities.

8.5.30 The Off-Site Grid Connection will cross at least a number field boundaries. Internal Drainage Board maintained drains and major wet drains will be directionally drilled. Smaller field ditches not permanently holding water will either be directional drilled beneath or possibly excavated. If wet at the time those ditches crossed by excavation would be dammed and pumped dry during cable laying. This will be a temporary effect. A precautionary approach will be taken and ecological survey will be carried prior to any works to ensure this method is only used where there is no risk to protected species or habitat of high conservation value.

8.5.31 There are five locations along the Off-Site Grid Connection where the route passes through or close to section of species poor gappy hedgerow. Depending on the exact line of the grid connection route there is a potential that short section of hedgerow may need to be removed.

8.5.32 If any hedgerow along the Off-Site Grid Connection requires removal this will be done outside the bird breeding season and replanted in the next growing season.

8.5.33 The initial design of the Energy Park includes approximately 8.5km of new hedgerow planted around boundary to provide visual screen and biodiversity enhancements.

Mitigation

8.5.34 An Outline CEMP (document reference 7.7) has been prepared for the Proposed Development and details the measures required to minimise the dust deposition and runoff which may affect the boundary habitat. This will include how dust-generating activities will be avoided, ensuring stockpiles of spoil and site materials will be stored away from field boundaries, restrictions on working during periods of heavy rain and the installation of silt fencing and/or temporary drainage channels if necessary.

8.5.35 Precautionary protection measures will be taken to fence off boundary habitat for avoiding risk of accidental damage. The fencing will be installed as the first item in the construction programme, in order to demarcate the buffer between the boundary and construction area. Construction crew will be informed that no materials should be stored, or vehicles driven within this area via a toolbox talk delivered to all key construction staff at the commencement of construction.

8.5.36 If any short section of hedgerow are to be removed during the laying of the Off-Site Grid Connection an ecological assessment by suitably qualified ecologist will be carried out prior to removal works. This works will be completed outside the bird breeding season and the hedgerow will be replanted in the next planting season with the same hedgerow species.

Residual effects

8.5.37 The increase in the boundary habitat as part of the initial design of the Energy Park will be a significant biodiversity benefit at least at a local level and potentially greater. In EIA terms this would be classified as Minor to Moderate beneficial. The effect is therefore determined to be a **positive Significant** effect.

Woodlands

8.5.38 The construction of the Proposed Development will not result in any loss of woodland or encroachment of woodlands.

8.5.39 However, there is potential for damage or compaction to tree roots when installing the fencing and array structures. This negative impact would affect only the outer edges of any woodland. Damage to roots may lead to permanent, irreversible damage resulting in the death of the tree. It would be expected to take over 30 years for a new mature tree to take the place of the lost tree, so the duration of the impact would be for the majority of the lifetime of the Energy Park as the Park would be operational for 40 years.

8.5.40 Construction activities could lead to a small amount of noise and possibly light disturbance to the species within the woodland, however, this would be temporary and would only affect the margins of the woodland. There is the potential for some dust deposition or runoff on the hedgerow flora generated by the traffic moving into and around the construction zone. Such effects would be temporary and reversible in the short-term. It should also be noted that a certain amount of noise disturbance, dust deposition and runoff would be anticipated as a result of routine annual agricultural activities.

Mitigation

8.5.41 Root protection zones will be established in compliance with BS5837⁴⁷ Precautionary protection measures will be taken to fence all woodlands and individual trees to ensure no roots damage and to avoid risk of accidental damage. The fencing will be installed prior to construction commencing, in order to demarcate the root protection zone between the woodland and construction area. Construction crew will be informed that no materials should be stored, or vehicles driven within this area via a toolbox talk delivered to all key construction staff at the commencement of construction.

8.5.42 The Outline CEMP (document reference 7.7) details the measures required to minimise the dust deposition and run-off which may affect the woodland habitat. This will include how dust-generating activities will be avoided, ensuring stockpiles of spoil and site materials will be stored away from woodlands field boundaries, restrictions on working during periods of heavy rain and the installation of silt fencing and/or temporary drainage channels if necessary.

Residual effects

8.5.43 The mitigation implemented will ensure that the small plantation woodlands and hedgerow trees will be protected from adverse impacts during construction. There will be no effect on trees or woodlands during construction. This would be classified as Neutral / Negligible effect and deemed to be Not Significant.

Wetlands and watercourses

⁴⁷ Trees in Relation to Design, Demolition and Construction to Construction - Recommendations" (BS 5837) (2012)

8.5.44 There is potentially a risk of degradation of the retained pond habitat through dust deposition and runoff during construction activities. This could damage the habitat within and surrounding the ponds as well as affecting the species which inhabit them. This impact would be temporary, as it would be the result of construction activities close to the pond only.

8.5.45 The pond adjacent to the proposed substation extension at Bicker Fen is 40m outside the development footprint and is separated from substation location by a security fence. However, there will be construction control adjacent to this pond therefore there may be a risk of silt runoff into the pond.

8.5.46 The construction of the Proposed Development will be within the current arable fields (with the exception of the substation extension at Bicker Fen) and there will be no changes to main river or IDB managed drains during construction.

8.5.47 There will be one landowner managed drain at the entrance of the Energy Park that will need to be culverted, and a small culvert to facilitate a security fence in the southeast corner of the Energy Park near the largest woodland block. An existing culvert close to the site entrance is likely to need a re-enforcing to ensure safe delivery of equipment, particularly the transformers required for the onsite substation. Where existing culverts onsite need replacing or repairing either during or following construction these would be repaired like for like.

8.5.48 The Off-Site Grid Connection will cross at least 12 field boundaries. Internal Drainage Board maintained drains and major wet drains will be directionally drilled. Smaller field ditches not permanently holding water could be excavated, or if wet at the time may require to be dammed and pumped. A precautionary approach will be taken and ecological survey will be carried out prior to any works to ensure no increase in silt into the drainage network or negative effects on protected species downstream whilst the cable is being installed.

8.5.49 There is potentially a risk of degradation of drainage ditches habitat through dust deposition and runoff during construction activities. This could damage the habitat within and surrounding the ditches as well as affecting the species which inhabit them. This impact would be temporary, as it would be the result of construction activities close to the drainage ditches. A certain amount of noise disturbance, dust deposition and runoff would be anticipated as a result of routine annual agricultural activities.

Mitigation

8.5.50 Precautionary protection measures will be taken to fence off boundary habitat for avoiding risk of accidental damage. There will be a 9m stand-off from all IDB watercourses to boundary security fencing and 8m from all other ditches around the Energy Park. The perimeter security fence around the Energy Park Site will be implemented early in the construction phase. This fence will also prevent construction activity in proximity to watercourses. The fencing will be installed as the first item in the construction programme, in order to demarcate the buffer between the boundary and construction area. Construction crew will be informed that no materials should be stored, or vehicles driven within this area via a toolbox talk delivered to all key construction staff at the commencement of construction.

8.5.51 The outline CEMP (document reference 7.7) defines the working methodology to ensure that as little vehicular movement as possible occurs close to the drainage ditches, thus reducing the risk of disturbance or injury to of any species which may use this habitat and also reducing dust deposition and runoff and steps to be taken to limit the likelihood of pollution or spillage events.

8.5.52 The negative impacts of possible dust deposition or silt runoff on the drainage ditches within the Energy Park Site will be mitigated for by the implementation of a CEMP. This will restrict working during periods of heavy rain and outline the installation of silt fencing, if required. This will avoid any extra silt runoff along any ditches.

8.5.53 Where the Off-Site Grid Connection crosses smaller field ditches that could be excavated rather than directionally drilled, ditch dams will be installed to ensure no run-off of silt if its wet and requires water to be pumped out to install the grid connection cable. A precautionary approach will be taken and ecological survey will be carried out prior to any works to ensure this method is only used where there is no risk to protected species within the ditch.

8.5.54 There will be one landowner managed drain at the entrance to Energy Park that will need to be culverted, and a small culvert to facilitate a security fence in the southeast corner of the Energy Park near the largest patch of woodland. An existing culvert close to the site entrance is likely to need a reinforcing to ensure safe delivery of equipment, particularly the transformers required for the onsite substation. Where existing culverts onsite need replacing or repairing either during or following construction these would be repaired like for like.

8.5.55 Where new culverts are required or to be replaced a precautionary approach will be taken and ecological survey will be carried out prior to any works to ensure no risk to protected species. The section of the ditch to be culverted will be dammed to ensure no increase in silt into the drainage network or negative effects on protected species downstream whilst the culvert is being replaced or installed.

8.5.56 The pond in the centre of the site will be protected from construction operations and the potential risk of silt run-off from the adjacent construction compound by bunding to prevent any flow into the pond.

Residual effects

8.5.57 The ponds, drainage ditches and wildlife species within them will be protected from construction phase impacts by implementing the described measures. Following construction and the cessation of the application of fertilisers, herbicide and pesticides the water quality within the drains is expected to improve resulting in an overall beneficial impact which will be **Significant** at a local level.

Construction: Species

Otter

8.5.58 No evidence Otter was recorded on the Energy Park. It is however possible that Otter may forage within the major IDB Drains and the Head Dike and have been recorded on the South Forty Foot Drain. There will be a standoff at least 8m from all watercourses to boundary fence of the Energy Park. The construction of the Energy Park will be constructed entirely within the arable fields and construction traffic will use existing culverts, with the exception of the new access.

8.5.59 If, new culverts are required or existing ones are to be replaced a precautionary approach will be taken and ecological survey will be carried out prior to any works to ensure no risk to protected species. The section of the ditch to be culverted will be dammed to ensure no increase in silt into the drainage network or negative effects on protected species downstream whilst the culvert is being installed or replaced.

8.5.60 The Off-Site Grid Connection crossing of the South Forty Foot Drain will be directionally drilled and will therefore not affect either the bank or the watercourse. The effect on otter is classified as Neutral / Negligible and Not Significant.

Water Vole

8.5.61 Water Vole were not recorded in the Proposed Development area. It is, however possible that Water Vole may recolonise the Proposed Development Area. The Energy Park design includes a standoff at least 8m from all watercourses to fence lines (9m from IDB managed drains), and the construction of the Energy Park will be entirely within the arable fields. Construction traffic will use existing culverts and access routes, with the exception of the new access. There will be no fenced crossing of the IDB drains on the Energy Park Site. The Off-Site Grid Connection crossing of the South Forty Foot Drain and crossing on larger drains along the Off-Site Grid Connection route will be directionally drilled and will therefore not affect water vales should they recolonise the area.

8.5.62 Water Vole are not present in the Proposed Development area however, prior to construction of the security fencing and installation of any culverts (if needed) a Water Vole survey will be carried in the appropriate survey season to allow sufficient time to agree a program of licence works with Natural England should Water Vole recolonise the area.

8.5.63 There will be no effect on Water Vole. This is classified as Neutral / Negligible and is not Significant.

European Hare

8.5.64 European Hare are present within the arable fields where the Energy Park will be constructed. European Hare live with intensive farming methods and leverets can run within hours of birth to avoid farm machinery, although their natural instinct is to remain still to avoid predator detection. Hares breed between January and August and during these periods impacts upon hares may be slightly greater than at other times of year. There is potential of disturbance, death or injury during clearance works which would be an adverse effect at local level, and considered to be a Minor Adverse effect, and Not Significant.

Mitigation

8.5.65 Protection measures for European Hare during the construction of the Energy Park and associated infrastructure will include:

- Habitat manipulation to create suitable habitat for Brown Hare outside construction areas prior to commencement within each area of work;
- Habitat manipulation to minimise suitability for Brown Hare in construction area prior to each phase on construction;
- The provision of ramps into any open excavations to allow any Brown Hare (particularly leverets that have fallen in to escape);
- Contractor training and induction to ensure awareness and care during installation of solar arrays and associated infrastructure;
- Adopting a speed limit of 10mph across the site to reduce the possibility of incidental mortality; and
- Any European Hares encountered during works should be allowed to move away of works.

8.5.66 Implementation of the measures will ensure there will no effect on the conservation status of European Hare: this would be classified as Neutral / Negligible and therefore Not Significant.

Badgers

8.5.67 No badger setts were identified along the Off-Site Grid Connection route (where access allowed). There are badger setts within the Energy Park. Whilst the main badger Setts are currently outside construction areas therefore there is no risk of direct damage may be potential for disturbance particularly if the setts of moved or changed prior to construction.

8.5.68 There are also a number of subsidiary / outlying setts. There is currently a low risk of direct damage there is a potential risk of disturbance by the construction of the Energy Park site and there may be a requirement for an appropriate licence to work within agreed distances of these subsidiary/outlying setts which change from year to year, with new setts being dug as well old ones are abandoned. This was noted that there was considerable change in use of outlying setts between the surveys undertaken 2021, spring 2022 and autumn 2022. Therefore, there is a potential risk of disturbance which would be an adverse effect at local level, which would be considered to be Minor Adverse and potentially **Significant**.

Mitigation

8.5.69 Protection measures for badger setts during the installation of the Energy Park site and associated infrastructure will include:

- Prior to each stage of construction, a badger survey will be conducted in sufficient time for appropriate mitigation measure to be in place where there is a potential for disturbance;
- The creation of construction exclusion zones delineated by Heras fencing where appropriate to control direct impacts to setts;
- If necessary licenced temporary closure of a sett or licenced works within an agreed distance from the sett; and
- To prevent badgers and other mammals from becoming trapped the provision of ramps into any open excavations to allow any badger (or other mammals) that have fallen in to escape.

Residual effects

8.5.70 Implementation of these measures will ensure there will be no effect on conservation status of Badger. The effect will therefore be considered to be Neutral/Negligible and Not Significant.

Bats

8.5.71 The derelict buildings where a small number of common pipistrelle and brown long eared bat were recorded roosting are outside the development footprint of the Energy Park and will be unaffected by construction of the Energy Park. The construction of the Energy Park site will not encroach into any of the plantation woodland or directly affect any hedgerow trees. There will be no loss of foraging habitats, wet ditches, drains, hedgerows, or woodlands during construction.

8.5.72 Construction of the Energy Park will take place during daylight hours, where practical, subject to the timing of the construction activities and the time of year. Therefore, there will be no need for permeant floodlighting during construction. Although there may be a need for floodlight if extend house of working are required. There may be a small number of security lights on construction compounds which will be motion activated.

8.5.73 It is expected that works on the Off-Site Grid Connection will take place during daylight hours. However, it is known that for operational reasons temporary flood lighting has been used during excavation directionally drilling at the launch pits and during drilling on other grid connection works in the area (Triton Knoll & Viking Link).

Mitigation

8.5.74 Whilst it is considered that there will be no significant effect on bats during construction, a precautionary approach will be taken and details in the Outline LEMP (document reference 7.8) include:

- Fencing to protect accidental access or accidental damage to identified roost sites;
- Fencing to any accidental damage to potential roost site trees;
- Guidance to ensure no security lighting spill onto to identified roost site or potential bats roost;
- Guidance to ensure any lighting required during drilling operations is temporary and directed at the working areas to avoid light spill;
- Guidance to preclude security light spill onto identified important foraging areas in particular wet and water filled drainage ditches and close to the derelict farm buildings.

Residual effects

8.5.75 Implementation of these measures will ensure there will be no effect on conservation status any bat species using the site. The effect will therefore be considered to be Neutral/Negligible and Not Significant.

Breeding birds

8.5.76 A total of 68 species were recorded during the breeding bird surveys of the Proposed Development of which 56 species bred (Appendix 8.10- Ornithological Survey – Energy Park and Cable Route Corridor (document reference 6.3.8.10). These included three Schedule 1 / Annex I species (marsh harrier, barn owl and kingfisher).

8.5.77 No quail were found to be present during the extensive breeding bird surveys undertaken. Being a highly irruptive summer visitor, numbers of quail arriving into Britain each summer are highly variable. Affected by complex rotational cropping regimes, precise future breeding locations on agricultural land are also impossible to predict.

8.5.78 There will be disturbance of open habitat during construction. There may also be potentially risk of disturbance to bird nesting in boundary habitats where boundary fencing will be constructed.

8.5.79 It is an offence liable to a special penalty to disturb any Schedule 1 bird while it is nest-building or is in, on or near a nest containing eggs or young or to disturb the dependent young of such a bird. All nesting locations of the three Schedule 1 / Annex I species are sheltered and located considerable distances from any Proposed Development activities; the marsh harrier in quiet, dense, tall ground vegetation sheltered by existing development, the barn owls in buildings and/or nest-boxes and the kingfisher low in the bank of a deep drainage ditch.

8.5.80 All three species have also become accustomed to regular movement and operation of big machinery locally, particularly in the form of the regular agricultural activities being undertaken in the area.

8.5.81 Foraging habitat used by the three Schedule 1 / Annex I species will also not be subject to development. The breeding pair of marsh harriers were never seen to hunt on the proposed Energy Park, the kingfishers foraged along watercourses well away from the proposed Energy Park and the barn owls foraged along boundary features (rough margins alongside ditches, hedgerows, watercourses, tracks and footpaths) away from or intersecting the open agricultural fields that will hold the solar panels. The creation/enhancement of rough grassland both on and around the Energy Park should improve marsh harrier and barn owl foraging in the longer term.

8.5.82 A variety of additional breeding species were found, including 15 BOCC Red List and UKBAP/LBAP species. However, this overall breeding bird community was typical of the wider Lincolnshire Fens agricultural landscape, such that no species were found to be breeding in significant numbers. Furthermore, the vast majority of breeding birds were located not in the open fields in which the solar panels will be placed, but in woodland, copses and farm buildings or along hedgerows and drainage ditches outside the development footprints of the Energy Park. Only 128 pairs of two species (124 Skylark and four Yellow Wagtail) were found breeding in the open fields in which the solar panels will be placed, which on BTO population estimates (BTO breeding bird surveys) numbers representative of a very small proportion (<1%) of regional breeding population⁴⁸.

8.5.83 The farm building, woodlands, ditch banks and the majority of hedgerows will not be directly affected by construction therefore there will be no risk of disturbance of species nesting within these habitat or buildings. There may be a risk of disturbance to three short sections of gappy hedgerows during Off Site Grid Connection. The aim will be to avoid these hedgerows but there may technical reasons why the trench for the grid connection may be dug close to these gappy hedgerows.

8.5.84 There is potential of disturbance, death or injury during clearance works which would be an adverse effect at local level, which is considered to be a Moderate Adverse effect, and **Significant** prior to mitigation.

Mitigation

8.5.85 Standard Good Practice to avoid impacts to nesting birds during works, including disturbance to Schedule 1 species nesting in building, will include:

- Appropriate timing of clearance works (i.e., outside of the breeding season between October and February inclusive; and pre-clearance nesting bird checks if required;
- In the event that any active bird nest would be impacted by clearance/installation works, it would be necessary to defer works within a minimum 5m radius of the nest until the nest is no longer active;
- Access to grass margins, ditches and woodland will be prevented by fencing to avoid accidental disturbance to nesting species;
- Access to buildings on site will be prevented by fencing to avoid accidental disturbance to nesting species;
- No development activities should be undertaken within 500m of any of the Schedule 1 / Annex I species' nest-sites during the breeding season (March-July); and
- All parts of the Proposed Development where any development work is planned to take place during March-July should therefore be carefully surveyed for breeding Quail prior to any work commencing.

Residual effects

⁴⁸ Balmer, D.E., Gillings, S., Caffrey, B.J. & Swann, R.L. (2013) Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland. BTO Books, Thetford

8.5.86 Implementation of these measures will ensure there will be no effect on conservation status any breeding species using the Proposed Development. The effect will therefore be considered to be Neutral/Negligible and Not Significant.

Wintering birds

8.5.87 Construction works on Energy Park and Off-Site Grid Connection route could potentially cause temporary disturbance, however in general the numbers of birds involved were small and generally representative of insignificant proportions of highly mobile, much larger wintering populations present in the wider countryside. It is considered highly unlikely that there will be an effect on conservation status of wintering birds during construction. There were no records of pink-footed geese using the Energy Park.

8.5.88 Two species forming the qualifying interest of The Wash SPA/SSSI (pink-footed goose, Bewick's swan) were recorded during winter birds surveys of the Cable Route Corridor route. One observation of Bewick's swan was made on just one occasion of an immature bird recorded foraging on an agricultural field in grid connection. One observation was made of pink-footed goose using ground in the vicinity of the proposed grid connection; of a flock of 56 birds feeding in a wheat stubble field in grid connection. This flock was transitory; when flushed by a dog-walker, the birds flew several kilometres eastwards to join larger numbers feeding distantly from the proposed development.

8.5.89 The Greenland/Iceland pink-footed Goose population which winters almost exclusively in Britain now exceed over 500,00 birds having increased by 111% over the last 25 years. The Wash pink-footed goose population feeds over a very wide area extending to over 350,000ha. The only roosting site in The Wash SPA is at Snettisham, the five year mean peak is 37,908 geese. Whilst many geese feed on marshes much close to the roost, particularly after the shooting season⁴⁹ Feeding areas from the roost site are primarily inland to the south and east in Norfolk, though some also move across The Wash to South Lincolnshire.

8.5.90 Away from the coastal grazing marches arable fields are the main food source for pink-footed geese over this 350,000ha area, particularly post-harvest sugar beet tops and other vegetable crops. The actual distribution changes from year depending on the crops harvested and cultivation for the next years crops. Some landowners leave arable stubble and crop residues specifically to attract pink-footed geese during the shooting season (1st September to 31st January) to attract geese and lease out the shooting rights.

8.5.91 Given the extensive foraging areas used by The Wash pink-footed goose population and their preference to feed close to the roost at Snettisham it is considered highly unlikely that there would have any effect on the conservation status of the SPA during construction. Although if a particularly attractive crop residue was present during a proposed construction period there may be the potential for temporary disturbance, although given the wide area over which this species forage it is considered that there this temporary effect would have no effect on the conservation status of the wintering population or the integrity of The Wash SPA.

8.5.92 Winter birds survey within the Proposed Development recorded two gadwall and occasional small flocks of golden plover (peak count 128) and lapwing (peak count 318) within the Energy Park Area which are included in the citation for the Wash Ramsar site.

8.5.93 Large number of Lapwing and Golden Plover winter in Great Britain with peak counts of over 145,000 Golden plover and 272,630 Lapwing⁵⁰. A large proportion of these

⁴⁹ Brides K., Mitchell C., & Hearn R.D., 2013 Mapping the distribution of feeding Pink-footed Geese in England Wildfowl & Wetland Trust /Natural England Report

⁵⁰ BTO webs counts 2019/20 Frost, T.M., Calbrade, N.A., Birtles, G.A., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2021.

populations are recorded on sites in the east of England including the Humber Estuary, the Wash, the Ouse washes, the Nene Washes and the Lower Derwent Valley. Peak counts on these five sites account for 41% of golden plover and 20% of lapwing wintering in Great Britain. The number of lapwings and golden plovers recorded occasionally on the Energy Park is less than 1% of peak national counts and less than 1% of the peak counts on a designated site in the east of England. Therefore, it is considered there will be no significant effects from construction on these species.

Mitigation measures

8.5.94 A precautionary approach will be taken and the grid connection will be placed under the South Forty Foot Drain, removing any bird collision risk with overhead cables.

Residual effects

8.5.95 Implementation of these measures will ensure there will be no effect on the conservation status of wintering birds. Therefore, the residual effect of the construction on wintering birds will be Neutral / Negligible and Not Significant.

Operational Effects

8.5.96 The potential effects of the operation of the Proposed development for 40 years may include:

- Changes in the level of disturbance to species using the Energy Park resulting from changes in normal farming practices (cultivation, sowing, spraying, harvest) to low density sheep grazing and conservation management of grasslands;
- Loss or gain of habitat in the wider vicinity during the lifetime of the project (40 years) resulting from changes in land use;
- Habitat degradation due to direct or indirect effects resulting in a reduction in the ecological condition of habitats and suitability for some species it supports, for example changes in water quality, or changes in surface or ground water flow;
- Changing structure of the area due to presence of vertical structures (solar panels and supports, substation, energy storage facilities and fencing);
- Barrier effects of fencing;
- Collision risk of vertical structures including fencing, solar panels, substation and energy storage structures;
- Shading of habitat beneath solar panels and changes in light level and reflection;
- Low level noise from electrical plant including the substation, inverters, transformers, or energy storage units.

Operation: Designated sites

8.5.97 The operation of the Energy Park will not result in any changes in habitat within any internationally important, nationally important or locally important sites. There was no evidence of birds included in the designation for The Wash SPA using the area of the Energy Park as a high tide roost or high tide feeding area with the occasional foraging by a small number of pink-footed geese close to Swineshead along the Off-Site Grid Connection route. This land will be returned to previous agricultural use and be unaffected by the operation of the Proposed Development.

Waterbirds in the UK 2019/20: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.

8.5.98 Golden plover lapwing are included are included in the citation for the Wash Ramsar site and were recorded occasionally in relatively small number on the Energy Park during winter.

8.5.99 Large number of Lapwing and Golden Plover migrate south and west within Europe to spend winter in Great Britain with peak counts of over 145,000 Golden plover and 272,630 Lapwing. A large proportion of these populations in the east of England including on the Humber Estuary, the Wash, the Ouse washes, the Nene Washes and the Lower Derwent Valley. Peak counts on these five site account forty one percentage of golden plover and 20% of lapwing wintering in Great Britain. The number of lapwing (peak count 318) and golden plover (peak count 128) recorded occasionally on the Energy Park is less than 1% of peak national counts and less that 1% of the peak counts on designated site in the east of England. Therefore, it is considered there will be no significant effects from operation of the Energy Park on these species.

8.5.100 In 2021, according to the landowner's farm records for the Energy Park site the following was applied to the wheat crop: 272 tonnes of chemical fertiliser and 5,581 litres of Agri-chemicals. Stopping arable cultivation, the cessation application of fertiliser and Agri-chemicals combined with conversation of the majority of the Energy Park to a mosaic of grasslands will reduce silt, fertiliser and Agri-chemicals run-off into the drains, the Head Dike and Skerth Ditch and eventually into The Wash SPA/SAC.

8.5.101 It is estimated the loss of soil in UK due to intensive agricultural practices is between 0.1-0.3 tonnes per ha per year⁵¹ which would equate to between 2,100—6,300 tonne of topsoil prevented from entering The Wash SPA/SAC (based on 524ha Energy Park over the 40-year operational life of the Proposed Development). However, in comparison to the total volumes of soil and chemicals entering The Wash from the surrounding intensive agricultural landscape in Lincolnshire, Cambridgeshire and Norfolk which drain into The Wash the reduction in volumes from the Energy Park will be insignificant.

8.5.102 It is considered that the operation of the Energy Park will have no effect on any sites of international, national or local importance. Therefore, the residual effect of the operation of the Energy Park on the Designated Sites within the wider locality will be Neutral / Negligible and Not Significant.

Operation: Habitats

Arable

8.5.103 The Energy Park will be built entirely within the current arable fields. The majority of intensive arable fields will be returned to grass pasture to an integrated commercial sheep business which rotates a flock between different crop residues. The Energy Park will provide crucial grazing during periods when other local crops are not available and may in time provide a new base for this farming enterprise (subject to the reservoir application). The areas will be re-seeded prior to construction with a drought resistant species rich seed mix suitable for sheep grazing with no additional fertilisers within the fenced area of the Energy Park of approximately 435.22ha.

8.5.104 The area between solar panels and all watercourses and ditches, the raised bank in the centre of the site, wayleave corridor for the high-pressure gas main and an area to the north of the site will be seeded /over seeded with nature conservation a flower rich grass seed mixed (a total area of approximately 68.68ha). This will provide habitat for insects and pollinators as well nesting farmland birds and foraging habitat for birds and mammals. This will be managed as a nature conservation pasture with late winter sheep grazing, no grazing during spring until birds have finished nesting and flowers seeded

⁵¹ UK Soil degradation July 2006 Parliamentary Office of Science and Technology postnote 265

followed by a hay cut and aftermath grazing. An area of approximately 2.15ha will be developed as a community orchard with a species rich meadow beneath. Approximately 7ha of arable land will be used for access tracks and 10ha for substations and energy storage.

8.5.105 The change from intensive arable to mosaic to grassland habitat will be a significant biodiversity benefit at least at local level and potentially greater. In EIA terms this would be classified as Minor to Moderate beneficial. The residual effect would therefore be considered as a beneficial **Significant** impact.

Grasslands

8.5.106 There will be a significant increase in grassland habitat and increase in the biodiversity of the grassland habitat within the Energy Park. There will be 435.24ha of grassland managed by sheep grazing on a seasonal basis. The 68.68 ha of conservation meadows has been designed from the outset to maximise the biodiversity value of the area in particular for invertebrates, foraging bats and farmland birds. It will be sown nature conservation seed mix to provide nesting habitat for farmland birds and habitat for insects and pollinators. The initial ecological design of the Energy Park is to manage this area specifically to maximise the overall biodiversity value but particularly for invertebrates, bats and farmland birds.

8.5.107 The species composition of grassland habitats within the Energy Park will change as the habitats develop. In the first few years agricultural weeds such as dock and thistle may become established. However, many of these species provide excellent food sources for birds and invertebrates and with reduction in soil nutrients with ongoing cutting and grazing they will gradually die-out.

8.5.108 The shading of the solar panels will reduce light levels and studies have shown there to be a reduction in temperature fluctuations and potential increase in humidity beneath⁵². In cooler conditions and climatic regions such as the UK, there is evidence that this leads to a reduction in vegetation growth and reduction in forb and legumes with the exception of Common Yarrow (*Achillea millefolium*) beneath the panels⁵¹. Common Yarrow has white flowers and will reflect light onto the rear of a bifacial panel.

Mitigation

8.5.109 Any areas of bare ground remaining following construction are to be sown with an appropriate seed mix suitable for the conditions and location, as prescribed within the Outline LEMP (document reference 7.8) that will be prepared for the Energy Park Site. The Energy Park Site will be subject to post construction surveys at suitable intervals and if necessary, the management can be modified and areas over seeded, this may include the use of shade tolerant seed mix beneath panels.

Residual effect

8.5.110 Overall, there will a significant beneficial effect on the nature conservation status in relation to grassland habitat of at least a local level. Therefore, the residual effect will be Minor to Moderate beneficial and would be **Significant**.

Boundary habitat

8.5.111 There will be a significant increase in boundary habitat (8.5km) within the Energy Park. The cessation of intensive arable farming practices, including spraying crops

⁵² Armstrong, A., Ostle, N.J., Whitaker, J., 2016 Solar Park Micro climate and vegetation management effects on grassland carbon cycling Environment Research Letters, Volume 11, Number 7

with pesticides and herbicides, is likely to be of benefit to hedgerow habitats on the Energy Park Site, particularly the ground flora at hedgerow bases. New hedgerows, once established will be managed on a suitable rotation of cutting and managed to keep a low and tight structure to provide nesting habitat for hedgerows for farmland bird species as well as minimising high perching location for crows and other predatory birds. Management will be of a rotational basis land in late winter to allow hedgerow species to fruit providing food for over wintering birds. The new hedgerow will include a range of species to provide pollen and nectar through the spring and summer for invertebrates.

8.5.112 Overall, there will a beneficial effect on the nature conservation status in relation to boundary habitat of at least a local level. This will offer a **Significant** benefit at Local level.

Woodlands

8.5.113 The woodland areas are outside the development footprint. The operational scheme is likely to deliver a minor beneficial effect on the woodland ground flora due to the cessation of arable farming practices and the elimination of fertiliser, herbicide and pesticides use. Overall, a residual neutral effect is anticipated, which is Not Significant.

Wetlands and watercourses

8.5.114 The pond in the centre of the Energy Park Site, the pond adjacent to the Bicker Fen Substation and all wet drainage ditches within the Proposed Development Area will be retained. Those drainage ditches managed by the Black Sluice IDB will continue to be managed by the IDB. There will be no change in the management of non-IDB internal drainage ditches.

8.5.115 The operational scheme is likely to deliver a moderate beneficial effect on the ditch and boundary habitat within the Energy Park due to the cessation of arable farming practices and the elimination of fertiliser, herbicide and pesticides use. Overall, a residual positive effect is anticipated, which is likely to be **Significant** at a local level.

Operation: Species

Otter

8.5.116 The cessation of the use of Agri-chemical throughout the Energy Park Site will reduce the run-off of toxic chemical in watercourses which is likely to benefit the invertebrate population which in turn may increase fish and amphibian densities within the wet ditches. This may benefit otters which may return to use the area. Overall, there will be no effect on the conservation status of otter and so the effect would be determined to be **Neutral/Negligible and Not Significant**.

Water vole

8.5.117 Water Vole are not present on the Energy Park Site. There would be no change in the management of the most suitable habitats within the Energy Park Site for water vole (the IDB managed drains) therefore if Water Voles were to recolonise the areas there would be no change in the availability of habitat. Overall, there will be no effect on the conservation status of water vole and the operation of the Energy Park would have a **Neutral/Negligible effect which is Not Significant**.

European Hare

8.5.118 The change from intensive arable land to a mosaic of grassland pasture will increase the habitat quality for foraging European Hare and the panels may provide cover

from aerial predators. The fences are designed to provide easy passage for badgers and therefore will not restrict movement of European Hare across the area. A study on existing solar parks has found evidence that hares were more abundant within solar arrays compared to control sites nearby (Montag *et al*). This impact will last for at least the lifespan of the Energy Park and will result in a Minor Beneficial effect on European Hare, which would be **Significant** at a local level.

Badgers

8.5.119 The change from intensive arable land to a mosaic of grassland pasture will significantly increase the area and habitat quality for foraging Badgers. The fences are designed to provide easy passage for badgers and therefore will not restrict their movement across the area. This impact will last for at least the lifespan of the Energy Park and will result in a **Minor to Moderate Beneficial** effect on Badgers at a local level.

Bats

8.5.120 There is a small population of bats resident on the Energy Park Site and a small number of bats foraging, mainly along the larger drains. The cessation of intensive arable farming practices (particularly insecticide spraying) and reversion of the land to mosaic of permanent sheep-grazed grassland can be expected to result in increased numbers and diversity of invertebrates at the Energy Park Site, including prey species for the local and visiting population of bats.

8.5.121 There has been some concern raised that the presence of solar panels may have detrimental impacts on bats when echolocating, for instance by confusing solar panels for water bodies^{53 54 55}. Studies into this potential impact do not suggest that this would result in detrimental impacts on bat populations. However, one preliminary study found no beneficial effects on bat abundance within solar arrays compared to control sites⁵⁶).

8.5.122 Approximately 8.5km of new hedgerow planting of appropriate species is to be created at the Energy Park site. This will greatly improve the ability of bats to navigate around the Energy Park Site, as well as increasing foraging opportunities for this species.

8.5.123 Positive changes in habitat for bats is likely to increase the number of bats foraging on the site. However, there are a limited number of potential bat roosting locations within the Energy Park therefore potential to further increase the value of the Energy Park site for bats by the introduction of a bat boxes to increase the roosting opportunities. These should include a range designs for different species.

8.5.124 The noise from inverters or substations is considerably lower than frequency (Appendix 12.2 noise modelling (document ref: 6.3.12.2)) of typical bat echolocation calls 18,000 – 110,000 Hz and therefore have no effect on navigation or foraging bats.

8.5.125 Minimal lighting will be required during the operation of the Energy Park. There will be no need for permanent external lighting (maximum 30 lux) and all lighting will either be switched on manually and directed away from known or potential bat roost sites and away from identified foraging areas (permanently wet drains & ditches). The most frequently

⁵³ Taylor R (2014) Potential Ecological Impacts of Ground-Mounted Photovoltaic Solar Panels in the UK. An Introduction and Literature Review. BSG Ecology

⁵⁴ Horvath G, Blhau M, Egri A, Kriska G, Seres I & Roberston (2010) Reducing the maladaptive attractiveness of solar panels to polyaromatic insects. *Conservation Biology*, 24, 1644-1653

⁵⁵ Krista G, Csabal Z, Malik P, & Horvath G., 2006 Why do red and dark coloured cars lure aquatic insects? the attraction of water insects to car paintwork explained by reflection polarization signals. *Proceedings of the Royal Society B*, 283 1667-1671

⁵⁶ Montag H, Parker G, Clarkson T 2017 The effects of Solar Farms on Local biodiversity: A Comparative Study Clarkson and Woods and Wychwood Biodiversity ISBN: 978-1-5262-0223-9

recorded bat species, Common Pipistrelle, are generally tolerant of individual lights and are often recorded feeding on insect attracted to security lighting.

8.5.126 Overall, it is expected the operation of the Energy Park Site will be a minor to moderate beneficial effect for bat populations which will be **Significant** at a local level.

Breeding birds

8.5.127 The change from intensive arable land to a mosaic of grassland pasture, the removal of all Agri-chemical inputs. In 2021, according the landowner's farm records for the Energy Park Site the following was applied to the wheat crop: 272 tonnes of chemical fertiliser and 5,581 litres of Agri-chemicals and a change in the three dimensional structure of the land is likely to affect the number and diversity of birds breeding within the Energy Park. Although it is assumed that the Energy Park will reduce the number open habitat nesting species such as skylark there have been a limited number of studies on the effects of solar farms on breeding birds⁵⁷ It is likely that different avian species are likely to be affected differently by solar developments, dependant on the habitat within and around a solar PV development.

8.5.128 Shotton (2019)⁵⁸ found a significantly higher species richness of birds on solar farms compared to nearby controlled areas. Birds also showed a highly significant preference for the centre of solar farms rather than the margins. There was also a negative association between sward height in solar farms and the presence of birds suggesting that management of land within a solar farm may be a major factor in any changes in breeding birds.

8.5.129 Montag *et al* (2016)⁵⁹ completed a comparison of 11 solar farms with comparable control areas. Nine of these sites were managed using light sheep grazing. This study found a greater diversity of birds within solar farms compared to comparable control plots. Overall bird abundance was higher on solar farms than control plots (average of 47 verses an average 35) although the abundance of birds on solar farms compared to control areas was only statistically significant in two of the sites. Although the overall number of Skylark territories found on solar sites (26) was slight fewer than on the control sites (29) this variation was not statistically significant. There was evidence of a greater level of foraging by skylark within solar parks compared to control sites which was statistically significant on two sites. This study also found a significantly greater number of Birds of Conservation Concern (Red and Amber listed) within solar farms compared to control sites.

8.5.130 The change in the three-dimensional structure will reduce the area of open habitat for open nesting species but will also provide more singing locations for territorial defence of farmland birds species. Yellow Hammer, Corn Bunting and Skylark have all been recording singing perched on the top of solar panels ^{58,59}. For Skylark this may be a more energy efficient means of advertising and defending a territory that typical high flight song behaviour.

8.5.131 Where studied it has been found that solar farms have a high diversity of plant species as well as a higher abundance and diversity of invertebrates when compares to nearby comparable farmland⁵⁹). The anticipated boost in abundance and diversity of invertebrate prey species though management of the grassland within the 440ha fenced area of Energy Park, the 50ha of land sown with a nature conversation seed mix will boost the quality foraging habitat available to birds nesting in the surrounding arable farmland and is likely to increase their breeding success. Although Skylark are likely to continue to

⁵⁷ Harrison C., Lloyd H., & Field C., 2017 Evidence review of the impact of solar farms on birds, bats and general ecology DOI:10.13140/RG.2.2.24726.96325 Report NEER012 Natural England Manchester University

⁵⁸ Shotton 2019 The use of solar farms by farmland birds MSc Dissertation University of Worcester

⁵⁹ Montag H, Parker G, Clarkson T 2017 The effects of Solar Farms of Local biodiversity: A Comparative Study Clarkson and Woods and Wychwood Biodiversity ISBN: 978-1-5262-0223-9

nest within the Energy Park this may be at much lower density than within the current agricultural landscape. The grassland habitat within the Energy Park is likely to be of a high quality for foraging skylark. The area to the south and west of the Energy Park will now remain in agricultural use and could provide approximately 140 skylark plots. Overall, it is expected that there will be an increase in the diversity and number of breeding birds within and around the Energy Park resulting in a non-significant minor beneficial effect on the conservation status at a local level.

8.5.132 The introduction of vertical structures powerlines, particularly fencing, substation and energy storage facilities into the landscape could potentially increase the risk of bird collision. However, it is grouse species that are at highest risk from collision⁶⁰ (from fencing and built structure which are not present on this Energy Park site). The substation and energy storage facility will be located in the centre of the Energy Park and the overhead wires, considered in the PEIR, have now been removed from the design envelope and the grid connection over the South Forty Foot Drain will be directionally drilled beneath the drain, thereby minimising any collision risk.

Wintering birds

8.5.133 The change from intensive arable land to a mosaic of grassland pasture, removal of all Agri-chemical inputs and a change in the three-dimensional structure of the land is likely to have effect on the number and diversity of a range birds species wintering within the Energy Park site.

8.5.134 A number of other species that forage in large open arable fields during the winter were recorded including Rook, Carrion crow, Skylark, Starling, Wood Pigeon, Lapwing, Golden Plover, Black headed gull and Common gull. There is abundance of similar arable land present within a 5km radius of the Energy Park site and would likely have more than sufficient capacity to receive some increase in foraging pressure by these species resulting from the displacement from the Energy Park site. The cessation of intensive arable activities within the Energy Park site and reversion to a mosaic of grassland under a sheep-grazing management regime and the establishment of 8.5km of new hedgerow is likely to increase the invertebrate, seed and hedgerow fruits available to a wide range species which winter in the area. Therefore, it is considered that there would be no residual effect on the conservation status of the winter birds and the effect would be Neutral / Negligible and Not Significant.

Amphibians

8.5.135 The cessation of intensive agricultural practices is likely to be beneficial to any remnant amphibian populations and over time it is possible amphibians may recolonise the Energy Park site.

Reptiles

8.5.136 The cessation of intensive agricultural practices is likely to be beneficial to any remnant reptile populations and over time it is possible that the reptiles may recolonise the Energy Park site.

Invertebrates

8.5.137 The cessation of intensive arable farming practices (particularly insecticide spraying) and reverting the land to mosaic of grassland can be expected to result in an increased diversity and numbers of invertebrates at the Energy Park site. This includes a

⁶⁰ Baines , D., and Andrew, M., 2003 Marking of deer fences to reduce frequency of collisions by woodland grouse. Biological Conservation 110(2) 169-176

number of pollinating of butterfly and bee species which have been shown to have increased diversity and abundance in solar arrays compared to control plots (Montag *et al* 2016)⁵⁹. Given the large extent of grasslands habitat that will likely increase in quality, the operational impacts of the Energy Park site will have a significant beneficial effect on a range of invertebrates.

8.5.138 The Energy Park is 1.7km to the west of a Buglife B-line and there is a potential connection to it via a series of ditches and drains leading from the Skerth Drain to the B-line. The presence of an area of grassland important for invertebrates within the Energy Park site may result a future changes or diversion of the B-line to encourage other landowners to create invertebrate friendly habitats.

Decommissioning

8.5.139 The decommissioning of the Energy Park site is likely to occur in or around 2067. The operational life of the Scheme is to be 40 years. Decommissioning is expected to take in the region of 6-18 months and will be undertaken in phases.

8.5.140 It is expected that the effects of decommissioning of the Energy Park site will be similar to those during construction. However, it is likely that the overall nature conservation value of the area of Energy Park will be greater than the current intensive arable landscape. Based on the habitat to be created during the construction of the Energy Park it is likely that the return of the land to arable cultivation is likely to result in a decline in the overall nature conservation value of the Energy Park site. However, there is no guarantee what crops will be planted on the Energy Park site once the Energy Park is decommissioned. The choice of crop will be determined by the landowner, and this will depend on the climate, rainfall, government policy and global markets for crops at that time.

8.5.141 Whilst the broad habitat types created during construction are likely to be present in 2067 the ongoing effects of climate change are likely to result is some marked changes in the species present in the wider area by 2067. Therefore, a full pre-decommissioning survey will be required to full assess the potential effects of decommissioning on fauna and flora. It is the intention that the community orchard will remain on the Energy Park Site after decommissioning.

8.5.142 It is intended that after the 40-year operational life, the solar panels energy storage, and associated equipment will be removed from the Energy Park site. The substation extension at Bicker Fen is likely to remain once the Energy Park site is decommissioned. It is the intention that the off-site cables will be at a depth of over 1.5m. Therefore, it is expected that all cables will remain in place and will not need to be removed in the decommissioning process. Therefore, there will be no disturbance to the habitats from their removal.

8.5.143 At this time, there is limited detailed information known about the climate, habitat mix and species at the time of decommissioning. As the removal works are less instructive than the construction works the effects of removal of above ground equipment will be less that the installation. It is therefore reasonable to assume that the effect will temporary, minor and not significant.

8.5.144 However, it is proposed that prior to decommissioning new ecological surveys of the Energy Park Site are surveyed to understand the ecological baseline at that time.

8.6 IMPLICATIONS OF CLIMATE CHANGE

8.6.1 The UK Climate Change Projections 2018 (UKCP18)⁶¹ project the following:

- temperatures are projected to increase, particularly in summer;
- winter rainfall is projected to increase and summer rainfall is most likely to decrease;
- heavy rain days (rainfall greater than 25mm) are projected to increase, particularly in winter;
- near surface wind speeds are expected to increase in the second half of the 21st century with winter months experiencing more significant effects of winds; however, the increase in wind speeds is projected to be modest; and
- the frequency of winter storms over the UK is projected to increase.

8.6.2 The projected increases in summer temperatures over the life span of the project (40 years) are likely to lead to lower water levels in the drains within the Energy Park site during the summer months which may have a negative effect on aquatic plants within the ditches.

8.6.3 The predicted increase in summer temperature and potentially increased abundance in flying invertebrates may benefit insectivore birds and may benefit bats present and foraging with the area. Badgers’ primary food source is various species of worms therefore increased summer temperature and longer periods of dry ground may degrade the quality of suitable foraging habitat for badgers. Young European Hare (leverets) which are left by their mothers in small depressions above ground from birth may benefit from warmer dryer spring and summer weather result in higher survival rates to adult.

8.6.4 An increase in heavy spring and summer rainstorms could have a negative effect on some species particularly ground nesting birds and potentially leverets in open fields. Increased winter rainfall may increase water level with ditches which may result in inundation of a number of the outlying badger setts where the entrance is below the top of the ditch banks.

8.7 MITIGATION AND ENHANCEMENT

Mitigation by Design

8.7.1 The design of the Energy Park has included a stand-off of at least 9m from all IDB watercourses and 8m from all other ditches to minimise the risk to water vole should they recolonise the area and to allow the ongoing management of drainage ditches to ensure the long-term maintenance and enhancement of the quality of the soil with the Energy Park Site.

8.7.2 Approximately 8.5km of new hedgerow will be planted around the Energy Park Site. The locations of these new hedgerows can be seen on Figure 4.1e (document ref: 6.2.4). These hedgerows will offer landscape screening but will also offer new areas of habitat and feeding grounds for local wildlife. An area of 2.15ha will be planted up as a community orchard. This will be maintained as meadow grassland underneath.

8.7.3 The Off-Site Grid Connection to Bicker Fen Substation will be underground and where required to cross key obstacles, such as the South Forty Foot Drain it will be directionally drilled under the feature.

⁶¹ UK Climate Projections 2018 (UKCP18) Met Office

Additional Mitigation

8.7.4 An Outline CEMP (document reference 7.8) has been submitted with the Application and is secured by DCO requirement (document reference 3.1). The Outline CEMP details the measures required to minimise the dust deposition and run-off which may affect the boundary habitats. This will include how dust-generating activities will be avoided, ensuring stockpiles of spoil and site materials will be stored away from field boundaries, restrictions on working during periods of heavy rain and the installation of silt fencing and/or temporary drainage channels if necessary.

- The Outline CEMP (document reference 7.8) also includes protection measures for European Hare during the construction of the Energy Park and associated infrastructure within the Off-site Grid Connection to Bicker Fen Substation includes:
- Habitat manipulation to create suitable habitat for European hare outside construction prior to commencement;
- Habitat manipulation to minimise suitability for Brown hare in construction area prior to each phase on construction;
- The provision of ramps into any open excavations to allow any Brown hare (particularly leverets that have fallen in to escape);
- Contractor training and induction to ensure awareness and care during installation of solar arrays and associated infrastructure;
- Adopting a speed limit of 10mph across the Application Site to reduce the possibility of incidental mortality; and
- Any hares encountered during works should be allowed to move away of works.

8.7.5 Mitigation measures and protection measures for badger setts during the installation of the Energy Park and associated infrastructure include:

- Prior to each stage of construction, a badger survey will be conducted sufficient time for appropriate mitigation measure to be in place where there is a potential for disturbance;
- The creation of construction exclusion zones delineated by Heras fencing where appropriate to control direct impacts to setts;
- If necessary licenced temporary closure of a sett or licenced works within an agreed distance from the sett; and
- To prevent badgers and other mammals from becoming trapped the provision of ramps into any open excavations to allow any badger (or other mammals) that have fallen in to escape.

8.7.6 Standard Practice to avoid impacts to nesting birds during works, including disturbance to Schedule 1 species nesting in building, include:

- Appropriate timing of clearance works (i.e., outside of the breeding season between October and February inclusive; and pre-clearance nesting bird checks if required);
- In the event that any active bird nests would be impacted by clearance/installation works, it would be necessary to defer works within a minimum 5m radius of the nest until the nest is no longer active; and
- Access to buildings on the Energy Park Site will be prevented by fencing to avoid accidental disturbance to nesting schedule 1 species.

Table 8.7: Proposed mitigation measures

Ref	Measure to avoid, reduce or manage any adverse effects and/or to deliver beneficial effects	How measure would be secured	
		By Design	By DCO Requirement
1	Enhancement of the area for biodiversity to deliver beneficial effects	X	
2	Prevention of damage to habitats during construction through implementation of Construction Environmental Management Plan (CEMP)		X
3	Prevention of disturbance or risk of injury of mortality to species during construction through implementation of a CEMP		X
4	Ongoing management to deliver biodiversity net gains through Landscape and Environmental Management Plan (LEMP)		X

Enhancements

8.7.7 The Energy Park has been designed to enhance the overall Biodiversity value of the land in order to minimise the need for mitigation to be subsequently included in the design of the Energy Park.

8.7.8 The intensive arable agriculture within the fields will be returned to grass pasture to be grazed by local sheep flocks at low density once the Energy Park is operational. The areas will be re-seeded prior to construction with a drought resistant seed mix suitable for sheep grazing with no additional fertilizers within the fenced area of the Energy Park being used. This area is approximately 435ha.

8.7.9 The areas outside the Energy Park between the security fencing and an area through the centre and the small area to the north of the Energy Park Site will be managed as conservation grassland and set aside primarily for nature conservation. These will be seeded with suitable flower rich seed mix and managed to create a lowland meadow to provide habitat for insects and pollinators as well as nesting farmland birds and foraging habitat for birds and mammals. Large amounts of fertiliser have been applied to this land over its years in agricultural production and it is recognised that in the first few years these grassland may be encroached by various arable weed and dominant grass species. However, without the addition of fertiliser, hay harvest and grazing the nutrient level of the soils will rapidly decrease. Subsequently over seeding with species rich seed mixes may then be required which will be determined by the results of ongoing monitoring of the Energy Park Site.

8.7.10 The creation of large mosaic of grassland combined with the cessation of the use of fertiliser and Agri-chemicals will have a significant, positive beneficial effect on the diversity of the flora and the abundance and diversity of invertebrates within the Energy Park Site.

8.7.11 An area of approximately 2.15ha will be developed as a community orchard with a species rich meadow beneath. It is proposed that this will be planted with a range of traditional Lincolnshire varieties which flower at different times through the season to provide pollen and nectar over a longer period. Fallen fruit will also provide food resource for a range of overwintering birds, particularly song thrushes, mistle thrush, redwing and fieldfare which will also benefit from the additional 8.5km of new hedgerow. A range of

traditional Lincolnshire varieties are potentially available from the East of England Apples Project and their members. Selected varieties can then be grafted onto suitable rootstock in sufficient time for planting to ensure successful establishment.

8.7.12 The changes in habitat within the Energy Park are likely to increase the number of bats foraging on the site. However, there are a limited number of bats roosting locations within the Energy Park therefore potential to further increase the value of the Energy Park site for bats by the introduction of a bat boxes to increase the roosting opportunities.

8.7.13 It is proposed that a range of bat boxes are introduced for a variety of different species. These would include bats boxes suitable for pipistrelle and myotis species, Barbastelle and larger bats such as Noctule and Leslier's bats. These will be made of long lasting materials and installed in suitable trees within the four woodland plantations.

8.7.14 There is also potential to introduce bird nesting boxes in suitable locations. These could include nest boxes for barn owl as well as kestrel.

8.8 CUMULATIVE AND IN-COMBINATION EFFECTS

8.8.1 There are 12 proposed solar developments, a reservoir, an offshore wind farm cable (for the generating station) and the Boston Alternative Energy Facility, which could potentially result in cumulative effects of the nature conservation and ornithology within the Region. These are listed in Chapter 2 of this ES (document reference 6.1.2). Cumulative effects on biodiversity can occur when nearby development causes significant change in the nature conservation value of the local ecology and in combination may cause cumulative effects e.g. removing the majority of a particular habitat in an area or removing alternative foraging or breeding habitat for a particular species or creating a new area of habitat which in combination may create sufficient new habitat to allow a particular species to expand its range and the population to increase.

8.8.2 The dominant habitat within this region is arable farmland. Overall these other developments, combined with Heckington Fen will cover just some 6,923a which represent 1.5% of farmland habitat in Lincolnshire (based on latest available data for individual projects at time of writing). Four of the solar sites overlap neighbouring county boundaries reducing the percentage of Lincolnshire farmland habitat. In EIA terms the loss of such a small percentage of farmland habitat, without mitigation or enhancements, would be considered as negligible and Not Significant. Within the scoping documents, PEIR or EIA documents associated with each of these proposed solar developments it is stated that they will provide sufficient mitigation and or enhancements to ensure there are no significant effects individually. Those which are yet to be determined will also be seeking to achieve a 10% BNG for ecology within their site design.

8.8.3 The State of Nature Report which highlights the changing status of nature in the UK, identifies intensive agriculture and climate changes as the most important pressures on wildlife in the UK today (The State of Nature partnership 2019). When considering only the cumulative solar schemes, these could create 6,848ha of low intensity, managed grassland, which could be regarded as a significant biodiversity gain although in comparison to the total area of intensively managed farmland still remaining within Lincolnshire, the change may still be considered as negligible and not significant.

8.8.4 The conversion of 6,373ha to permanent grassland for 40 years will reduce the run-off of agri-chemicals and soils into the drainage system and eventually into The Wash and Humber Estuary SPA/SAC sites. This could amount to between 25,492 and 76,476 tonnes of soils assuming a 40-year lifetime of these solar projects. However, in comparison to the amount of run off of agrochemicals and soil loss from the whole of the Wash's catchment, this saving remains to be insignificant.

8.8.5 The construction of the Energy Park and Off-Site Grid Connection and extension to the substation at Bicker Fen is likely to take place in 2025-2027. This will not overlap with the construction period of the Viking Link or Triton Knoll grid connections. Therefore, there will be no cumulative effects on ecology or ornithology from the construction work of these two major infrastructure projects.

8.9 SUMMARY

Introduction

8.9.1 This chapter has identified and assessed the potential impacts effects of the proposed development of a 524ha Energy Park and Off-Site Grid Route Corridor and Substation Extension at the National Grid Bicker Fen Substation on ecology, ornithology and nature conservation value during construction, operation, and decommissioning.

8.9.2 Habitat and protected species surveys have been completed on the Energy Park site the Cable Route Corridor including at Bicker Fen Substation.

8.9.3 This chapter provides an assessment of the potential direct and indirect effects on nature conservation designations, important habitats and protected species. It considers avoidance design measures, mitigation, management activities to minimise any potential effects and potential enhancements.

Baseline Conditions

8.9.4 The Energy Park and associated Off-Site Grid Connection will be situated within an intensively farmed landscape of low nature conservation value. The substation extension is within the National Grid land boundary, alongside the existing Bicker Fen Substation. The large fields associated with the remainder of the Proposed Development are divided by wet ditches and Internal Drainage Board managed watercourses. There are no sites of international, national or local importance within or adjacent to the Energy Park Site. There is one Local Wildlife Site (The South Forty Foot Drain) along the route of the Off-Site Grid Connection. The Wash SPA is approximately 15km from the Proposed Development. The data searches did not reveal the presence of any protected species within the Energy Park. There are records of otter from the South Forty Foot Drain. There are no records of Water Vole within 15m of the Proposed Development from the last two years.

8.9.5 There are limited number of gappy species poor hedgerows on the Energy Park Site, and a small number trees mainly restricted to plantation woodlands and small number of isolated tree The wet drainage ditches provide potentially suitable habitats for Water Vole but no evidence of their use by these species was found on the Proposed Development Area. There drainage ditches within the Energy Park are suitable habitat for otter but no evidence of otter was recorded within this area. There is an active Badger population within the Energy Park Site but not along the Off-Site Grid Connection Route. There are a number of common farmland birds using the Energy Park Site. Two species of birds that contribute to the Wash SPA were found wintering in the area including a small flock of pink-footed geese feeding on one section of Grid Connection route. There is a small bat roost in derelict farm building in the centre of the site (outside the Order limits). There was a low level of bat actively recorded across the site of up 12 species although majority of bat activity was by Common pipistrelle. The trees in the woodland onsite are of insufficient age to provide suitable roots site for bats or nest sites for hole nesting birds. There were no rare arable plant recorded within the Proposed Development area and typical and common aquatic plants within the wet ditches through the Proposed Development Area.

Likely Significant Effects

8.9.6 During construction of the Energy Park there is a risk of dust deposit or silt runoff or disturbance to boundary habitat, woodlands, ponds, and wetlands. There also disturbance to wintering birds, nesting birds, European Hare, and Badger during construction.

Mitigation and Enhancement

8.9.7 The initial design and construction methods will ensure negative effects are minimised from the outset. The initial design of the Energy Park ensured a 9m stand off from all IDB watercourses and 8m from all other drains (to the fenceline) which will ensure protection of water vole should they re-colonise the Energy Park Site and minimise the risk of silt run-off during construction. Directional drilling under the South Forty Foot Drain will ensure no negative effects on the Local Wildlife Site.

8.9.8 The design also includes the creation of 68.8ha of species rich grasslands and 2.15ha of traditional orchard managed specifically for nature conservation, within the Energy Park Site. These high quality grassland will be managed to maximise their value for ground nesting farmland birds, bees, butterfly and other invertebrates. These grasslands will also provide extensive foraging habitat for European Hare and Badger.

8.9.9 A number bat roost boxes of different designs will be placed at appropriate locations around the Energy Park.

8.9.10 Beneath the solar panels 440ha of intensive arable farmland will be converted to sheep pasture. The conversion of the land from intensive arable to grass pasture will reduce the runoff of Agri-chemicals and topsoil into in the Wash SPA/SAC/SSSI via the drainage network. There will be an overall significant residual, locally beneficial effect on biodiversity of area. The preliminary Net Biodiversity Gain calculation estimated a net gain of over 10%

8.9.11 The implementation of a comprehensive Construction and Environmental Management Plan (CEMP) will ensure there is no accidental damage to any hedgerow, woodland or watercourses during construction. The implementation of this CEMP will ensure there is no significant disturbance or risk of injury or mortality of breeding farmland birds, disturbance to wintering wetland birds or disturbance and risk of injury to Bats, Badger or European Hare.

Cumulative and In-Combination Effects

8.9.12 A review and assessment of other renewable projects in the area has identified no significant cumulative negative effects. Intensive agriculture and climate change have been identified by the UK State of Nature Report as the most significant pressure on wildlife in the UK today. The creation of large areas of renewable energy generation and large area of species rich grassland is likely to lead to a net biodiversity gain of over 10%.

Conclusion

8.9.13 The majority of the land is considered to be of low nature conservation value. Any temporary disturbance or risk of harm can be minimised through the implementation of a comprehensive CEMP. The initial design of Energy Park and on-going management will ensure that there is an overall biodiversity gain.

Table 8.8: Summary of Potential Cumulative Sites and their Potential Cumulative Effects

Details of Cumulative Schemes								
No.	Name of Scheme	LPA	NSIP	Reference	Size	Distance from Site	Area (ha)	Potential Cumulative Effect
1	Vicarage Drove-Approved (Solar farm)	Boston Borough	No	B/21/0443	49.9MW	c. 4.5km south of the Energy Park Site at its closest point but adjacent to the proposed extension to the substation at Bicker Fen	80	No – The Applicant for the development has provided sufficient mitigation on the site and no significant impacts have been reported
14	Land at Little Hale Fen-Screening (Solar farm)	North Kesteven	No	21/1337/EIASCR	49.9MW	c. 4.6km north-east of the Energy Park Site at its closest point	80	No – The applicant states that overall, it is considered that the proposed development would not have any significant adverse effects on biodiversity and that there is potential for net biodiversity gains as a result of taking the land out of intensive arable production and managing the areas under and around the solar panels for habitat benefits.
13	Land at Ewerby Thorpe-Screening (Solar farm)	North Kesteven	No	14/1034/EIASCR	28MW	c. 4.1km north-west of the Energy Park Site at its closest point	73	No - Overall, it is considered that the proposed development would not have any significant adverse effects on biodiversity and that there is potential for net biodiversity gains as a result of taking the land out of intensive arable production and managing the areas under and around the solar panels for habitat benefits.

Details of Cumulative Schemes								
No.	Name of Scheme	LPA	NSIP	Reference	Size	Distance from Site	Area (ha)	Potential Cumulative Effect
3	Land to the North of White Cross Lane- Approved (Solar farm)	North Kesteven	No	19/0863/FUL	32MW	c. 8.4km west of the Energy Park Site at its closest point	20	No- Overall the development would not having any significant effects on biodiversity. There is a comprehensive LEMP. There will be a predicted Biodiversity Net Gain of 12.12% increase in habitat and 72.18% in hedgerow units.
4	Land South of Gorse Lane, Silk Willoughby- Approved. (Solar farm)	North Kesteven	No	19/0060/FUL	20MW	c. 11km west of the Energy Park Site at its closest point	70	No- Overall the development would not have any significant effects on biodiversity. There is a comprehensive LEMP.
2	Land West of Cowbridge Road, Bicker Fen, Boston- Full Planning Application awaiting decision (Energy from waste)	Boston Borough Council & South Holland	No	B/22/0356 H04-0849-22	49.8MW	c. 5.3km south of the Energy Park Site at its closest point to main site, but adjacent to the site boundary cable route	97.3	No - Overall the development would not have any significant effects on biodiversity and there will be no commutative negative ecological effects.
10	Cottam Solar Project – Scoped (Solar farm)	PINS to determine. Falls in administrative areas- Nottinghamshire, Lincolnshire County, Bassetlaw District and West Lindsey	Yes	EN010133	50MW + (NSIP)	c. 43.6km north-west of the Energy Park Site at its closest point	1150	Although a large site this is a significant distance from the Heckington Fen Application Site and it is highly unlikely to create a cumulative impact particularly as the Applicant has stated that the development has provided sufficient mitigation on their site and no significant impacts have been reported.

Details of Cumulative Schemes								
No.	Name of Scheme	LPA	NSIP	Reference	Size	Distance from Site	Area (ha)	Potential Cumulative Effect
12	Gate Burton Energy Park - - Statutory Consultation	PINS to determine. Falls in administrative areas- Nottinghamshire, Lincolnshire County, Bassetlaw District and West Lindsey	Yes	EN010131	50MW + (NSIP)	c.48.6km north-west of the Energy Park Site at its closest point	684	Although a large site this is a significant distance from the Heckington Fen Application Site and it is highly unlikely to create a cumulative impact particularly as the Applicant for the development has provided sufficient mitigation on their site and no significant impacts have been reported
9	West Burton Solar Project - Scoped	PINS to determine. Falls in administrative areas- Nottinghamshire, Lincolnshire County, Bassetlaw District and West Lindsey	Yes	EN010132	50MW + (NSIP)	c.41.3km north-west of the Energy Park Site at its closest point	1050	Although a large site this is a significant distance from the Heckington Fen Application Site and it highly unlikely to create a cumulative impact particularly if the Applicant for the development has provided sufficient mitigation on their site and no significant impacts have been reported.
6	Mallard Pass Solar Farm - Statutory Consultation	PINS to determine. Falls in administrative areas- Rutland County and South Kesteven	Yes	EN010127	50MW + (NSIP)	c.33.2km south-west of the Energy Park Site at its closest point	852	Although a large site this is a significant distance from the Heckington Fen Application Site and it highly unlikely to create a cumulative impact particularly if the Applicant for the development has provided sufficient mitigation on their site and no significant impacts have been reported.
8	Temple Oaks (Solar farm)	PINS to determine. Falls in administrative areas - South Kesteven, North	Yes	EN010126	50MW + (NSIP)	c.18.4 km south-west of the Energy Park Site at its closest point	692	Although a large site this is a significant distance from the Heckington Fen Application Site and it highly unlikely to create a cumulative impact . Natural

Details of Cumulative Schemes								
No.	Name of Scheme	LPA	NSIP	Reference	Size	Distance from Site	Area (ha)	Potential Cumulative Effect
		Kesteven, Boston Borough, South Holland.						England has stated that they have no nature conservation concerns about this proposed development site and no significant impacts have been reported.
5	Boston Alternative Energy Facility	PINS to be determined. Falls within the administrative area of Boston Borough	Yes	EN010095	50MW + (NSIP)	c. 11.7km west of the Energy Park Site at its closest point	26.8	This is significant development adjacent to the Wash SPA/SAC. There will be no cumulative effects in terms of silt run off and pollution into the Wash SPA/SAC.
11	Tillbridge Solar Project	PINS to be determined. Falls within administrative areas of Bassetlaw and West Lindsey District Council	Yes	EN010142	50MW + (NSIP)	c. 47.9km north-west of the Energy Park Site at its closest point	1000	Although a large site this is a significant distance from the Heckington Fen Application Site and it is highly unlikely to create a cumulative impact.
7	Outer Dowsing Offshore Wind (Generating Station)	Various including Boston Borough, PINS will determine	Yes	EN010130	50MW + (NSIP)	c. 390m east to the onshore scoping boundary for indicative grid connection search area	24 - generating station	No - the onshore element of the offshore wind farm will not result in cumulative effect.
15	South Lincolnshire Reservoir	Currently unregistered application, PINS will determine.	Yes	TBC	Up to 1.5GW	c. 7.7km west of the Energy Park Site at its closest point	500	The proposed reservoir is likely to increase the nature conservation value of the farmed landscape and may complement the nature conservation enhancements proposed within the Heckington Fen Energy Park.

Table 8.9: Summary of Effects, Mitigation and Residual Effects

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
Construction Energy Park								
Boundary habitat	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Boundary habitat	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Ponds and wetlands	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Ponds and wetlands	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Woodland	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Woodland	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Badger	Disturbance during construction	Temporary	N/A	N/A	Local	Minor-Moderate adverse	Compliance with CEMP to ensure no disturbance which may include licenced temporary sett closure	Not significant
European Hare	Disturbance, injury or mortality during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with guidance in CEMP	Not significant

ENVIRONMENTAL STATEMENT

8. Ecology and Ornithology

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects *****
							and specific working practices	
Breeding birds	Disturbance, injury or mortality during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with guidance in CEMP and specific working practices	Not significant
Aquatic plants	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with guidance in CEMP and specific working practices	Not significant
Construction of off-site Grid Connection and substation extension at Bicker Fen								
Non Statutory designed sites: South Forty Foot Drain	Permanent damage and creation collision risk to birds	Permanent	N/A	N/A	Local	Minor – moderate adverse	Placing grid connection beneath the South Forty Foot Drain	Not significant
Non Statutory designed sites: South Forty Foot Drain	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with guidance in CEMP and specific working practices	Not significant
Boundary habitat	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Boundary habitat	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Ponds and wetlands	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant

ENVIRONMENTAL STATEMENT

8. Ecology and Ornithology

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects *****
Ponds and wetlands	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Woodland	Damage or disturbance during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Woodland	Dust deposit or silt runoff during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP to ensure no damage	Not significant
Badger	Disturbance during construction	Temporary	N/A	N/A	Local	Minor-Moderate adverse	Compliance with CEMP to ensure no disturbance which may include licenced temporary sett closure	Not significant
European Hare	Disturbance, injury or mortality during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP and specific working practices	Not significant
Breeding birds	Disturbance, injury or mortality during construction	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP and specific working practices	Not significant
Wintering birds	Disturbance of feeding geese	Temporary	N/A	N/A	Local	Minor adverse	Compliance with CEMP and specific working practices	Not significant
Wintering birds	Permanent damage and creation of collision risk to birds from over ground cables	Permanent	N/A	N/A	Local	Minor – moderate adverse	Placing grid connection beneath the South Forty Foot Drain	Not significant

ENVIRONMENTAL STATEMENT

8. Ecology and Ornithology

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
Operation of Energy Park								
The Wash SPA / Ramsar Site	Reduction in silt and agri-chemical inflow into The Wash SPA	Temporary but for the lifespan of the Energy Park	N/A	N/A	Internationally important	Minor beneficial	N/A	Not significant
Grasslands	Increase in area of grasslands	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Moderate beneficial	N/A	Significant at local level
Boundary habitat	Increase in the length of boundary habitat	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Moderate beneficial	N/A	Significant at local level
European Hare	Increase in area of grasslands	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Moderate beneficial	N/A	Significant at local level
Badger	Increase in area of grasslands	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Minor beneficial	N/A	Significant at local level
Bats	Increase in area of grasslands	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Minor beneficial	N/A	Significant at local level
Breeding Birds	Increase in area of grasslands	Temporary but for the lifespan of the Energy Park	N/A	N/A	Local	Minor beneficial	N/A	Significant at local level
Invertebrates	Cessation of intensive arable	Temporary but for the lifespan	N/A	N/A	Local	Minor beneficial	N/A	Significant at local level

ENVIRONMENTAL STATEMENT

8. Ecology and Ornithology

Receptor/ Receiving Environment	Description of Effect	Nature of Effect *	Sensitivity Value **	Magnitude of Effect **	Geographical Importance ***	Significance of Effects ****	Mitigation/ Enhancement Measures	Residual Effects ****
	farming. Increase in area of grasslands.	of the Energy Park						
Operation of off-site Cable Route and Extension to Bicker Fen substation								
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cumulative and In-combination								
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning								
The Wash SPA/ Ramsar Site	Increase in silt and agrochemical inflow into The Wash SPA as intensive farming practices commence on the Energy Park Site	Permanent	N/A	N/A	Internationally important	Minor adverse	N/A	Not significant
Invertebrates	Commencement of intensive arable farming. Decrease in area of grasslands	Permanent	N/A	N/A	Local	Minor adverse	N/A	Significant at local level