Heckington Fen Solar Park

ENO10123

Environmental Statement | Volume 3: Technical Appendices

Appendix 8.1: Preliminary Ecological Appraisal

Applicant: Ecotricity (Heck Fen Solar) Limited

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February 2023

Planning Act 2008

APPENDIX 8.1: PRELIMINARY ECOLOGICAL APPRAISAL

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1 INTRODUCTION

1.1 INTRODUCTION

1.1.1 This Preliminary Ecological Appraisal (PEA) has be developed in relation to a DCO application 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 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.

1.1.2 The PEA methodology was used to identify whether there are known or potential ecological receptors (nature conservation designations, protected and notable habitats and species and scheduled invasive non-native species) that may constrain or influence the design and implementation of the Proposed Development. The PEA provides preliminary high-level guidance of the ecological risks and opportunities associated with the Proposed Development. The report identifies the scope of further work (where necessary) that are required to support the DCO application and to inform an Ecological Impact Assessment (EcIA). Preliminary high-level recommendations are made on potential options for the avoidance, mitigation, or compensation of the potential impacts of the Proposed Development (where known) on the identified ecological receptors and of potential enhancements to the biodiversity to achieve an overall gain. The PEA report was not included in the PEIR as it was an internal working document. However, it was requested by North Kesteven District Council in response to the Statutory Consultation.

1.1.3 As this PEA is a working document from when the PEIR was submitted to PINS and other statutory consultancies the findings of the additional assessments completed due to the PEA recommendations are not included in this report. Instead, the additional surveys are referenced when completed and included within the planning submission.

1.2 PRELIMINARY ECOLOGICAL APPRAISAL

1.2.1 Preliminary Ecological Appraisal (PEA) is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence in relation to a specific project (usually a proposed development)). Methods for achieving this are set out in CIEEM (2017) and are adhered to in this report. The key objectives of a PEA are to:

- identify and categorise habitats present within the Order limits and any areas immediately adjacent to them where there may be potential for direct or indirect effects (the "zone of influence").
- carry out an appraisal of the potential of the habitats recorded to support protected or notable species of fauna and flora;
- identify the likely ecological constraints associated with a project;
- identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy' (Avoidance, Minimisation, Rehabilitation/restoration, and Offset);
- identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- identify the opportunities offered by a project to deliver ecological enhancement.

1.2.2 The primary audience for a PEA is the client or developer and relevant members of the project team, such as the architect, planning consultant, and landscape architect. It is normally produced to inform a developer and their design team, about the key

ecological constraints and opportunities associated with a project, possible mitigation requirements and any detailed further surveys required to inform an Ecological Impact Assessment (EcIA).

1.2.3 This PEA was prepared by Dr Simon Pickering initially internal report for the Ecotricity/Pegasus EIA team to guide what further surveys and assessment were required. Dr Simon Pickering a professional ecologist with over 40 years' experience of ecological field surveys and training ecological field skills. Principal Ecologist at Ecotricity since 2008. He is responsible for overseeing the ecological assessment process for renewable energy as well as other development projects for the company and has experience of writing over 30 Ecological Impact Assessments (EcIA) and acting as expert witness at public inquiries.

1.2.4 Under normal circumstances it is not appropriate to submit a PEA in support of a planning application because the scope of a PEA is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species (CIEEM 2017). However, this has been requested by North Kesteven District Council and has therefore been included.

1.2.5 The PEA comprised of a Desk Study, an Extended Phase 1 Habitat Survey and further walk over surveys; the results of which were used to assess the value of habitats present within the Proposed Development and the likely presence of notable or protected species which would need to be considered with regard to the proposals.

1.2.6 Recommendations have been made, based on these findings, for further surveys, design of the development to avoid negatives effects, mitigation measures that should be implemented to protect valuable habitats/species during the course of the works proposed and also for enhancements that could be implemented to maintain and/or increase the biodiversity of the Proposed Development.

1.3 DESCRIPTION OF THE DEVELOPMENT

1.3.1 The Proposed Development originally incorporated approximately 586ha of land at East Heckington. The area where the Energy Park is proposed was subject to approval for 22 wind turbines in 2013. The Energy Park boundary has reduced for the submission of the Development Consent Order (DCO) to 524ha following the removal of areas to the south and west to remain in arable agriculture. An area of 120ha is required to facilitate the laying and accessing of the Off-site Cable Route Corridor to Bicker Fen Substation some 5.5km to the south of the Energy Park (as the crow flies). The Proposed Development is likely to include the following infrastructure (summarised below – further details are available in Chapter 4 - Proposed Development (document reference 6.1.4)):

- 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 spacing between panels could be approximately 3-5m;
- The land beneath the solar panels will be turned from intensive arable cultivation to sheep pasture and areas of species conservation grasslands;
- Inverters (could be central or string);
- Transformers;

- Onsite cabling underground;
- Off-site underground cabling to connect the Energy Park Site to National Grid Bicker Fen Substation;
- Fencing and security measures;
- Access tracks and construction of a new access point onto the highway (A17);
- Tanks and lagoon (included as worse case);
- Community orchard (public access by arrangement);
- An electrical compound comprising:
    - An energy storage facility - an area of 5.3ha is set aside for this element of the Energy Park Development in one location, with a maximum height of 6m;
    - A central substation- an area of 3ha is required with the main components contained within a compound 185m x 110m x 15m high– a wider 6.6ha is included as a working area including welfare and potential lagoon);
    - Substation Control Building measuring 12m x 5m x 4m and a Central Control Building measuring 20m x 10m x 4m.
- Equipment facilitating electrical connection at the National Grid Bicker Fen Substation.

1.4 SITE DESCRIPTION

1.4.1 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 limited to four small plantation woodland blocks and one line of trees within the centre of the Energy Park.

1.4.2 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.

1.4.3 The works at National Grid Bicker Fen Substation will include an extension to the existing substation in the south-west corner. The extension will facilitate electrical infrastructure including bus-bars, disconnectors, circuit breaker, earth switch, cable sealing ends, control building and necessary security and access requirements.

1.5 LEGISLATION AND POLICY CONTEXT

Legislative Context

1.5.1 The following wildlife legislation was considered when undertaking this PEA:

- Wildlife and Countryside Act (WCA) 1981 (as amended);
- Countryside and Rights of Way (CRoW) Act 2000;
- Natural Environment and Rural Communities (NERC) Act 2006;
- The Conservation of Habitats & Species Regulations 2017 (as amended) (the Habitats Regulations) (Ref 7-6) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- The Protection of Badgers Act 1992;
- The Hedgerow Regulations 1997;

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017;
- Invasive Alien Species (Enforcement and Permitting) Order 2019; and
- The Environment Act 2021.

1.5.2 Compliance with the above legislation may require the attainment of relevant protected species licences prior to the implementation of the Proposed Development.

Planning Policy

National Policy Statement

1.5.3 The Overarching National Policy Statement for Energy (EN-1)[1], National Policy Statement for Renewable Energy Infrastructure (EN-3)[2] National Policy Statement for Electricity Networks Infrastructure (EN-5)[3] 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 (EN1) 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.

1.5.4 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.

National Planning Policy Framework (NPPF)

1.5.5 The National Planning Policy Framework (NPPF)[4] 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.

[1] Overarching National Policy Statement for Energy (EN-1) dated July 2011, available at https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[2] National Policy Statement for Renewable Energy Infrastructure (EN-3) dated July 2011, available at https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[3] National Policy Statement for Electricity Networks Infrastructure (EN-5) dated July 2011, available at https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[4] National Planning Policy Framework (NPPF) dated July 2021, available at https://www.gov.uk/government/publications/national-planning-policy-framework--2

1.5.6 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.

1.5.7 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

1.5.8 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.

1.5.9 The Energy Park is within the area covered by The Central Lincolnshire Local Plan 2012-2036[5] 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. The Off-site Grid Connection route is covered by the South East Lincolnshire Local Plan[6].

1.5.10 The key policy in the current local and emerging local plan for the Energy Park (2017 Central Lincolnshire Local Plan) is Policy LP21 Biodiversity and Geodiversity and in Central Lincolnshire Local Plan Review Proposed Submission it is S60 Protecting Biodiversity and Geodiversity, Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains. The relevant local plan policy in the South East Lincolnshire Local Plan 2011-36 is Policy 28: The Natural Environment.

2 METHODS

Desk Study

2.1.1 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 WCA; Schedules 2 and 4 of the Habitats Regulations; species and habitats of principal importance for nature conservation in England listed under Section 41 (S41) of the NERC Act; and other species that are Nationally Rare, Nationally Scarce or listed in national or local Red Data Lists and Biodiversity Action Plans.

2.1.2 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.

2.1.3 The Lincolnshire Environmental Records Centre (LERC) was used to gain information on pre-existing ecological information (i.e. location of LWSs, records of

[5] The Central Lincolnshire Local Plan 2012-2036 dated April 2017, available at https://www.n-kesteven.gov.uk/central-lincolnshire/adopted-local-plan-2017/

[6] South East Lincolnshire Local Plan dated March 2019, available at [redacted]

protected and notable species and habitats within 5km 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.

2.1.4 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)[8] website for details of SACs and SPAs, including site information and designation details; and
- National Biodiversity Network (NBN) Gateway[9] for details on any protected and/or notable species.
- Google Earth pro[10] and Ordnance Survey[11] online mapping to assess habitat that require further survey and ground truthing

2.1.5 The desk study was combined with 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[12]. Whilst the data from these earlier survey 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[13] and Viking Link ecological surveys[14].

3 FIELD SURVEY

3.1 SURVEYS

Field surveys

3.1.1 The Extended Phase 1 survey was carried out on behalf of the Applicant by Ecologist Neil Bostock MIEEM. The Phase 1 Habitat survey followed the standard method 'Handbook for Phase 1 habitat survey: A technique for environmental audit' (JNCC, 2010)[15]. The survey was conducted on four dates between 18th and 23rd 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.

3.1.2 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), which define the zone of influence as: "*…the area over which biodiversity features may be affected by biophysical changes as a result of the*

[7] Multi-Agency Geographic Information Centre, available at https://magic.defra.gov.uk/
[8] Joint Nature Conservation Committee, available at https://jncc.gov.uk/
[9] NBN Gateway, available at [redacted]
[10] Google Earth pro, available at [redacted]
[11] Ordnance Survey, available at [redacted]
[12] Heckington Fen Wind Park, available at: [redacted]
[13] Triton Knoll Electrical System,available at: https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/triton-knoll-electrical-system/?ipcsection=docs
[14] Viking Link, available at:[redacted]
[15] JNCC, (2010), Handbook for Phase 1 habitat survey – a technique for environmental audit, JNCC, Peterborough, ISBN 0 86139 636 7.

proposed project and associated activities." Field surveys were then undertaken to characterise the ecological baseline within the relevant Survey Areas present.

Limitation to the Assessment

3.1.3 Although best practice was followed for the field surveys, some the species in question are secretive animals and it possible that some field signs may have been overlooked. the surveys carried out therefore represent only 'snapshots' of activity within the Survey Area at the time of the survey.

3.1.4 Due to a lack of access permissions and no defined Off-Site Grid Connection route the phase 1 survey in 2021 did not extend outside of the Energy Park. However, Ecotricity conducted an initial walkover survey from public rights of way along the potential grid route in 2017 as part of the pre-construction surveys for the permitted wind farm and was therefore aware the broad landscape type present.

3.2 BASELINE CONDITIONS

Site Description and Context

3.2.1 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 586ha. The Energy Park site lies wholly within North Kesteven District, abutting Boston Borough boundary along the eastern edge. The Order limits of the Energy Park site have been reduced to 524ha.

3.2.2 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.

3.2.3 Six Hundred Farm lies in the eastern third of the Energy Park site, with access gained from Six Hundred 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.

3.2.4 Intermittent shrubs/hedgerows occur within or along the boundary of the Energy Park site, with tree cover limited to four small plantation woodland blocks.

3.2.5 The route for the proposed off-site Grid Connection has not been finalised. Whilst there is preferred route at this time, which is presented in Figure 2.3 Proposed Development of the Environmental Statement (document ref 6.2.2) when most of the ecological surveys were commissioned there were two route options being considered. They ran predominantly south from the Energy Park Site, one from the east of the Energy Park, and one south close to the proposed site entrance. Both crossed the A17, the South Forty Foot Drain and the railway. The option which left the Energy Park site from the east has been chosen as the preferred route for the offsite grid route corridor. The underground cable will connect into the existing Bicker Fen Substation. There remain two options for the grid route at the final stage where it will join into the Bicker Fen Substation. Both of these options near the Bicker Fen substation have been assessed in the ES.

Baseline Survey Information

Energy Park Site

Desk study

3.2.6 There are no internationally important statutory designated sites (Ramsar, SAC & SPA) or national sites (SSSI, NNR, LNR) within 10km of the Energy Park site. The nearest SSSI is Horbling Fen SSSI located 11.5km to the southwest of the Energy Park and 5.2km south west of the Grid Connection route - it is designated for its geological interest. The Wash, situated approximately 16km to the southeast of the Energy Park site at its nearest point, is the nearest SAC, SPA and Ramsar site.

3.2.7 A data search was requested from the LERC for local designated sites and species recorded with 5km of the Energy Park site (Appendix 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 ("the Drain") LWS is located approximately 1km to the south of the Energy Park Site will be crossed by the underground cable through directional drilling. 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 and perfoliate pondweed, whorled watermilfoil, rigid hornwort, mare's-tail, arrowhead, water-crowfoot, common, ivy-leaved & 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 records along the South Forty Foot Drain.

3.2.8 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 plans 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, and beaked hawk's beard.

3.2.9 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 and narrow-leaved water-plantain, water-violet, water-crowfoot, horned and fennel pondweed, waterstarwort, 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.

3.2.10 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 – Ecology Designations** (document reference 6.2.8).

Species records

3.2.11 The LERC holds 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.

3.2.12 There are records of five protected or priority mammals within 5km of the proposed Energy Park site including Brown Hare (66), Badger (38), Otter (7), Water Vole (224), and Hedgehog (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.

3.2.13 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 daubentonii*, three records of Myotis sps, three records of Noctule bat (*Nyctalus noctula*) and two records of brown long eared bat (*Plecotus auritus*).

3.2.14 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 nationall or local priority status (Appendix 8.3: Phase 1 Habitat Survey Report (document ref: 6.3.8.3).

3.2.15 The 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 pinkfooted 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*).

3.2.16 The LERC has provided 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 pinkfooted geese between 1998-2020.

3.2.17 There are records of four amphibians; common frog (*rana temporia)* (9), Common Toad (*Bufu bufo)* (7)*,* Great crested newt (4) and Smooth newt (2) held by LERC within 5km of the Energy Park site.

3.2.18 The are no records held by LERC of reptiles within 5km of the Energy Park site.

3.2.19 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.

Phase 1 Habitats Surveys Energy Park

Arable land

3.2.20 The Phase 1 habitat survey (see Appendix 8.3 (document ref: 6.3.8.3)) showed the Energy Park site to consist of intensively farmed arable fields. At the time of the survey they were growing winter wheat. The arable fields were generally cultivated right up to the field margins on the western part of the Energy Park resulting in very few areas of

botanical or ecological importance. Six Hundred farm on the eastern half of the Energy Park has been entered into middle tier Countryside Stewardship and the majority of the field have 4-6m rough grass margins.

Grasslands

3.2.21 Six Hundred farm on the eastern half of the Energy Park has been entered into middle tier Countryside Stewardship and the majority of the field have 4-6m grass margins These are floristically of low nature conservation value but do provide foraging areas for farmland birds, European Hare and Badger.

Hedgerows and boundary habitat

3.2.22 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 period. These dry ditches were often choked with vegetation including Great Reed Mace (*Typha latifolia*), Sedges, rank grasses, willow, and some bramble. Some major IDB managed drains were also present being more than 2m in depth and up to 3.5m in width which permanently held water. There are four boundaries with small sections of defunct, species-poor hedgerow, comprising mainly of Hawthorn with sporadic Blackthorn, Ash and Dog Rose.

Woodland

3.2.23 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*). These appear to have been planted by a previous landowner for game cover and are not present on pre 1960 maps [redacted]There are number of more mature Ash and Oak 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). There are a small number of isolated trees on five of the dry boundary ditches. There is a small block of ancient woodland called Oak Wood 4.4km to the north-west of the Energy Park site, just north of the village of North Kyme.

Wetlands and water courses

3.2.24 There is one pond in the centre of the Energy Park site which is relatively open with steep sides with Common Pond Sedge (*Carex nigra)* and Reed Sweet Grass (*Glyceria maxima)* surrounded by dense ruderal vegetation including dense stands stinging nettle *Urtica dioica*. There are some major drains present which are more than 2m in depth and up to 3.5m in width which permanently held water and contained plants such as Frogbit (*Hydrocharis morsus-ranae)* and Broad-leaved Pondweed (*Potamogeton natan)* as well as Common Reed (*Phragmites australis)* Reed Sweet Grass *Glyceria maxima* and contained plants such as Frogbit (*Hydrocharis morsus-ranae)* and Broad-leaved Pondweed (*Potamogeton natans)*

Species Energy Park

Otter

3.2.25 No evidence of Otter was recorded at the Energy Park site; however, the Head Dyke and Skerth Drain to the north and east of the Energy Park, as well as some of the deeper ditches which permanently held water present on the Energy Park Site provide suitable habitat for Otters. There is a LERC record of otter spraint from the Skerth Ditch. Although not recorded during the survey their presence in wider area and the suitable

habitat with the Energy Park site it is considered that otter will use the site from time to time.

Water Vole

3.2.26 No evidence of Water Vole was observed at the Energy Park site; however, several main drains and ditches found on the Energy Park site suitable for Water Voles. No Water Voles were recorded on the Energy Park site during surveys in 2010 and 2017 (conducted as part of the original wind farm application). Mink (a major predator with the potential to cause extinction of local Water Vole populations) were observed on the Energy Park site in 2017 but no evidence of Mink was recorded during surveys in 2021. Although not recorded the presence suitable habitat with the Energy Park site and relatively recent records of Water Voles within 2km of the Energy Park site it is considered likely that water vole may use the site in the future.

Hazel Dormouse

3.2.27 There is no suitable habitat for Hazel Dormouse 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.

Brown Hare

3.2.28 Although no specific surveys for Brown Hare were conducted, Brown Hare have been record on the Energy Park site during site visits 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

3.2.29 The Badger surveys conducted in 2021 recorded positive evidence of the presence of Badgers although did not provide a description of each sett or classify each sett.

Bats

3.2.30 There are a few young plantations of mainly small deciduous trees scattered around Six Hundreds Farm originally to provide Pheasant cover for the previous landowner. Whilst three of these do not provide roosting opportunities for bats they may provide sheltered foraging in windy conditions. There are a number of small sections of defunct, species-poor hedgerow, comprising mainly of Hawthorn with sporadic Blackthorn, Ash and Dog Rose which provides shelter for foraging bats in windy conditions.

3.2.31 The plantation south of Six Hundreds Farm is more mature and contains some standard Ash and Oak trees which could offer low to moderate roosting sites for bats.

3.2.32 Throughout the Energy Park site were several buildings (particularly at Six Hundreds Farm, Rectory Farm and near Elm Grange) were identified as potential to provide suitable roost sites for bats. At Six Hundreds Farm buildings with bat roost potential included: a single storey cowshed with low to medium bat roosting potential (BRP 3-2); being linked to the cowshed a two storey barn with medium to high bat roosting potential (BRP 2-1); (T9) two semi-detached disused two storey houses with medium to high bat roosting potential (BRP 2-1).

3.2.33 The pumping station and the Trinity College Pumping Station on the Skerth drain were largely sealed single storey buildings but may offer low to medium bat roosting potential (BRP 3-2) if gaps exist under the pump-house buildings.

3.2.34 At Rectory Farm there are two buildings. One a modern asbestos and steel barn (with 2 brick buildings attached on the north and south sides. These attached buildings attachments with fissures in the bricks or gaps below the roof giving low (BRP 2-3). Adjacent to the barn is a brick/tile building with an extensive ivy-covering and fissures offering moderate to high (BRP 1-2). The remaining buildings on the Energy Park site were modern barns and assessed to offer low or very low bat roost potential.

European Hare

3.2.35 European Hare are present on the Energy Park site and are observed every site visit although no formal estimate of the number on the Energy Park site have been made.

Hedgehog

3.2.36 Habitat suitable for Hedgehog is limited to the grass field margin and drainage ditch banks within the energy although the high level of agrochemical use within the Energy Park site is likely to limit their potential food resource.

Breeding birds

3.2.37 The open farmland habitat and associate water courses are considered suitable from a range of common farmland birds and the reed filled ditches may provide nesting habitat to rapture such as Marsh Harrier.

Wintering birds

3.2.38 The open farmland is considered suitable for range of wintering birds. The habitat is unsuitable for the majority of species listed in the citation of the Norfolk coast and Wash SPA /Ramsar site the site may provide suitable foraging habitat for pinkfooted geese or whooper swan which will foraging on winter wheat.

Amphibians and Reptiles

3.2.39 There is one pond within the Energy Park. This is unshaded without fish or waterfowl. A Great Crested Newt Habitat Suitability Index score was calculated as 0.00378 which is classified poor potential breeding for Great Crested Newt.

3.2.40 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.

3.2.41 The intensive arable habitat within the Energy Park site is largely unsuitable to sustain reptile populations apart from perhaps Grass Snake along drainage diches 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

3.2.42 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 were considered likely only to support a small

range of aquatic invertebrates tolerant of high nutrient levels 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.

Off Site Grid Connection Corridor

Designated sites

3.2.43 There are no internationally important statutory designated sites (Ramsar, SAC & SPA) or national sites (SSSI, NNR, LNR) within 10km of the two route options for the Grid Connection route. The nearest SSSI is Horbling Fen SSSI located 5km to the southwest of the proposed substation extension location at Bicker Fen. This SSSI is designated for its geological interest. The Wash is the nearest SAC, SPA and Ramsar site, situated approximately 14.8km at its nearest point to the southeast of proposed substation extension at Bicker Fen.

3.2.44 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.

3.2.45 The offsite Grid Connection 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 and perfoliate pondweed, whorled water-milfoil, rigid hornwort, mare's-tail, arrowhead, water-crowfoot, common, ivy-leaved & 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 records along the South Forty Foot Drain.

3.2.46 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 supporting a range of aquatic plans 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.

3.2.47 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 and narrow-leaved water-plantain, water-violet, water-crowfoot, horned and fennel pondweed, waterstarwort, 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.

3.2.48 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.

3.2.49 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 Off Site Grid Connection Corridor

Arable land

3.2.50 The majority of the offsite Grid Connection corridor route is intensive arable land use for growing winter wheat, winter barley, oil seed rape, maize and various vegetable crops. There is a few re-seeded improved pasture used for grazing cattle.

Grasslands

3.2.51 There are areas of semi improve grassland on the banks of the South Forty Foot Drain and some re-seeded, improved pasture used for grazing cattle. There is one area of grassland within the Bicker Fen Substation.

Boundary habitat

3.2.52 The majority of the fields on the offsite Grid Connection Corridor route are divided by drainage ditches and there are very limited lengths of gappy hedgerows mainly associated with private dwelling or farms.

Woodlands

3.2.53 There is a small block of woodland just to the north of the South Forty Foot Drain and a second at Hammond Beck identified on the Priority Habitat Inventory as Deciduous Woodland (England). There is a small area of plantation woodland adjacent to the Bicker Fen Substation.

Wetlands and water courses

3.2.54 The Off-site Grid Connection Corridor route crosses a number of Black Sluice Internal Drainage Board (IDBs) controlled drainage ditches and the South Forty Foot Drain which is classified as main river. There is a small pond and a small wetland area adjacent to the Bicker Fen Substation.

Species

Otter

3.2.55 There is suitable habitat for otter along the South Forty Foot Drain.

Water Vole

3.2.56 There is suitable habitat for Water Voles along the South Forty Foot Drain and a number of drainage channels along the offsite Grid Connection Corridor route.

Brown Hare

3.2.57 The arable fields along the offsite Grid Connection Corridor route are considered suitable for Brown Hare.

Hedgehog

3.2.58 The majority of the intensive farmland along the offsite Grid Connection Corridor route is unsuitable for Hedgehog although the grassland and areas of shrub along the South Forty Foot Drain offer a linear strip of potential suitable habitat.

Badgers

3.2.59 There is habitat suitable for badger on the grid routes. The banks of the South Forty Foot Drain provide suitable undisturbed areas for badger setts.

Bats

3.2.60 The intensive farmland along the Grid Connection route provides poor quality habitat for foraging bats. The South Forty Foot Drain and associated habitat does however provide an area of higher quality habitat. There are potential roost sites within farm buildings and residential properties along the offsite Grid Connection Corridor Route. There are a small number of isolated trees which may potentially provide suitable bat roost sites.

Breeding Birds

3.2.61 The open farmland habitat and associated watercourses are considered suitable from a range of common farmland birds.

Wintering birds

3.2.62 The open farmland is considered suitable for a range of wintering birds. The habitat is unsuitable for the majority of species listed in the citation of the Norfolk Coast and Wash SPA/Ramsar site. The farmland along Grid Connection Route may provide suitable foraging habitat for pinkfooted geese or whooper swan which will foraging on stubble fields, vegetable crop residue, and winter wheat.

Reptile and Amphibians

3.2.63 There are a very limited number amphibian records within 5km of the Proposed Development and limited suitable habitat. There is one heavily overgrown pond adjacent to the Bicker Fen Substation.

3.2.64 There are no records of reptiles within 5km of the Proposed Development and very limited habitat suitable within the Proposed Development although some of the drainage ditches may support grass snake. There are unlikely to any negative impacts as there will be an 8-9m stand-off from ditches within the Energy Park.

Invertebrates

3.2.65 Habitats at the margins and boundaries of the fields may to be of value for a range of invertebrate species typical of wetlands grasslands and hedgerows. The wet ditches and drains were considered likely only 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 offsite Grid Connection Corridor route are likely to be poor, particularly for pollinating species.

4 ECOLOGICAL CONSTRAINTS, RECOMMENDATIONS FOR FURTHER SURVEY AND MITIGATION

Statutory Designated Sites

4.1.1 There are no internationally or nationally designated sites within or adjacent to the Proposed Development and it is considered that the construction and operation of project will have no direct negatives effects on any internationally or nationally important site.

4.1.2 The habitat within or adjacent to the Proposed Development is unsuitable for the majority of bird species included in the designation Wash SPA, however two species: Pinkfooted Geese and Whooper swan are known to feed on farmland inland from The Wash.

4.1.3 The Greenland/Iceland Pinkfooted 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 Pinkfooted 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 closer to the roost, particularly after the shooting season (Brides *et al* 2013). 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.

4.1.4 Therefore, wintering bird surveys will be required to assess the potential use of the Proposed Development area by these species particularly at high tide.

Non-statutory Sites

4.1.5 There are no Local Wildlife Sites within or adjacent to the Energy Park. However, the cable route for the offsite Grid Connection Corridor 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 of this LWS. It is recommended that a precautionary approach is taken with the initial design ensuring that the grid connection will be placed under the South Forty Foot Drain removing any risk of negative effects to the LWS and a Construction Environmental Management Plan (CEMP) should be developed will be provide further detail on construction and drilling. An outline CEMP has been prepared as part of the DCO application (document ref: 7.7).

Habitats

4.1.6 Habitats within the Proposed Development potentially affected by the Scheme include arable field margins, drainage ditches, wetlands, hedgerows and woodlands.

4.1.7 The potential impacts on these habitats include direct damage or disturbance, dust of runoff of silt into watercourses.

4.1.8 The initial phase 1 survey did not accurately map the areas of grass margins under middle tier Countryside Stewardship within the Energy Park and whilst representing a relatively small proportion of the total land area the areas of these is required to complete a Biodiversity Net Gain assessment.

4.1.9 Further assessment of the trees through an Arboricultural Survey within the Proposed Development will be required in order to establish appropriate root protection zones around woodland and important trees. This Arboricultural Survey has been undertaken and can be seen in Appendix 6.3 of the ES (document reference 6.3.6.3)

4.1.10 A phase 1 survey of the Grid Connection route has been completed and can be read in Appendix 8.5: Extended Phase 1 Survey Report – Cable Route Corridor (document reference: 6.3.8.5)

4.1.11 Appropriate mitigation of these habitat is likely to require appropriate stand-off distances from habitats as well as implementation of both and CEMP to protect habitat during construction and Landscape and Management Plan (LEMP) during operation of the Energy Park.

Species

Mammals

4.1.12 The Phase 1 habitat survey of the Energy Park confirmed the presence of Badgers. There is evidence that there is considerable flux and change in the use of different setts within the area and creation of new outlying setts It is strongly recommended that survey badger survey are conducted in sufficient time prior to each phase of construction to check the location of badger setts and if required modify layout, modify working methods (use of hand tools rather than heavy machinery) or allow obtain appropriate Licences work close to outlying setts or temporarily exclude badgers from outlying setts.

4.1.13 Whilst the Phase 1 survey confirmed the presence of suitable habitat for otter and water vole on the permanently wet diches and Internal Drainage Board managed drains, it did not record any evidence of these species. From experience of the extensive aquatic mammal surveys within the Energy Park site, which were completed as part of the wind park development, it is known there are limited locations where signs of otter can easily be detected (fresh mud where footprints can be detected or suitable sprainting sites). It is proposed further targeted Otter surveys are carried out, checking the limited number of likely sprainting sites under bridges on the Skerth Drain, confluences of watercourses and areas of soft mud on the major Drains within and adjacent to the Energy Park.

4.1.14 Most of the LERC 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. It is proposed further surveys for this species are conducted on suitable watercourses on the Grid Connection route and within the Energy Park.

4.1.15 It is advised that a precautionary approach is taken in the design of the Energy Park with a suitable stand-off (a minimum of 8m) from all watercourses to avoid any risk of negative effects on water vole burrows or disturbance to otter.

4.1.16 The Proposed Development could potentially cause disturbance to badger or damage to setts therefore it will be important to accurately identify the location setts prior to the construction of each phase the Energy Park.

Bats

4.1.17 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 daubentonii*), three records of Myotis sps, three records of Noctule bat (*Nyctalus noctula*) and two records of brown long eared bat (*Plecotus auritus*).

4.1.18 Previous bat surveys in 2010 as part of the Wind Park application identified a small number common pipistrelle bat roosting in the derelict farm building in the centre of the Energy Park site. Previous transect surveys as part of the wind farm application in 2010 recorded a low-level bat activity across the site of three species Common Pipistrelle, Myotis sps. and brown long eared bat although majority of passes were those of Common Pipistrelle. Bat recording techniques have improved significantly since 2010 and static bat detectors placed within the Energy Park areas as part of the pre-construction surveys in 2017 recorded a minimum of 8 species. It should be noted Myotis bat were not identified at a species level therefore they may have been 10-12 species using the Energy Park site. However as with earlier surveys in 2010 the vast majority of passes were Common

Pipistrelle (80%) with smaller number of Noctule Bat, Soprano Pipistrelle and Myotis bats and the very occasional Brown long eared, Serotine, Leisler's, Nathusius pipistrelle and Barbastelle bats.

4.1.19 There is little evidence that solar farm park development has significant negative effect of bat population unless they result in the destruction of identified roost[16]. The introduction of lighting during construction and operation could potentially affect bat foraging behaviour and will need to be considered in the final CEMP and LEMP. It has been considered with the outline CEMP (document ref: 7.7) and outline LEMP (document reference: 7.8.)

4.1.20 It is proposed that transect and static bat surveys are conducted within the Energy Park combined with an assessment of known and potential roost sites. It is proposed that the Phase 1 survey of the offsite Grid Connection route include an assessment of any trees with potential for bat roosting. This was completed in summer 2022.

Birds

4.1.21 The original wind farm application bird surveys including extensive birds survey from 2009/10 and 2017/18 recorded range of breeding and wintering common farmland birds. Although these are now out of date, there appear to have been little change in the overall habitat since these surveys were conducted. The intensive farmed landscape and associated ditches, watercourses and small areas of woodland are still likely to support a range of breeding and wintering common farmland birds.

4.1.22 There is potential effect of birds will be a disturbance during the breeding season during construction throughout the Proposed Development area and changes in habitat type and introduction of new structures within the Energy Park site.

4.1.23 It is predicted that the effects on farmland birds will be largely restricted to the Energy Park, although there is potential effect for species such as Pink-footed Goose and Whooper Swans which contribute to the Wash SPA/Ramsar designation during laying of the Off site Grid Connection.

4.1.24 It is recommended that breeding and wintering bird surveys are conducted throughout the Proposed Development area. In order to assess the use of the site by species associated with Wash SPA/Ramsar site, the winter bird surveys should include the period either side of high tide. This has been completed

Amphibians and Reptiles

4.1.25 There are a very limited number amphibians records within 5km of the Proposed Development and limited suitable habitat. There is one pond within the Energy Park and there one heavily overgrown pond adjacent to the Bicker Fen Substation.

4.1.26 There is one pond within the Energy Park. This is unshaded without fish, waterfowl. A Great Crested Newt Habitat Suitability Index score was calculated as 0.00378 which is classified poor potential breeding for Great Crested Newt.

4.1.27 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.

[16] Harrison, C., Lloyd, H. and Field, C (2017), Evidence review of the impact of solar farms on birds, bats and general ecology. Natural England.

4.1.28 It is proposed the Great Crested Newt suveys are conducted in the ponds and suitable ditches close to the pond within the Energy Park and that Great Crested Newt survey are conducted in the pond adjacent the Bicker Fen Substation

4.1.29 There are no records of reptile with 5km of the Energy Park and only small number along the off-site Grid Connection Route. The intensive arable habitat within the Energy Park site is largely unsuitable to sustain reptile populations. Although there is suitable habitat for Grass Snake along drainage ditches, the banks of the Head Dike, Skerth Drain and South Forty Foot Drain and these areas may possibly support a relict population of Slow Worm or Common Lizard. However, these areas are beyond the development footprint or can be avoided by appropriate design and will not be affected by the Proposed Development.

Invertebrates

4.1.30 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 were consider likely only 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 offsite Grid Connection Corridor route are likely to be poor, particularly for pollinating species.

4.1.31 The reversion of intensive arable land to grassland and creation of larger grass margins adjacent to ditches and drain is likely to enhance the habitat for invertebrates.

Flora

4.1.32 Although surveys indicated a relatively impoverished flora within the Energy Park it is possible that protected or notable flora species may be present such as those associated with arable field margins and drainage ditches (as noted above) and therefore further phase botanical of these habitat will be required.

4.1.33 The Proposed Development is located in the northern part of National Character Area (NCA) 46 (the Fens) highlighted by Plant Life (Plantlife, 2015)[17] for the assemblage of arable plants found in this area. Therefore further surveys to assess ecological value the drainage ditches and potential for arable plant assemblages will be required.

5 OPPORTUNITIES FOR ENHANCEMENT AND BIODIVERSITY NET GAIN

5.1.1 There is significant potential to enhance the habitat within the Energy Park. The reversion of the intensive arable farmland to sheep pasture is likely to provide significant biodiversity gains. The creation of suitable stand-off area or buffer zone along all water courses and woodland habitat will provide an opportunity to create significant areas of species rich conservation grassland within the Energy Park site.

5.1.2 Due to the immaturity of the woodlands bat roosting sites are likely to be limited to the buildings within the Energy Park but sit outside Order limits. There is potential to place a range bat boxes with each of the for block of woodland to increase the number of bats resident on the Energy Park site.

5.1.3 There is also an opportunity to increase the number potential nesting sites for farmland birds of prey such as Barn Owl and Kestrel within the Energy Park site by

[17] Plantlife, (2015). England's Important Arable Plants. Plantlife, Salisbury. Available online at:

provision of suitable nest boxes in partnership with the Barn Owl Trust and local raptor groups.

6 CONCLUSIONS

6.1.1 There are no designated sites of international, national within or adjacent to the Proposed Development. There is one Local Wildlife Site (the South Forty Foot Drain) along the route of the Off-site Grid Connection Corridor. Direct drilling under the South Forty Foot Drain would ensure no negative effects on the Local Wildlife Site. This mitigation is being proposed and has been assessed within the ES.

6.1.2 On the basis of the initial surveys and previous knowledge of the area it is considered that the majority of the land is of low nature conservation value. Internal watercourses and associated habitat appear be of higher nature conservation value which can be protected by appropriate design of the Proposed Development.

6.1.3 Any temporary disturbance or risk of harm can be minimised through the implementation of a comprehensive CEMP. An outline CEMP accompanies this planning application (document reference 7.7).

6.1.4 Beneath the solar panels of intensive arable farmland will be converted to species rich, low intensity sheep pasture, and will reduce the runoff of Agri-chemicals and topsoil associated with agricultural use into in the Wash SPA. The Indicative Site Layout includes the creation of large areas of species rich grasslands within the Energy Park. It is likely that there will be an overall significant residual, locally beneficial effect on biodiversity of area.

6.1.5 However, before these conclusions can be confirmed further detailed surveys are required

- Phase 1 survey of the Grid Connection route include assessment of potential tree bat roost;
- An Arboricultural Survey;
- Breeding and wintering bird surveys;
- Bat surveys on the Energy Park area;
- Botanical surveys for aquatic and arable plants;
- Water vole surveys on the Grid Connection route; and
- A further assessment and quantification of habitat within the Energy Park area to allow comprehensive Biodiversity Net Gain calculation

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