HELIOS RENEWABLE ENERGY PROJECT

Preliminary Environmental Information Report

Volume 2: Main Text and Figures

Chapter 8: Biodiversity

October 2023

8. Biodiversity

8.1. Introduction

8.1.1. This chapter of the PEIR sets out the baseline information available at the time of writing and provides a preliminary assessment of the likely effects of the Proposed Development on ecological features during its construction, operation and decommissioning phases.

8.1.2. Only common species names are referred to throughout this Chapter. Full biological nomenclature is provided within the relevant appendices submitted with this PEIR set out in paragraph 8.1.2 below, including common and scientific species names, together with species conservation status and legislative protection where relevant.

8.1.3. This chapter is supported by the following appendices:

- Appendix 8.1: Baseline Habitats and Desk Study Report;
- Appendix 8.2: Ornithological Survey Report;
- Appendix 8.3: Otter and Water Vole Survey Report;
- Appendix 8.4: Badger Report (abridged version);
- Appendix 8.5: Amphibian Baseline Report; and
- Appendix 8.6: Arboricultural Impact Assessment.

8.2. Legislative and Planning Policy Context

National Legislation

8.2.1. The following provide national legislation with regards to biodiversity and are presented as amended and in force at the time of writing:

- The Conservation of Habitats and Species Regulations 2017;
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017;
- The Wildlife and Countryside Act 1981;
- The Environment Act 2021;

- Countryside and Rights of Way Act 2000;
- Protection of Badgers Act 1992;
- Hedgerow Regulations 1997;
- The Invasive Alien Species (Enforcement and Permitting) Order 2019; and
- Natural Environment and Rural Communities ('NERC') Act (2006).

8.2.2. The 'UK Post-2010 Biodiversity Framework'[1] succeeds the UK Biodiversity Action Plan ('UK BAP') and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify 120 habitats and species of nature conservation priority on a UK ('UK BAP') and Local ('LBAP') scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the NERC Act 2006, and so are also relevant in the context of this legislation.

National Planning Policy

8.2.3. The Overarching National Policy Statement ('NPS') for Energy (EN-1)[2] includes policies regarding Biodiversity (Chapter 5.3), which requires developments to:

> *'avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives …where significant harm cannot be avoided, then appropriate compensation measures should be sought'.*

8.2.4. In addition, the Overarching NPS for Energy (EN-1) states that:

> *'in taking decisions, the decision maker 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…interests*

[1] UK Post-2010 Biodiversity Framework JNCC/DEFRA. (2012). *UK Post-2010 Biodiversity Framework (2012–2019).*https://hub.jncc.gov.uk/assets/587024ff-864f-4d1d-a669-f38cb448abdc#UK-Post2010-Biodiversity-Framework-2012.pdf (accessed 04/06/2023)

[2] Department of Energy and Climate Change (2011). *Overarching National Policy Statement for Energy (EN-1).* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf (accessed 25/05/2023)

within the wider environment'.

8.2.5. The NPS for Renewable Energy Infrastructure (EN-3)[3] together with the Overarching NPS for Energy (EN-1) (above), provides the decision-making basis of the decision maker on applications for nationally significant renewable energy infrastructure. Therefore, applications and accompanying supporting documents and information should be consistent with the instructions and guidance in this policy statement and corresponding biodiversity information provided within the EN-1 document.

8.2.6. The Revised (Draft) Overarching NPS for Energy (EN-1)[4] (published in March 2023) includes further information regarding biodiversity. The document states:

'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, including irreplaceable habitats'.

8.2.7. Furthermore, the Revised (Draft) Overarching NPS for Energy (EN-1), states that:

'the applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests…the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains'.

8.2.8. The Revised (Draft) NPS for Renewable Energy Infrastructure (EN-3)[5] (published in March 2023) also includes further information regarding biodiversity. The document states:

[3] Department of Energy and Climate Change (2011). *National Policy Statement for Renewable Energy Infrastructure (EN-3*). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37048/1940-nps-renewable-energy-en3.pdf (accessed 25/05/2023)

[4] Department for Energy Security & Net Zero. (2023). *Overarching National Policy Statement for Energy (EN-1).*Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147380/NPS_EN-1.pdf Accessed May 2023

[5] Department for Energy Security & Net Zero. (2023). National Policy Statement for Renewable Energy Infrastructure. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147382/NPS_EN-3.pdf Accessed May 2023

'proposed enhancements should…aim to achieve environmental and biodiversity net gain in line with the ambition set out in the Environmental Improvement Plan and any relevant measures and targets, including statutory targets set under the Environment Act or elsewhere…this might include maintaining or extending existing habitats and potentially creating new important habitats'.

Local Planning Policy

8.2.9. In April 2023, North Yorkshire Council ('NYC') became the administrative authority in which the Site is located, following its creation as a unitary authority by combining several district councils, including Selby District Council ('SDC'), the administrative area within which the Site had previously been located. However, the planning policy of SDC is still relevant to the Proposed Development.

8.2.10. The Selby District Local Plan (2005)[6] includes a number of saved policies which include reference to biodiversity:

- Policy ENV9: '*Proposals for development which would harm a local nature reserve, a site of local importance for nature conservation or a regionally important geological/geomorphological site, will not be permitted unless there are no reasonable alternative means of meeting the development need and it can be demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic local nature conservation value of the site or feature'*;
- Policy ENV11: *'Development will not be permitted where it is likely to cause loss of, or damage to, an ancient woodland, unless the reasons for the development outweigh the nature conservation value of the woodland'*;
- Policy ENV12: *'Proposals for development likely to harm the natural features of or access to river, stream and canal corridors will not be permitted unless the importance of the development outweighs these interests, and adequate compensatory measures are provided'*;
- Policy ENV13: '*Proposals for development which would harm the landscape, townscape, historical or wildlife value of a pond will not be permitted unless: 1)*

[6] Selby District Local Plan (2005) Available at: https://www.northyorks.gov.uk/planning-and-conservation/planning-policy/planning-policy-your-local-area/selby-planning-policy/selby-development-plan (Accessed August 2023)

The need for a particular development outweighs the particular value of the pond; 2) An equivalent habitat can be created on site or elsewhere in the locality which will provide the same landscape, townscape or wildlife value of the existing pond; and 3) Appropriate management measures are incorporated in the scheme'.

- Policy ENV14: *'Development and other land use changes which may harm badgers and other species protected by Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981, as amended, or the EC Habitats and Species Directive will not be permitted. To avoid harm to the species the local planning authority may consider the use of conditions and planning obligations which seek to: 1) Facilitate the survival of individual members of the species; 2) Reduce disturbance to a minimum; and 3) Provide adequate alternative habitats to sustain at least the current levels of population'*.

8.2.11. The Selby District Core Strategy Local Plan (2013)[7] includes Policy SP18: Protecting and Enhancing the Environment.

8.2.12. The Draft Selby District Council Publication Local Plan (2022)[8] (in draft form at the time of publication of the PEIR) includes a number of policies which include reference to biodiversity, including:

- Policy NE1: Protecting Designated Sites and Species (Strategic Policy), which includes reference to the protection of designated sites, protected species and habitats; Policy NE2: Protecting and Enhancing Green and Blue Infrastructure (Strategic Policy), which includes policy regarding the protection of sites of nature conservation importance and enhancement/strengthening of interconnected ecological networks; and
- Policy NE3: Biodiversity Net Gain (Strategic Policy), which includes the requirement for proposals to deliver a minimum 10% net gain for biodiversity across all unit types including habitat area, hedgerows and lines of trees, rivers and streams, and commit to ensuring the delivery and maintenance / stewardship of the new habitats for at least 30 years through Section 106

[7] Selby District Core Strategy (2013) Selby District Core Strategy Local Plan. https://www.northyorks.gov.uk/sites/default/files/fileroot/planning_migrated/planning_policy/CS_Adoption_Ver_OCT_2013_REDUCED.pdf (accessed 01/08/2023)

[8] Selby District Council. (2022). *Selby District Council Publication Local Plan (Consultation 2022)*. https://selby-consult.objective.co.uk/kse/event/37045 (accessed 01/08/2023)

agreements, conservation covenants and monitoring.

8.2.13. The Selby Biodiversity Action Plan[9] ('LBAP') lists 13 priority habitats and 12 species/species groups of material consideration within the Selby district. The LBAP is an important part of the planning process because, in addition to providing valuable information and supplementary planning guidance, it also identifies specific and positive actions that can be undertaken to conserve the District's biodiversity.

8.3. Assessment Methodology

8.3.1. The assessment presented within this Chapter has been undertaken with reference to applicable wildlife and countryside legislation, national and local planning policy and the Chartered Institute of Ecology and Environmental Management ('CIEEM') (2018) guidelines[10]. The assessment methodology also reflects the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') and focuses on those activities that could potentially generate significant effects on ecological and ornithological features.

8.3.2. Ecological Impact Assessment ('EcIA') is defined within the CIEEM guidelines as:

> *'…a process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems'*.

8.3.3. The assessment presented within this chapter and associated technical appendices therefore includes:

- A description of baseline ecological and ornithological conditions;
- An evaluation of identified important ecological and ornithological features;
- A description and evaluation of the potential effects of the Proposed Development;
- Mitigation measures implemented to address any identified significant adverse effects;

[9] NYCC, SDC, & Selby BAP Partnership. (2004). The Selby Biodiversity Acton Plan. https://www.northyorks.gov.uk/sites/default/files/2023-05/Selby%20Biodiversity%20Action%20Plan%20Aug%202004.pdf (accessed 25/05/2023)

[10] CIEEM. (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (version 1.2**).** https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf (accessed 28/06/2023)

- An assessment of cumulative effects;
- Identification of any residual effects after mitigation; and
- Identification of opportunities for biodiversity enhancement.

8.3.4. For the purpose of the assessment, the terms 'impacts' and 'effects' are referred to in accordance with the definitions set out in CIEEM guidelines as follows:

- **Impact**: Actions resulting in changes to an ecological feature, for example, removing a hedgerow; and
- **Effect**: Outcome to an ecological feature from an impact, for example, the changes experienced by the local population of a species arising from the loss of the hedgerow.

Zones of Influence

8.3.5. The 'zone of influence' for a development is the area over which ecological and ornithological features may be affected by biophysical changes as a result of the development and associated activities.

8.3.6. The zones of influence for the Proposed Development are acknowledged to extend beyond direct land-take required and have been identified in view of the nature of the Proposed Development as described in Chapter 3 Site and Development Description**,** the consultation and Scoping process, and the current CIEEM and NE guidance as applicable and available.

8.3.7. The zone of influence will therefore vary for different ecological and ornithological features depending on their sensitivity to environmental change.

8.3.8. Zones of influence for the Proposed Development and within which baseline information has been established have therefore been identified on the basis of proximity to the Proposed Development as follows:

- Statutory designated sites for nature conservation (excluding geological sites): within 5km from the Site, extended to 10km for internationally designated sites (comprising Special Protection Areas (‘SPA’), Special Areas of Conservation

('SAC') and Ramsar sites[11]);

- Non-statutory designated sites for nature conservation (excluding geological sites): within 2km from the Site[12];
- Protected, priority and otherwise notable species (e.g. NERC Act 2006 Section 41 Species of Principal Importance): within 2km of the Site boundary[13];
- Priority habitats (e.g., NERC Act 2006 Section 41 Priority Habitats): within 2km of the Site boundary[14];
- Widespread habitats and vegetation: within and immediately adjacent to the Site boundary[15];
- Breeding birds: within the Site and immediately adjacent boundary habitats viewable from the Site[16];
- Non-breeding birds: the Site and surrounding fields up to 600m from the Site where access was possible, or where land could be viewed from publicly accessible locations[17];
- Badgers: within the Site and areas out to at least 30m (where access allowed);
- Otters and water vole: ditch networks within the Site; and
- Great crested newts ('GCN'): within the Site and within suitable breeding ponds/waterbodies out to 250m of the Site boundaries.

[11] Based on professional judgement and guidance provided within Nature Scot. (2016). *Assessing Connectivity with Special Protection Areas (SPAs)* – Version 3. https://www.nature.scot/doc/assessing-connectivity-special-protection-areas (accessed 28/06/2023). Scottish guidance is used in the absence of an equivalent English document.

[12] This is a standard requirement to inform planning applications, as detailed within CIEEM (2020) *Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK*. 2nd Edition. https://cieem.net/wp-content/uploads/2016/03/Guidelines-for-Accessing-and-Using-Biodiversity-Data-March-2020.pdf (accessed 28/06/2023).

[13] This is a standard requirement to inform planning applications, as detailed within CIEEM. (2020). *Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK*. 2nd Edition**.** https://cieem.net/wp-content/uploads/2016/03/Guidelines-for-Accessing-and-Using-Biodiversity-Data-March-2020.pdf (accessed 28/06/2023).

[14] This is a standard requirement to inform planning applications, as detailed within *CIEEM (2020) Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK*. 2nd Edition. https://cieem.net/wp-content/uploads/2016/03/Guidelines-for-Accessing-and-Using-Biodiversity-Data-March-2020.pdf (accessed 28/06/2023).

[15] Undertaken in adherence to the guidance provided in Butchery, B. Carey, P. Edmonds, R. Norton, L. Treweek, J. (2020). *The UK Habitat Classification Manual Version 1.1*

[16] The methodology employed was based-upon a scaled-down version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) technique, as detailed in Gilbert, G., Gibbons, D.W., & Evans, J. (1998). *Bird Monitoring Methods: A Manual of Techniques for UK Key Species.* The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

[17] Based on professional judgement and guidance provided within M. Ruddock & D.P. Whitfield. (2007). *A Review of Disturbance Distances in Selected Bird Species.* Nature Scot

Assessment of Significance

8.3.9. The EIA Regulations require the PEIR to include information that 'is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development) (Regulation 12(2)(b)).

8.3.10. To determine the overall significance of each ecological effect, judgements on the sensitivity of the receptor(s) and the magnitude of impact from the Proposed Development are considered together in order to determine whether or not an effect is likely to be significant. This involves a combination of quantitative and qualitative assessment and the application of professional judgement.

8.3.11. For the purposes of the PEIR, effects will be categorised as 'significant' or 'not significant', in line with the EIA Regulations. The assessment considers effects at different geographic scales i.e. where effects may be discernible at a local scale but are not considered significant in the context of the EIA Regulations. For the purpose of the assessment, moderate and major effects are deemed to be 'significant' in EIA terms unless stated otherwise.

8.3.12. A 'significant effect' is considered to be one that either supports or undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general.

8.3.13. CIEEM guidelines on ecological impact assessment note that:

> *'A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures.'*

8.3.14. For ease of reference, Table 8.1 sets out the adapted CIEEM terminology, which also shows the equivalent EIA terms to be used in this Biodiversity Chapter.

Table 8.1: Summary of Significance Levels

(Standard EIA-related terminology and associated assigned significance)		Equivalent CIEEM terminology adapted for Ecological Assessment
Negligible Effects	Neutral	No discernible or significant effects on ecological integrity or conservation

(Standard EIA-related terminology and associated assigned significance)		Equivalent CIEEM terminology adapted for Ecological Assessment
		status (e.g. species or habitat).
Minor Effects	Not Significant	Adverse or beneficial effects on ecological integrity or conservation status, discernible/significant in ecological terms at a Local geographic scale only.
Moderate and Major Effects	Significant	Adverse or beneficial effects on ecological integrity or conservation status at a County, National or International geographic scale.

8.3.15. The Proposed Development has been assessed as having an operational lifespan of up to 40 years for the purpose of the assessment. Ecological effects will be described in terms of their duration as short, medium term and long-term as follows:

- Short term effects are defined as 0 - 3 years;
- Medium term effects are defined as 3 - 15 years; and
- Long term effects are defined as > 15 years.

8.3.16. For the purposes of the assessment the importance or sensitivity of an ecological feature will be considered within the context of a defined geographical area, ranging from International (high value) to Site (low/negligible), as detailed in Table 8.2.

Table 8.2: Value/Sensitivity Assessment

Value or Sensitivity of Receptor / Geographic Scale of Importance	Definition Examples
High - International / European	Greater than a UK scale, typically valued at a European level such as internationally designated sites (SPAs, SACs and/ or Ramsar sites) or proposed/candidate site (pSPA or cSAC), large area of a habitats listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole, large population of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) or species listed in Annex IV of the Habitats Directive.
High - National (England/UK)	England/UK: A nationally designated site (e.g., Site of Special Scientific Interest) or a discrete area which meets the selection criteria for national designation. An area of a priority habitat listed under the Section 31 of the NERC Act 2006 which constitutes a significant

Value or Sensitivity of Receptor / Geographic Scale of Importance	Definition Examples
	proportion of the resource of that habitat in England or the UK as a whole. A regularly occurring, regionally significant population of any nationally important species listed as a UK BAP/ Biodiversity List and priority species listed under the Section 31 of the NERC Act 2006, and Species listed under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act 1981 or Annex II or Annex IV of the Habitats Directive.
Medium Regional / County (Yorkshire)	Locally designated sites (Local Nature Reserves, County or Local Wildlife Sites). Areas of priority habitat, which constitute a significant proportion of the County's resource of that habitat. A regularly occurring, locally significant population of any nationally important species listed as a UK BAP / priority species and priority species listed under Section 31 of the NERC Act 2006, and Species listed under Schedule 5 of the Wildlife and Countryside Act 1981 or Annex II or Annex IV of the Habitats Directive.
Low - Local	Local area around the Site. For example, areas of priority habitat which are not large enough to meet the criteria for County value, or small but sustainable populations of a protected or notable species.
Low/Negligible - Site	Within the Site. Features present but of value in relation to the Site only.

8.3.17. Effects on ecological features will be assessed based upon the interaction between the importance, or sensitivity, of the feature and the magnitude of change it is likely to experience. In accordance with the CIEEM guidelines (2018), an EcIA need only assess in detail, impacts upon important ecological features i.e., those that are considered important and potentially affected. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable. Where ecological features are not considered important enough to warrant further consideration, or where they will not be significantly affected, these are scoped out of the assessment process, and justification for exclusion is provided.

8.3.18. Relevant European, national and local guidance from governments and specialist organisations will be referred to in order to determine the importance (or 'sensitivity') of ecological features. Importance will also be determined using professional judgement and taking account of the results of baseline surveys and the functional

role of features within the context of the geographical area.

8.3.19. Importance does not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

8.3.20. Once identified, potential impacts are described making reference to the following characteristics as appropriate: positive or negative, extent, magnitude, duration, timing, frequency and reversibility. The judgements on magnitude may need to be adjusted (either up or down) to reflect the duration of the change (i.e. short, medium or long term) and whether it is potentially reversible. The assessment also identifies areas where no change is anticipated, and the resulting effect is described as 'not discernible' or 'none'.

8.3.21. Ecological effects are described as far as possible and where available information allows in terms of the parameters detailed in Table 8.3.

8.3.22. Magnitude of effect, based on the effects that the Proposed Development would have upon the resource/receptor, is considered within the range of high, medium, low, negligible. Consideration is given to scale, duration of impact/effect (and extent of Proposed Development with reference to the definitions in Table 8.2). The assessment will consider how existing baseline conditions may change over time, as for example, the baseline conditions could alter through operational land use, in the form of differing management and natural growth or succession of habitats.

Table 8.3: Environmental Parameters

Environmental Parameters	Description
Magnitude	The ‘size’ or amount of the effect is referred to as the magnitude and is determined on a quantitative basis where possible supported by professional judgement.
Extent	The area over which an effect occurs. The magnitude and extent of an effect may be synonymous
Duration	The time over which an effect is expected to last prior to the recovery or replacement of the ecological receptor. This can be considered in terms of life cycles of species or regeneration of habitats. The duration may be longer than the duration of an activity.
Reversibility	Reversible (or temporary) effects are those that occur

Environmental Parameters	Description
	during the lifetime of the development and where spontaneous recovery, or mitigation allows recovery within a reasonable timescale. Permanent effects are those which cannot be recreated within the proposed development or there is no reasonable chance that actions can be undertaken to reverse it.
Timing and Frequency	The timing of effects in relation to important seasonal and/or life cycle constraints. The frequency with which activities and simultaneous effects would take place can be an important determinant.

8.3.23. The assessment of effects is based upon the assessments of magnitude of effects and sensitivity of the resource/receptor to come to a professional judgement of how important this effect is. The magnitude of change effected on ecological receptors is described as set out in Table 8.4. The likelihood or probability that an effect will occur is addressed as far as possible based on available information. Whilst it is reasonably straightforward to identify effects that are certain to occur, or conversely will not occur, it is generally more difficult to assign a quantified level to occurrences defined as likely, unlikely or highly unlikely. In these circumstances, professional judgement has been used, with reasoning supported by available evidence.

Table 8.4: Magnitude of Effect

Magnitude	Criteria
High	The change may negatively or positively affect the conservation status of a site or species population, in terms of the coherence of its ecological structure and function, that sustains the habitat, complex of habitats and/or the population levels of species of interest.
Moderate	Conservation status of a site or species population will not be negatively or positively affected, but some element of the functioning of the site or population might be affected and the change to the site/ population is likely to be significant in terms of its ability to sustain some part of itself in the long term.
Low	Neither of the above applies, but some minor negative or positive change is evident on a temporary basis, or the change affects extent of habitat or individuals of a species abundant in the local area.
Negligible	No observable effect in either direction

8.3.24. For an effect to be significant, the ecological integrity or conservation status of a sensitive feature must be influenced in some way. It may be that the effect is substantial in magnitude or scale, irreversible, has a long-term effect, or coincides

with a critical period in a species' lifecycle. Where uncertainty or limitations exist, this is acknowledged.

8.3.25. It is recognised that discernible effects can also occur at a local geographic scale which are not sufficiently severe to be assessed as 'significant' in accordance with the EIA approach, and do not require specific mitigation, but nonetheless merit discussion. In the interest of completeness, these effects will be discussed within the Biodiversity Chapter in relation to general construction good practices to be adopted to avoid or minimise low-level or minor disruption to local features, including for example standard pollution prevention and control measures.

Baseline Data Gathering

Desk Study

8.3.26. A desktop study was undertaken in April 2022 to identify any known existing features or species of ecological importance within and surrounding the Site. The desk study included a review of relevant policy and guidance and sought to identify any statutory designated sites for nature conservation through a review of the Natural England ('NE') Designated Sites View[18], Joint Nature Conservation Committee ('JNCC')[19] and Multi Agency Geographic Information for the Countryside ('MAGIC')[20] websites. A 5km search radius surrounding the Site boundary was adopted for all statutory designated sites, extending to 10km for international protected sites.

8.3.27. The MAGIC website review also included details of granted European Protected Species ('EPS') mitigation licence applications and GCN class licence return results, together with a review of NE Open Data on great crested newt eDNA[21] pond surveys for district level licensing ('DLL') (England)[22] within 2km of the Site boundary.

[18] Available at**:** https://designatedsites.naturalengland.org.uk/ (accessed 25/05/2023)

[19] Available at: http://jncc.defra.gov.uk/ (accessed 25/05/2023)

[20] Available at: https://magic.defra.gov.uk/MagicMap.aspx (accessed 25/05/2023)

[21] eDNA is nuclear or mitochondrial DNA that is released from an organism into the environment. Sources of eDNA include secreted faeces, mucous, gametes, shed skin and carcasses. In aquatic environments, eDNA is diluted and distributed in the water where it persists for 7–21 days, depending on the conditions. The technique for determining presence/absence of GCN uses Polymerase Chain Reaction (PCR) laboratory techniques to detect the species eDNA within water samples.

[22] GCN eDNA / habitat suitability index pond surveys undertaken by Natural England to inform the roll-out of District Level Licensing in England, surveys undertaken throughout England during 2017, 2018, and 2019. Further information available at: https://naturalengland-defra.opendata.arcgis.com/datasets/great-crested-newts-edna-pond-surveys-for-district-level-licensing-england?geometry=-1.451%2C51.749%2C-1.002%2C51.823 (Accessed on 25/05/2023).

8.3.28. Biological record data regarding non-statutory designated sites and records of protected and notable species from the North and East Yorkshire Ecological Data Centre ('NEYEDC') and North Yorkshire Bat Group. A 2km search radius was used from the Site boundaries. Only recent records dated from 2005 onwards were used unless historic records (pre-2005) were received from within (or within close proximity to) the Site and/or historic records were considered pertinent to the Proposed Development.

8.3.29. Reference was also made to Ordnance Survey maps of the wider area and online aerial images in order to determine any features of nature conservation interest in the wider area.

8.3.30. The results of the desktop study are provided in Figure 2: Statutory Designated Sites Plan and Figure 3: Non-statutory Designated Sites Plan of Appendix 8.1 and discussed in greater detail within the associated Appendices.

Habitat Surveys

8.3.31. An initial walkover survey was undertaken between 1st and 3rd March 2022. Following this, an extended habitat survey of the Site was undertaken between 3rd and 5th May 2022, between 30th and 31st May 2022 and on 14th July 2022. A further extended habitat survey of an updated area of proposed underground cable corridor located within and surrounding the Drax Golf Club Course was undertaken on 18th January 2023. All surveys were completed by suitably qualified and experienced ecologists.

8.3.32. Surveys were undertaken in adherence to the UK Habitat Classification ('UKHab') habitat categorisation system[23]. Detailed survey methodologies and findings are detailed in Appendix 8.1 (Habitats and Desktop Study Report) and habitat plans are provided in Figure 4 to Figure 8 within Appendix 8.1.

Species Surveys

8.3.33. The following baseline species-specific surveys and assessments were undertaken between April 2021 and June 2023:

- Breeding bird survey;

[23] Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J. (2020). *The UK Habitat Classification User Manual Version 1.1* . https://ukhab.org/ (accessed 06/05/2023)

- Non-breeding bird survey;
- Badger survey;
- Water vole and otter survey; and
- Great crested newt eDNA survey.

8.3.34. Detailed survey methodologies and findings are provided within the following Appendices:

- Appendix 8.2: Ornithology Baseline Survey Report[24];
- Appendix 8.3: Otter and Water Vole Baseline Survey Report;
- Appendix 8.4: Badger Report (abridged version)[25]; and
- Appendix 8.5: Amphibian Baseline Report.

Additional Species Surveys

8.3.35. In addition to the baseline surveys referred to above, following recent consultation results with statutory consultees (see 'Consultation' section below), additional ecological surveys will be undertaken during the Spring and Summer of 2023. The primary aim of these surveys is to add context and enable future monitoring as agreed with North Yorkshire County Council ('NYCC') see Table 8.5. However, results will be provided within the Environmental Statement ('ES') submitted with the DCO application and assessed where relevant.

8.3.36. These additional surveys consist of:

- Bat activity survey (seasonal); and
- Invertebrate walkover survey.

Biodiversity Net Gain

[24] Annex 3 of Appendix 8.2 contains abridged details in relation to protected species which are sensitive to persecution. An unabridged version is available upon request.

[25] Appendix 8.4 contains abridged details in relation to protected species which are sensitive to persecution. An unabridged version is available upon request.

8.3.37. Whilst it is not yet a mandatory requirement[26] for DCO applications to demonstrate a quantifiable biodiversity net gain ('BNG') of at least 10% under the Environment Act 2021, the submitted ES will demonstrate BNG in accordance with NERC obligations[27] and any relevant requirements of the updated National Policy Statements EN1 and EN3.

8.3.38. Therefore, the DEFRA Biodiversity Metric Calculator[28] will be utilised to provide evidence of achievable on-Site BNG associated with the Proposed Development and be presented as an Appendix to the ES Chapter.

8.3.39. For the purposes of impact assessment, the delivery of a quantifiable BNG will be considered as an inherent part of the Proposed Development, i.e., embedded enhancement.

Consultation

8.3.40. Consultation undertaken to date in relation to ecology and biodiversity are summarised in Table 8.5 below. Table 8.5 presents matters raised within the Scoping Opinion, during and following statutory consultation and how these have been addressed through this chapter.

8.3.41. In addition, following scoping, further consultation has taken place with NE, the Planning Inspectorate ('PINS'), NYCC (now North Yorkshire Council ('NYC')) and Yorkshire Wildlife Trust ('YWT') and these are also summarised.

Table 8.5: Consultation Summary

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
PINS	EIA Scoping Opinion (14th July 2022)	Content with scoping out Indirect effects on statutorily designated sites >2km from the red line	Adopted recommendations from PINS and requested a

[26] BNG delivery will be a legal requirement for all (terrestrial) NSIP projects from November 2025, further information available at: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-nsip-reforms-action-plan/nationally-significant-infrastructure-action-plan-for-reforms-to-the-planning-process (accessed 25/05/2023)

[27] Local Planning Authorities will have duties to report on BNG delivery under the Natural Environment and Rural Communities (NERC) Act 2006. Government has published guidance on complying with the NERC duty. See https://www.gov.uk/guidance/complying-with-the-biodiversity-duty [accessed August 2023].

[28] The BNG calculations will be undertaken utilizing the most recent DEFRA BNG Metric available, currently this is represented by the Biodiversity Metric 4.0, available at: https://publications.naturalengland.org.uk/publication/6049804846366720 (accessed 25/05/2023)

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		boundary if the ES demonstrates that there is no pathway for effect at identified sites and/or embedded mitigation avoids (secured via the DCO). Due to the absence of species-specific surveys (at that time), PINS did not agree to scope out impacts to statutory sites within 10km, of the Site where habitat is not deemed suitable for qualifying bird assemblages. Stated that the ES should be supported by appropriate surveys and where possible, consultation with the relevant bodies. Further full extended habitat survey data required before PINS would be content to scope out impacts on common and widespread habitats of low sensitivity and/or conservation interest. Due to the absence of species-specific surveys, PINS did not agree to scope out impacts to invertebrates on the basis that habitat is not deemed suitable. PINS requested that the ES should determine the baseline, prior to the assessment stage. Construction lighting impacts on biodiversity should be scoped in at this time. The ES should consider the potential for impacts on international sites designated for bats within a 30km study area or provide evidence to	further meeting to reach agreement and provide further clarity in regard to PINS scoping comments in regard to the requirement for additional ecological surveys.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		demonstrate the absence of a likely significant effect. Further bat activity surveys requested to inform the ES. Requested further non-breeding bird survey effort to cover areas missed during the 2021-2022 survey season, unless otherwise agreed with NE. Requested that all sensitive or vulnerable ecological features, should only be disclosed within confidential annexes.	
NE (Yorkshire and Northern Lincolnshire Area Team)	EIA Scoping response (4th July 2022)	The ES should thoroughly assess the potential for the proposal to affect the following designated sites: Humber Estuary SPA and Lower River Derwent SPA and other local sites. The ES should assess the impact of all phases of the proposal on protected species, and priority habitats/ species, and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. The ES should use an appropriate BNG metric together with ecological advice to calculate the change in biodiversity resulting from proposed development.	Potential impacts to designated sites are included in paragraphs 8.4.17 to 8.4.22. Potential impacts during the construction, operation and decommissioning phases are considered within Section 8.4. Version 4.0 of DEFRA's Biodiversity Metric Calculator has been included.
NYCC / SDC (now NYC)	EIA Scoping response (5th July 2022)	The approach to ecological assessment set out in the scoping document was supported, as was the commitment to include a BNG assessment as part of the Proposed Development application.	Noted. Cumulative impacts are considered within the assessment.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		Concerns raised regarding the scale of the proposed development and stated that cumulative impacts will need to be taken into account. NYCC/SDC stated that they are *'satisfied with the ecological elements proposed to be scoped into the Environmental Statement'*.	
Forestry Commission	EIA Scoping response (5th July 2022)	Noted that Kerrick Spring Wood ancient woodland site is directly adjacent to the Proposed Development's Solar Farm Zone and requested that the woodland is considered appropriately to avoid impacts.	Noted.
YWT	Virtual meeting on 4th August 2022	Discussed options to incorporate appropriate habitat creation within the Site, that will allow for enhanced biodiversity and connectivity in the wider landscape. Discussions were held with the Manager of Barlow Common who provided localised advice regarding habitat creation. The scope of ecological surveys undertaken/ proposed to inform the ES Chapter was discussed with the survey effort broadly agreed upon. YWT stated that they would find it helpful to be provided with survey data in order to provide an understanding of species distribution surrounding Barlow Common.	Opportunities to deliver biodiversity enhancements will be incorporated within the final biodiversity management plan and BNG assessment submitted as technical appendices to the final ES chapter.
PINS	Letter on behalf of the Applicant dated	Letter provided further clarity to issues raised by PINS through the scoping	A virtual meeting with PINS was arranged to

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
	3rd November 2022	process and requested further dialogue to discuss the requirement (or otherwise) for further targeted ecological surveys.	discuss the matters raised within the letter (see below).
PINS	Virtual meeting on 15th November 2022	Discussion on ecological baseline and requirements for targeted bat activity and invertebrate surveys. PINS noted the content of the letter dated 03/11/2022 and confirmed they would accept the Applicant's position subject to agreement with NE.	Agreement sought with NE through Discretionary Advice Service ('DAS') request dated 7th December 2022 (see below).
NE	Request for DAS by Avian Ecology Ltd on 7th December 2022	Seven questions submitted to be considered within the NE DAS advice: Does NE agree that, for the Proposed Development, surveys for invertebrates are not required? Does NE agree that, for the Proposed Development, bat activity surveys are not required? Does NE agree that the approach to roosting bats (Preliminary Roost Assessment section) is appropriate? Does NE agree that the scope and extent of breeding bird surveys, including survey areas, is acceptable for the purposes of impact assessment in the forthcoming ES? Does NE accept that the extent of survey area undertaken for wintering birds is acceptable for the purposes of impact assessment in the forthcoming ES?	Entered into DAS agreement with NE and DAS responses provided on 30th March 2023 (see below).

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		Does NE accept that the extent of survey area undertaken for wintering birds is acceptable for the purposes of Habitats Regulations Assessment ('HRA'), if required? Does NE agree that the extent (duration) of bird surveys undertaken is adequate and robust?	
NE	DAS response (DAS A008017) received in two documents on 30th March 2023	A summary of the NE responses to the seven submitted DAS questions is provided below: NE recommend that NYCC (now NYC) are consulted with. NE stated that Bat Survey Guidelines should be followed in respect of bat activity surveys. NE acknowledged that it may not be appropriate for bat activity surveys to be carried out in all the low suitability habitats and suggested monitoring and to adapt the survey method should higher levels of bat activity be recorded in negligible-low suitability fields. NE agree that the proposed approach is proportionate and acceptable given the information available at this stage. NE recommend that NYCC (now NYC) are consulted with. NE agree that the use of a 600m buffer is acceptable. NE state that a 600m survey buffer is acceptable. However, NE note that this buffer needs to cover the entire Site boundary including grid	Request for further information regarding DAS (DAS A008017) by the applicant – see below. Email request for meeting with the NYCC (now NYC) County Ecologist as advised by NE.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		connection routes, this survey information will need to be included within the HRA. NE requested further information in regard to passage birds through desk study, information gathered during the wintering bird period and passage bird surveys at the appropriate time of year. Without this information, NE stated that they cannot agree that the extent (duration) of bird surveys undertaken is adequate and robust. NE recommended that Vantage Point bird survey methodology be adopted for all surveys undertaken of the site and surrounding fields to provide an overview of bird usage, stating that it *'would be useful to record birds in flight especially if the application may have the potential to affect bird flight lines'*.	
NYCC (now NYC)	Email request for meeting with the County Ecologist	Request for consultation advice in regard to the scope of ecological surveys required to inform the ES Chapter following from NE DAS response.	Meeting arranged for 4th April 2023.
NYCC (now NYC) Ecologist	Virtual meeting on 4th April 2023	Provided an overview to NYCC (now NYC) Ecologist regarding the NE DAS request and explained that NE responded by advising that survey requirements should be agreed with NYCC (now NYC). It was explained that PINS are in agreement with the survey proposals but desired reassurance from NE,	Following from this consultation seasonal bat activity surveys are being undertaken, and targeted invertebrate sampling baseline information is being gathered, which will be provided within

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		which they were unable to provide. NYCC (now NYC) is therefore requested to advise. In relation to invertebrates, NYCC (now NYC) Ecologist advised that requirements for invertebrate surveys at other proposed solar development sites locally have been habitat-led and led by features on-site to provide a targeted approach. NYCC (now NYC) Ecologist advised to use the habitat data to discern whether habitat features may be present on the Site which may be suitable for notable invertebrates, rather than make assumptions and undertake non-targeted surveys. NYCC (now NYC) Ecologist agreed that survey need should be based on the effects of the Proposed Development. Further advised that there are no obvious habitat features at the Site that would require invertebrate surveys but requested a review of the identified habitats at the Site for certainty. In relation to breeding birds, it was proposed that rather than surveying any remaining parcels of land this land, the findings of the previous surveys on the Site could be extrapolated to assume the same assemblages supported, which would be a robust approach. NYCC	the ES Chapter.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		(now NYC) Ecologist agreed. In relation to non-breeding birds, NYCC (now NYC) Ecologist advised that they have no specific expectations of applicants beyond implementing best practice guidance for wintering bird surveys. NYCC (now NYC) Ecologist has advised applicants in the past to ensure sufficient data is available to potentially functionally linked areas. NYCC (now NYC) Ecologist was asked to confirm whether any particular survey methodology for non-breeding birds is advocated by NYCC (now NYC) and advised that NYCC (now NYC) do not consider vantage point ('VP') surveys as necessary for solar developments, as these are designed to determine collision risks for wind turbines. NYCC (now NYC) Ecologist noted that surveys should be designed to assess impacts of a proposed development and subsequently winter bird use of the site is the primary potential impact for a solar farm. In relation to bat surveys, NYCC (now NYC) Ecologist accepted that, as hedgerows are to be almost entirely retained, bat activity surveys for impact assessment are	

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		unnecessary. Further advised that establishing a baseline of activity would be beneficial in demonstrating the positives of the Proposed Development to bat activity. NYCC (now NYC) Ecologist advised that a 'light touch' to surveys would be appropriate. NYCC (now NYC) Ecologist advised there is likely to need for tree (bat roost) surveys if any trees are to be removed as part of the Proposed Development.	
NE	Email from Applicant to NE.	Request for further response and clarification to points raised in NE DAS A008017 response of 30/03/2023. Applicant requested clarification on the requirement for VP surveys, which have not been a requirement for other locally or comparable projects.	Response summarised below in email dated 9th May 2023.
NE	Email from NE to Applicant dated 9th May 2023.	Clarified their position on ornithology surveys; agreed VP surveys are not required and the methodology proposed was acceptable. Further clarified standard text had been used that could be misinterpreted and clarified that passage bird surveys were not required for the Proposed Development, noting that an assessment can be made using records and with reference to winter observations.	Information used to inform the PEIR.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
NE	Request for DAS by Avian Ecology Ltd sent on 10th May 2023	N/A	Formally requested further NE DAS, currently with undefined scope.

Limitations and Assumptions

8.3.42. There are no substantive limitations to the ecological assessment process recorded at this stage and there will be no identified substantive limitations to the final Biodiversity ES Chapter.

8.4. Baseline Conditions

Desk Study

8.4.1. A summary of the desk study results is provided below, further information is provided within Appendix 8.1 and discussed in greater detail within the associated Appendices.

Statutory Designated Sites for Nature Conservation

8.4.2. The Site is not located within any statutory designated site for nature conservation. There are 10 International and European statutory designated sites within 10km of the Site, and three UK statutory designated sites located within a 5km radius of the Site boundary. These sites are summarised in Table 8.6 below and are shown in Figure 2 within Appendix 8.1.

8.4.3. The Site is also located within several NE defined Site of Special Scientific Interest ('SSSI') Impact Risk Zones ('IRZs').

Table 8.6: Statutory Designated Sites for Nature Conservation

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
Barlow Common Local Nature Reserve ('LNR')	480m north	Mosaic of woodland, wetland, reedbeds and four large ponds.

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
Eskamhorn Meadows SSSI	2.31km south-east	Eskamhorn Meadows SSSI is a nationally important site for species-rich neutral grassland.
River Derwent SAC	2.22km north-east	Qualifying species consist of bullhead, river lamprey, otter and sea lamprey. Qualifying habitats consist of; water courses of plain to montane levels with Ranunculion fluitantis and Callitricho-Batrachion vegetation. (Rivers with floating vegetation often dominated by water-crowfoot).
River Derwent SSSI	2.22km north-east	One of the best British examples of the classic river profile, which supports diverse communities of aquatic flora and fauna, many elements of which are nationally significant.
Lower Derwent Valley SAC	6.47km north-east	Qualifying species: Otter. Qualifying Habitats: Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alder woodland on floodplains)
Lower Derwent Valley SPA	6.47km north-east	Qualifying features/assemblages: Bewick's swan Cygnus (non-breeding) Eurasian wigeon (non-breeding) Eurasian teal (non-breeding) Northern shoveler (breeding) European golden plover (non-breeding) Ruff (non-breeding) Waterbird assemblage
Lower Derwent Valley Ramsar site	6.55km north-east	Qualifying Habitats: Species-rich alluvial flood meadow; the river and flood meadows play a substantial role in the hydrological and ecological functioning of the Humber Basin. Qualifying Species/assemblages: Wetland invertebrates Ruff (non-breeding) Whimbrel (non-breeding) Eurasian wigeon (non-breeding) Eurasian teal (non-breeding) Wintering bird assemblages of international importance
Humber Estuary SAC	6.64km east	Qualifying species: Sea lamprey River lamprey Grey seal Qualifying Habitats: Subtidal sandbanks

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
		Estuaries intertidal mudflats and sandflats Coastal lagoons Glasswort and other annuals colonising mud and sand Atlantic salt meadows (Glauco-Puccinellietalia maritimae) Embryonic shifting dunes Shifting dunes with marram Dune grassland Dunes with sea-buckthorn
Humber Estuary SPA	6.64km east	Qualifying species/assemblages: Bittern (non-breeding and breeding) common shelduck (non-breeding) marsh harrier (Breeding) Hen harrier (non-breeding) Avocet (non-breeding and breeding) European golden plover; (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Ruff (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Common redshank (non-breeding) Little tern (Breeding) Waterbird assemblage
Humber Estuary Ramsar Site	6.64km east	Qualifying Habitats A near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/ saline lagoons. Qualifying species/assemblages Grey seal Natterjack toad Bufo calamita Common shelduck (non-breeding) European golden plover (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Common redshank (non-breeding) River lamprey Sea lamprey Non-breeding waterfowl assemblages of international importance.
Skipwith Common SAC	8.5km north	Qualifying features: Northern Atlantic wet heaths with Erica

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
		tetralix; Wet heathland with cross-leaved heath European dry heaths
Thorne Moor SAC	9.09km south-east	Degraded raised bogs still capable of natural regeneration.
Thorne & Hatfield Moors SPA	9.09km south-east	European nightjar (Breeding)

Non-Statutory Designated Sites for Nature Conservation

8.4.4. The Site is not located within a non-statutory designated site for nature conservation. There are fifteen non-statutory designated sites within 2km of the Site, summarised within Table 8.7 below. Locations are illustrated in Figure 3 of Appendix 8.1.

Table 8.7: Non-Statutory Designated Sites for Nature Conservation

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
Field near Primrose Hill, Cat Babbleton NY SINC SE62-18	Directly adjacent to the Site boundary.	Not provided by NEYEDC.
Sand Pitt Wood and Barffs Close Plantation NY SINC SE62-12	Directly adjacent to the Site boundary.	Not provided by NEYEDC.
Cobble Croft Wood NY SINC SE62-01	105m north-east	Naturally regenerated broadleaved woodland, with stands of introduced ash / sycamore and hazel understory shrub. Field layer dominated by bracken with abundant creeping soft grass and climbing corydalis. Bluebell, wood sorrel and broad buckler fern are locally abundant with occasional wood sage.
Common Plantation NY SINC SE62-07	270m north-east	Plantation woodland dominated by downy and silver birch. With locally frequent sycamore, oak and hybrid oak and occasional ash and rowan from a subordinate element.
Woodland on Barlow Pasture, Botany Bay Farm NY SINC SE62-02	430m north	Damp broadleaved woodland with patches of grey sallow Salix cinerea carr and occasional blackthorn Prunus spinosa thickets.
Barlow Common YWT Reserve	500m north	Dense or scattered scrub (principally fringing much of the site) and short

Site Name	Approximate Distance and Direction from the Site	Qualifying Features
		rabbit Oryctolagus cuniculus grazed moderately neutral or acidic farmland. Supports a variety of flora and fauna species. Presence of Japanese knotweed Fallopia japonica.
Barlow Common NY SINC SE62-08	500m north	Component of the Barlow Common YWT Reserve detailed above.
Burn Disused Airfield NY SINC SE62-19	630m west	Habitat mosaic including arable habitat, tall ruderal grassland, scrub/tree cover, marshy grassland and semi-improved neutral grassland.
Brockholes NY SINC SE62-17	905m south-east	Fishing lake which is surrounded by dense scrub and tree cover of a variety of species. The botanical aquatic communities show some diversity and interest. Presence of Canadian pondweed and Himalayan balsam.
West Marsh NY SINC SE62-05	1.14km south	Two hay meadows which support a diverse mixture of grasses featuring at least eighteen species.
Oakney Woods and Ponds NY SINC SE63-08	1.67km north-west	Two former clay pits, with surrounding woodland and grassland. With occasional marginal vegetation including on a partially-submerged spit. Presence of Himalayan balsam.
Selby Canal & Towpath NY SINC SE52-19	1.75km north-west	Canal and banksides with tall herb, scrub, neutral grassland, common reed and woodland habitat.
Carlton Park Pond NY SINC SE62-04	1.80km south-east	A large ornamental lake in a parkland setting, with extensive beds of yellow lily, a smaller water body supports submerged beds of Elodea sp.
Meadows nr River Aire NY SINC SE62-03	1.3km south	Hay meadow containing a diverse range of botanical species.
Gowdall Marsh LWS	1.94km south-west	Not provided by NEYEDC.

Priority Habitats: Desk Based Records

8.4.5. 11 Habitats of Principal Importance (also known as priority habitats) as defined under Section 41 of the NERC Act/ UK BAP are located within 2km of the Site as presented in Table 8.8 below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, to provide context for the Site and surrounding area. Further information is provided within Appendix 8.1.

Table 8.8: Priority Habitats

Priority habitat	Designation	Distance of nearest habitat from site
Deciduous Woodland	NERC S.41, UKBAP, LBAP	Within the Site
Hedgerows	NERC S.41, UKBAP, LBAP	Within the Site
Ponds	NERC S.41, UKBAP, LBAP	Within the Site
Arable Farmland	LBAP	Within the Site
Ditches	LBAP	Within the Site
Ancient Woodland	AWI, LBAP	Directly adjacent to the Site boundary (Kerrick Spring Wood)
Traditional Orchards	NERC S.41, UKBAP	Directly adjacent to the Site boundary
Towns and Villages	LBAP	Directly adjacent to the Site boundary
Lakes	NERC S.41, UKBAP, LBAP	200m east
Open Mosaic Habitat	NERC S.41, UKBAP	600m north-east of southern parcel
Rivers and Streams	NERC S.41, UKBAP, LBAP	720m south
Coastal and Floodplain Grazing Marsh	NERC S.41, UKBAP, LBAP	765m south-east
Lowland Fens	NERC S.41, UKBAP, LBAP	890m south-east
Woodpasture and Parkland	NERC S.41, UKBAP, LBAP	1.20km south-east
Canal	LBAP	1.23km north-west
Mudflats	NERC S.41, UKBAP	1.85km north-east
Key NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006) Section 41. UKBAP: UK Biodiversity Action Plan Priority Habitat LBAP: Selby Biodiversity Action Plan Priority Habitat AWI: Ancient Woodland Inventory		

8.4.6. A review of the Woodland Trust Ancient Tree Inventory[29] identified no notable trees within the Site. Two notable trees were identified within 500m of the Site; a veteran pedunculate oak (National Tree ID: 14482) located on Sandwith Lane directly adjacent to the Site boundary at, and a second veteran oak tree (National Tree ID: 14481) approximately 70m east of the first tree along Sandwith Lane. An Aboricultural Impact Assessment prepared by Barton Hyett Associates Ltd is provided at Appendix 8.6.

[29] Available at: https://ati.woodlandtrust.org.uk/ (accessed 06/05/2023)

8.4.7. A review of the NE Open Data Geoportal[30] identified no ancient or irreplaceable peaty soil habitat within the Site or within 500m of the Site boundary.

Habitats

8.4.8. Habitats within the Site predominantly comprise of arable fields that are bounded by a combination of hedgerows, tree lines, grassland field margins, woodlands, and ditches. One dry pond is located within the Site.

8.4.9. The following broad habitat types were recorded within the Proposed Development:

- Arable (UKHab codes: c1.74, c1a, c1a8, c1c, c1c5, c1c.74, c1c5.73, and c1d);
- Neutral Grassland (UKHab codes: g3c, g3.10, and g3.10.77,);
- Modified Grassland (UKHab codes: g4, g4.11, g4.10.11.16, and g4.11.64.540;
- Hedgerows (UKHab codes: h2a.11.76, h2a.76, and h2a.77);
- Line of Trees (UKHab code: w1g6);
- Ditches (UKHab code: r1.191);
- Ponds (UKHab code: r1a.19);
- Woodlands (UKHab codes: w1g, w1g.36, w1g.53, w1g.56, w1g.76, w1f7.12.37, and w2b.12.36);
- Scrub (UKHab codes: h3d, h3d.11, h3h, and h3h.11); and
- Urban (UKHab codes: u1b, u1b5, u1c, u1e.69, u1e.111, and u1e.115).

8.4.10. Detailed habitat descriptions and target notes, and associated photographic plates are provided within Appendix 8.1. Baseline habitats recorded within the Site during Extended UKHab surveys, are illustrated in Figures 4 to 8 of Appendix 8.1.

Invertebrates

8.4.11. The data received from NEYEDC returned 20 records of invertebrate species within 2km of the Site. Most notable species returned include two records of small heath and one record of wall butterflies. Notable invertebrate records were recorded primarily at Drax Power Station and Barlow Common.

[30] Available a**t:** https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::peaty-soils-location-england/explore?location=53.965987%2C-2.238949%2C8.56 (accessed 06/05/2023)

8.4.12. Historical records of notable invertebrate species returned include shaded broad-bar and cinnabar. Neither species records were located within the Site.

8.4.13. Small heath and wall butterflies and shaded broad-bar and cinnabar moth are listed as species of principal importance in England under Section 41 of the NERC Act 2006.

8.4.14. The Site mainly consists of intensively managed agricultural arable land. The current management of the land includes the regular application of herbicides and pesticides to prevent the growth of 'non-crop' vegetation which could potentially support invertebrates. In addition, both herbicides and pesticides are directly toxic to invertebrates, causing fatality.

8.4.15. Linear habitats within, and surrounding the Site, such as hedgerows, ditches, pond and woodland are considered likely to support a more diverse invertebrate community than arable fields, although such features will be retained as part of the Proposed Development. These communities will also be heavily impacted by existing land management practices, including herbicide and pesticide drift from agricultural fields and manure/fertiliser run-off impacting ditches and ponds.

Birds

Desk Study

8.4.16. The NEYEDC data search returned no records from within the Site itself. 140 records of 44 notable bird species within 2km of the Site were returned, including a variety of priority species commonly associated with the farmland and woodland habitats surrounding the Site.

8.4.17. Seven species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were returned, including little ringed plover, marsh harrier, barn owl, kingfisher, and peregrine.

8.4.18. A detailed desk study is presented in the ornithological baseline report (Appendix 8.2).

Breeding Bird Survey

8.4.19. Detailed survey results and further confidential breeding bird information regarding

species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) is provided in Appendix 8.2. and within Figures 8 – 10 in Appendix 8.2.

8.4.20. The breeding bird assemblage recorded within the Site is typically representative of farmland habitats of the region. A total of 51 species were recorded breeding within the Site or within 100m of the Site boundary. Notable species were defined as those Red-listed or Amber-listed on 'Birds of Conservation Concern 5'[31]. 12 Red List[32] species (corn bunting, greenfinch, house martin, house sparrow, lapwing, linnet, mistle thrush, skylark, starling, tree sparrow, yellowhammer, and yellow wagtail) and 13 Amber List species (mallard, sparrowhawk, stock dove, woodpigeon, kestrel, rook, wren, dunnock, song thrush, willow warbler, whitethroat, bullfinch and reed bunting) were identified. Of the 25 notable species, 13 are also listed as rare and most threatened under Section 41 of the NERC Act (2006) (lapwing, skylark, dunnock, song thrush, starling, house sparrow, tree sparrow, yellow wagtail, bullfinch, linnet, corn bunting, yellowhammer and reed bunting), eight are listed under the Selby LBAP (lapwing, skylark, starling, house sparrow, tree sparrow, linnet, corn bunting and yellowhammer).

8.4.21. Two species listed within Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were recorded as potentially breeding within and surrounding the Site.

8.4.22. The notable species breeding assemblage was typically associated with vegetation along field boundaries on-Site, principally hedgerows, scrub, watercourses, treelines, and woodland habitats. House martin was associated with urban structures bordering the Site.

8.4.23. Ground-nesting notable species which use open agricultural fields on-Site consisted of corn bunting (10 territories), lapwing (four territories), skylark (30 territories), and yellow wagtail (seven territories).

Non-Breeding Bird Survey

[31] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747. Available at: https://britishbirds.co.uk/content/status-our-bird-populations (accessed on 31/05/2023)

[32] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747. Available at https://britishbirds.co.uk/content/status-our-bird-populations (accessed on 31/05/2023)

8.4.24. Detailed results are presented in the ornithological baseline report (Appendix 8.2), and within Figures 1 – 10 in Appendix 8.2.

8.4.25. Target species consisted of wetland birds such as waders, waterfowl and gulls and Annex 1[33]/Schedule 1[34] raptors and owls. Activity within the Site remained low throughout the entire survey period, with Target Species being limited to individuals, pairs and sporadic small flocks. Lapwings were intermittently recorded in field 25, with a maximum flock size of 72 birds in February 2022, and in Field 234 during two of the survey visits, with a maximum flock size of 92 birds in October 2021.

8.4.26. Additional low numbers of Target Species recorded comprised: oystercatcher, Mediterranean gull (in-flight only), pink-footed geese (in-flight only), greylag goose (in-flight only) mallard, little egret, grey heron, little grebe, golden plover (maximum of two birds), and common gull.

8.4.27. The 600m buffer zone from the Site as shown on Figure 1 of Appendix 8.2, similarly supported low numbers of target species sporadically spread across fields (110 pink-footed goose Field 194 on one occasion being the most notable record); except for the large lake located in Field 339, which was found to support a more diverse range of waterbirds of open water habitats compared to surrounding arable landscape.

Bats

Desk Study

8.4.28. The data received from NEYEDC returned 30 recent bat records within 2km of the Site, including: Daubenton's bat (two records), noctule (four records), Leisler's bat (one record), common pipistrelle (14 records), soprano pipistrelle (four records) and an unknown Myotis bat species (five records). No bat records were returned within the Site itself, with records predominantly located north-west of the neighbouring Drax Power Station in the adjacent Skylark Centre and Nature Reserve. This area includes woodland, grassland, and linear freshwater habitat.

8.4.29. No recent records include roost locations were provided; however, all six historical records involve roosting pipistrelle bats, with the closest record returned in urban

[33] Available at**:** https://lists.nbnatlas.org/speciesListItem/list/dr2401 **(**accessed on 20/02/2023)

[34] Available at**:** https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/ (accessed on 20/02/2023)

habitat approximately 200m north-west of the Proposed Development cable route.

8.4.30. A review of MAGIC identified four NE licences granted for bat roosts within 2km of the Site, the closest being 0.73km south-west of the Site.

Habitat Assessment: Commuting and Foraging Bats

8.4.31. The dominant habitats consist of intensively managed agricultural land, the majority of which is used for arable purposes (see Figures 4 to 8 of Appendix 8.1.) Open arable farmland offers negligible-low foraging and commuting potential for bats, and bat activity is considered likely to be concentrated along boundary features such as hedgerows and ditch networks. Current farming practices, particularly the use of herbicides and pesticides, also mean that low flying invertebrate prey species will likely be limited.

8.4.32. Therefore, the predominantly arable habitats throughout the Site and beyond provide little suitability for bats, however, the network of hedges, ditches, tree lines, watercourses, pond, and occasional woodlands do provide some limited moderate potential opportunities for commuting and foraging. Following current guidance[35], the Site is therefore considered to have low overall commuting and foraging value for bat species.

Habitat Assessment: Roosting Bats

8.4.33. Two small buildings were identified within the National Grid Substation and Access (see Figure 8 of Appendix 8.1 and Figure 3.2 Parameter Plan of the PEIR). These buildings are single storey brick built/flat-roofed buildings, no direct access was available to undertake a detailed inspection (buildings are located within a live network grid connection compound). However, as a precaution, these have been assigned a negligible-low suitability for roosting bats.

8.4.34. The hedgerows within the Site have varying numbers of semi-mature and mature trees; some of these are likely to have bat roosting potential, as do the woodland trees, scattered mature standalone trees and trees in rows. Two mature trees within the Site were noted to have high potential bat roosting features during the extended

[35] Colins, J. (ed). (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).* https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 (accessed on 07/06/2023)

habitat survey (see Appendix 8.1).

8.4.35. Woodland parcels within and directly adjacent to the Site generally contain mature trees potentially with bat roosting potential.

Badger

8.4.36. Badger information is provided in Appendix 8.4.

Water Vole and Otter

8.4.37. Detailed results are presented in Appendix 8.3.

Desk Study

8.4.38. No records of water vole were returned from within the Site. However, a small number of water vole records were returned within 2km of the Site. Water voles are noted as a feature of interest for the Barlow Common LNR, located 0.48km to the north-east of the Site (at its closest point), suggesting that water vole populations are or have been present within the wider environment.

8.4.39. A small number of records of otter, both recent and historic, were also returned by NEYEDC from within 2km of the Site; the closest of these records being found in association with local water bodies (i.e., the Selby Canal and River Aire), indicating that the species is at least occasionally present with the wider environment.

Survey Results: Water Vole

8.4.40. Surveyed ditch sections were assessed as providing varying suitability for water vole, ranging from unsuitable to optimal (see Table 3.1 within Appendix 8.3). The majority of ditches are subject to management practices, with vegetation removed on a regular basis, thereby reducing their potential to support water vole populations.

8.4.41. No evidence of water vole presence was identified on-Site during the 2022 and 2023 surveys. A number of small mammal burrows were identified within certain ditches, no conclusive signs of water vole were found in association, with field signs being limited to rat droppings and field vole latrines. The water vole detection dog teams recorded no evidence of water vole during surveys.

Survey Results: Otter

8.4.42. No otter field signs were recorded throughout the surveys. In addition, no otter field signs were recorded during habitat surveys and other ecological surveys undertaken within and surrounding the Site in 2021, 2022 and 2023. It is therefore considered that the species is not regularly present within the Site.

Amphibians

8.4.43. Detailed results are presented in the Amphibian Baseline Report (Appendix 8.5).

Desk Study

8.4.44. No amphibian records received from NEYEDC were located directly within the Site; the closest records in proximity to the Site relate to GCN, located approximately 0.8km north-east. NEYEDC returned a total of thirty recent records relating to amphibian species from within a 2km radius of the Site; specifically, these records related to GCN, common toad, common frog and smooth newt.

8.4.45. A data review of MAGIC identified a single record of a GCN class license return within 2km of the Site, relating to an area approximately 1.8km to the north-east.

8.4.46. GCN eDNA pond surveys undertaken in 2017, 2018, and 2019[36] to inform the provision of DLL, included the survey of six ponds within 2km of the Site. Of these, a single pond was located directly on-Site (shown as P4 within Figures 1 to 5, Appendix 8.5), and another directly adjacent (shown as P34 within Figures 1 to 5, Appendix 8.5). P34 was stated to have GCN eDNA present at the time of survey (2019), whilst survey results for P4 were stated to be inconclusive (2019). A further three ponds were recorded as positive for GCN eDNA in the wider landscape, all of which are located beyond 500m from the Site boundaries, the closest of which is located approximately 0.8km north-east within Barlow Common LNR.

Environmental DNA (eDNA) Sampling Results

8.4.47. eDNA sampling of ponds and ditches in 2021, 2022, and 2023 returned a single positive result for pond 34 (P34), whilst the remaining features surveyed all returned negative results.

8.4.48. Consequently, a positive result for P34 suggests that breeding GCN are present

[36] Available at: https://www.data.gov.uk/dataset/8643f1b9-b419-4ee8-8e9c-18200e0edc31/great-crested-newt-edna-habitat-suitability-index-pond-surveys-for-district-level-licensing-2017-2018-2019 (accessed 27/02/ 2023)

directly adjacent to Site, although wider survey results would indicate that the geographical terrestrial spread of the species within the Site is limited to a localised area surrounding P34.

8.4.49. Additionally, records identified via the desk study also indicated the presence of GCN at P34.

Reptiles

Desk Study

8.4.50. The data search identified nineteen recent records of grass snake in the surrounding 2km area. Records were identified in wetland, grassland and woodland habitats north-west of the Drax Power Station, with the closest being approximately 1.6km north-west of the Site boundary.

8.4.51. Six historical reptile records were also returned in the search area dating between 1998 and 2004. All six records relate to grass snake, which occur in various wetland and terrestrial habitat surrounding the Site. The closest historical grass snake record was identified approximately 460m north of the Site boundary in woodland habitat.

Habitat Suitability Assessment

8.4.52. The Site is dominated by arable farmland, which is considered to be of a negligible value for reptile species, however, the field boundary habitats such as hedgerows, ditches, field margins (where present) and grassland road verges do potentially provide limited habitats for foraging/hibernation purposes.

8.4.53. The Site has habitat connectivity to similar extensive farmland habitats in the wider landscape, direct habitat connectivity to woodland/wetland habitats which may support wider populations of reptile species. It is therefore considered that the limited suitable habitats within the Site may potentially support low numbers of reptile species; most notably grass snake.

Other Priority Species

8.4.54. The data search also returned recent records consisting of brown hare, red squirrel and polecat within 2km of the Site since 2005. Brown hare returned five recent records and one historical record in surrounding habitats, with one record being

located within the Site (in its north-eastern part). The species has also been recorded within the Site during ecological surveys.

8.4.55. Red squirrel records received from NEYEDC include two observations in 2011 approximately 825m north-west of the Site in woodland habitats near the Drax Power Station. These records are located significantly outside of the current known range of the species[37] and are considered likely to represent escaped or deliberately released animals, therefore local populations of the species are not considered likely within or surrounding the Site.

8.4.56. Polecat records consist of a single record in 2007 located directly adjacent to the Site boundary on the A1041. It is considered likely that polecat likely utilise linear field boundary features/woodlands and adjacent farm buildings etc. on an occasional basis.

8.4.57. A single historical record of hedgehog was also returned in the data search. This record from 2002 was located 2km north-west of the Site. It is also considered likely that hedgehogs are present with on-Site/adjacent woodlands and utilise the linear field boundary features for foraging/commuting purposes.

Invasive Species

Desk Study

8.4.58. The NEYEDC returned 21 records comprising five plant species listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) within the search area; Himalayan balsam (seventeen records), Canadian waterweed (one record), Japanese knotweed (one record), giant hogweed (one record) and Nuttall's waterweed (one record). No records were returned within the Site itself.

8.4.59. 14 historical records relating to invasive plants species listed on Schedule 9 were returned in the data search. Of these, several were recorded directly adjacent to the Site in 1998.

Extended Habitat Survey Results

8.4.60. Pontic rhododendron was recorded in three adjacent woodland parcels. The species

[37] Available at**:** https://www.rsst.org.uk/where-to-find-red-squirrels/ (accessed 01/06/2023)

was identified in abundance within a woodland located west of Jowland Winn Lane, in Jowland Whin. An abundance of the species was also recorded in a large woodland parcel encompassed and surrounded by the north-western part of the Site. This woodland is located 545m east of Hagg Bush Lane, 475m south of Common Lane and 500m west of Chester Court Road.

8.4.61. Himalayan balsam was identified in abundance throughout the site and adjacent habitats and wider area, primarily occurring in ditch, pond and woodland habitats. The species was recorded in one on-Site woodland (see Appendix 8.1 for more information).

Future Baseline Conditions

8.4.62. It is considered that in the absence of the Proposed Development, future ecological baseline conditions will remain relatively static. The majority of the Site would continue to be managed under intensive agricultural crop rotation patterns, with biodiversity value limited to existing field boundary habitats.

8.4.63. Climate change projections (see Chapter 12 Climate Change of the PEIR) suggest that summers will become warmer and drier, with an expected increase in maximum summer temperatures and overall significant decline in summer precipitation over the lifespan of the Proposed Development. It is therefore considered likely that, without sensitive management, the remaining semi-natural habitats (and associated species) within the Site (i.e., habitats not subject to intensive agricultural practices) will potentially be subject to deterioration in abundance and condition.

8.4.64. Biodiversity value may reduce along boundary features such as ditches if the spread of invasive species such as Himalayan balsam continues within the Site.

Determining Features to be Scoped-in for Detailed Assessment

8.4.65. In accordance with the CIEEM guidelines (2018), the assessment only assesses in detail, impacts upon important ecological features i.e., those that are considered important and potentially affected. It is not considered necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to project impacts and will remain viable and sustainable. Where ecological features are not considered important enough to warrant further consideration, or where they will not be significantly affected, these can be scoped out of the assessment process,

and justification for exclusion is provided.

8.4.66. Table 8.9 presents the evaluation of identified ecological features and provides the rationale as to why individual features have been included or 'scoped out' of the detailed assessment.

Table 8.9: Importance of Ecological Features

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Barlow Common LNR & Eskamhorn Meadows SSSI	Regional/County and National	Due to the static nature of the sites' qualifying habitat interests and spatial separation, embedded mitigation and good practice measures will be sufficient to prevent any impacts, therefore, the potential for direct and indirect effects upon these statutory designated sites for nature conservation is scoped out of the assessment.
River Derwent SAC/SSSI, Lower Derwent Valley SAC, Humber Estuary SAC, Thorne Moor SAC, and Skipwith Common SAC.	International & National	Due to the static nature of the sites' qualifying habitat interests, spatial separation and absence of hydrological pathways of connectivity, embedded mitigation and good practice measures will be sufficient to prevent any impacts, therefore, the potential for direct and indirect effects upon these statutory designated sites for nature conservation is scoped out of the assessment.
Thorne & Hatfield Moors SPA	International	Due to the spatial separation and unsuitability of the Site to support qualifying interest features of the SPA (nightjar) the potential for direct and indirect effects upon this statutory designated site for nature conservation is scoped out of the assessment.
Lower Derwent Valley SPA/Ramsar & Humber Estuary SPA/Ramsar	International	The results of the 2021/2022 and 2022/2023 non-breeding bird surveys indicate that the Site and surrounding land (within 600m) is not functionally linked and does not regularly support foraging/roosting species associated with these statutory designated sites for nature conservation. Therefore, due to the survey results, the spatial separation (over 6km from the Site), and absence of hydrological pathways of connectivity, it is considered that embedded mitigation and good practice measures will be sufficient to

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		prevent any direct or indirect effects from occurring and are scoped out of the assessment. The potential for likely significant effects upon European sites is provided in Section 8.10 'Information to Inform Habitats Regulations Assessment'.
Non-statutory designated sites (located adjacent to the Site)	Regional - Local	Two non-statutory designated sites are located directly adjacent to the Site, due to the lack of spatial separation, these will be scoped into the assessment.
Non-statutory designated sites (spatially separated)	Regional - Local	Due to the static nature of the sites' qualifying habitat interests and spatial separation, embedded mitigation and good practice measures will be sufficient to prevent any impacts from occurring to other non-statutory designated sites, therefore, the potential for direct and indirect effects upon these statutory designated sites for nature conservation is scoped out of the assessment.
Habitats	Local	Priority habitats including lowland mixed deciduous woodland, hedgerows, ponds, and ditches, are present within the Site. Ancient woodland and traditional orchards are also located directly adjacent to the Site. The potential for direct and indirect effects is considered further due to the close proximity of these habitats. The remaining habitats within the Site are common and widespread locally and regionally. However, protected or notable species may utilise such habitats and therefore, there is potential for these species to be affected. Scoped into the assessment.
Invertebrates	Site	Targeted baseline surveys are being undertaken and will be used to inform the final ES. It is considered that the commitment to the retention of habitats with ecological value to invertebrates and the commitment to deliver measurable habitat gains through the BNG process, and cessation of regular herbicides and pesticide applications associated with the current intensive agricultural land management, there will be a benefit to invertebrate populations within the Site

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		and surrounding environment. Subsequently, there is no identified pathway for a significant adverse effect from the Proposed Development. Scoped out of the assessment.
Breeding birds	Site – Local	The Proposed Development has been designed to avoid boundary features which support the majority of breeding bird species. The majority of species will benefit from the Proposed Development and commitment to BNG through embedded habitat enhancements. However, some ground nesting birds of open landscape such as skylark, yellow wagtail and lapwing may be subject to displacement. Scoped into the assessment.
Non-breeding birds (including both over-wintering and passage periods)	Site - Local	Sporadic small flocks of lapwings were recorded in field 25, with a maximum flock size of 72 birds in February 2022, and in Field 234 during two of the survey visits, with a maximum flock size of 92 birds in October 2021. The 600m buffer zone from the Site similarly supported low numbers of target species sporadically spread across fields, except for the large lake located in Field 339, which was found to regularly support a more diverse range of waterbirds compared to surrounding arable landscape. This lake is located approximately 200m from the underground cable corridor to the grid connection (which runs along New Road and within the existing Drax national grid compound) and is visually shielded by a large area of farmland and mature woodland/tree belt, therefore the potential for disturbance of waterbirds located within this lake is considered to be negligible and not significant. Small numbers of waterbirds (most notably lapwing) may be subject to minor levels of displacement from the Site. However, the availability of extensive similar arable habitats within the surrounding landscape is considered likely to mitigate such minor non-significant displacements. Scoped out of the assessment.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		The potential for likely significant effects upon qualifying bird assemblages associated with European sites is provided in Section 8.10 'Information to Inform Habitats Regulations Assessment'.
Bats – foraging/commuting	Site	The Proposed Development has been designed to avoid boundary features which provide habitats for foraging bats. The commitment to deliver measurable habitat gains through the BNG process, adoption of sensitive lighting strategies (as detailed within the outline Landscape Environmental Management Plan ('oLEMP') to submitted with the final ES) and cessation of regular herbicides and pesticide applications associated with the current intensive agricultural land management, will provide benefit to foraging and commuting bat species within the Site and surrounding environment. Subsequently, there is no identified pathway for an adverse effect from the Proposed Development. Following consultation with NYC, (see Table 8.5) the NYC Ecologist accepted that, as hedgerows are to be largely retained, bat activity surveys for impact assessment are unnecessary and there will be no significant pathway of effect on commuting/foraging bat species. Scoped out of the assessment. However, foraging/commuting bats are considered within the mitigation in section 8.5 'Likely Significant Effects'.
Bats - Roosting	Local	Two small buildings identified within the substation area at Drax Power Station, with negligible-low suitability for roosting bats. Neither building will be impacted by the Proposed Development. Many of the hedgerows within the Site have varying numbers of trees; of which some have varying degrees of bat roosting potential, as do the woodland trees, scattered mature standalone trees and trees in rows. There are no plans for tree felling on the Site. The Proposed Development will be informed by an oLEMP (to submitted with the final ES) which will include the

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		provision of artificial bat roosting opportunities, which will increase, enhance, and diversify opportunities for roosting. Subsequently, there is no identified pathway for an adverse effect from the Proposed Development. The Proposed Development and associated works will be legislatively compliant and where necessary subject to a European Protected Species Mitigation Licence ('EPSML'), which will ensure that the favourable conservation status of roosting bat species will be maintained. Scoped out of assessment. However, roosting bats are considered within the mitigation in section 8.5 'Likely Significant Effects' and included to enable legislative compliance.
Badger	Site	Further information provided in Appendix 8.4. Scoped out of assessment but is considered within in section 8.5 'Likely Significant Effects' and included to enable legislative compliance.
Water Vole and Otter	Local – Regional	No evidence of either species recorded during the surveys undertaken between 2022 and 2023. Avoidance of impacts to ditches/watercourses has been adopted within the overall design of the Proposed Development. The commitment to deliver measurable habitat gains through the BNG process will strengthen habitat corridors along ditch networks within the Site, providing increased opportunities for these species if colonisation of the Site in the case of water vole) was to occur. Subsequently, there is no identified pathway for any adverse effects from the Proposed Development. Scoped out of assessment but is considered within the mitigation in section 8.5 'Likely Significant Effects' and included to enable legislative compliance.
Amphibians	Site	The presence of GCN was confirmed in P34 (adjacent to the Site), whilst all other waterbodies surveyed returned negative

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		results. The extensive provision of habitat enhancements through the delivery of BNG will provide increased terrestrial habitat availability for local populations of amphibians. P34 is not located within 250m of any permanent proposed development, with only low impact grid-connection works through agricultural farmland planned within 250m, outside of the core 50m buffer surrounding the pond. The potential for impacts to GCN will therefore be restricted by trenching works associated with the installation of grid connection equipment. If grid connection works cannot avoid habitat clearance works within 50m of the pond in suitable GCN habitat (i.e., hedgerows, ditches etc, this will be subject to a EPSML or alternative method such as DLL[38], which ensures that the favourable conservation status of the species will be maintained. Otherwise, RAMs for amphibians will be utilised and detailed within the CEMP. Scoped out of assessment. However, amphibians are considered within the mitigation in section 8.5 'Likely Significant Effects' and included to enable legislative compliance (GCN).
Reptile	Local	Much of the Site consists of intensively managed agricultural land, which is largely unsuitable for reptile species. However, linear habitats within the Site such as hedgerows, have some suitability and will be retained, protected as part of the CEMP and the extensive provision of habitat enhancements through the delivery of BNG, which will likely benefit local reptile populations. Protection measures will be implemented to avoid impacts to reptiles, including the adoption of RAMs, further details will be provided within the detailed CEMP to be agreed prior to construction works. Scoped out of assessment but considered within the mitigation in

[38] Available at: https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes-for-developers/developers-how-to-join-the-great-crested-newt-district-level-licensing-scheme#where (accessed 01/06/2023)

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		section 8.5 'Likely Significant Effects'.
Other priority mammals	Site	Brown hare are known to occur within the Site, and existing linear field margin/woodland habitats (which will largely be retained) within the Site are considered likely to support hedgehog and polecat, at least on an occasional basis. These species will be protected and avoided as part of the detailed CEMP to be agreed prior to construction work and significant habitat enhancements will be provided, benefitting local populations; as detailed within the in-line with the oLEMP, to be provided with the final ES. Scoped out of assessment but considered within the mitigation in section 8.5 'Likely Significant Effects'. Red squirrel is scoped out of the assessment, as the Site is outside of the current range of the species.
Invasive Species	Local	Himalayan balsam has been recorded within the Site and Pontic rhododendron has been recorded immediately adjacent to the Site. Scoped out of assessment but considered in the mitigation in section 8.5 'Likely Significant Effects' and included to enable legislative compliance.

8.5. Likely Significant Effects

8.5.1. Potential effects on ecological features (those scoped into the detailed assessment as detailed in Table 8.9) have been considered. Effects are initially assessed in the absence of specific (non-embedded) mitigation, with residual effects presented thereafter.

Mitigation and Enhancements

Embedded Mitigation

8.5.2. The design of the Proposed Development includes a range of inherent embedded elements which avoid or reduce the potential for adverse ecological impacts, including retaining identified higher value habitat features such as hedgerows, ditches, and woodlands, and focusing the large majority of the built development

proposals within lower ecological value agricultural land. Additionally, sensitive, or high value ecological features outside the Site have been protected as part of the design which sets in place buffer zones and other safeguarding measures, all of which has been built-in to as part of the iterative design process.

8.5.3. Figure 3.2 Parameter Plan of the PEIR includes the extensive provision of areas of habitat creation, the final Landscape Strategy to be submitted with the final ES will include extensive embedded habitat creation which will diversify and strengthen the biodiversity interest of the Proposed Development itself, and neighbouring areas.

Measures to be adopted by the Project

Outline Construction Environmental Management Plan ('oCEMP')

8.5.4. The potential for adverse effects during the construction phase have also been avoided and 'designed out' where practicable, and these will be controlled through standard good construction and environmental working practices as an integral part of the Proposed Development, detailed within oCEMP and secured as a DCO requirement. A detailed CEMP will be agreed prior to construction works with NYC.

8.5.5. An ecologically sensitive approach to construction will be implemented through the provision of the CEMP. The oCEMP details measures and approaches to be adopted which will limit the likelihood of impacts upon retained habitats through damage, pollution and disturbance. Habitat protection buffers will be maintained throughout the construction phase, and identified with appropriate fencing and signage along with site team briefings at 'tool box talks'.

8.5.6. The oCEMP describes measures to be implemented during the construction process and may, for example, include commitments to Species Protection Plans, RAMs, pre-construction surveys and appropriate derogation licenses as well as pollution (including dust) control, managed construction lighting and noise / traffic management measures.

8.5.7. A suitably qualified and experienced Ecological Clerk of Works ('ECoW') (or team of ECoWs) will be appointed prior to the commencement of construction activities and

through whom appropriate ecological advice will be provided throughout. The ECoW will be responsible for undertaking and/or co-ordinating checks for protected species before providing confirmation that construction and decommissioning activities can commence. The ECoW will also maintain a watching brief as necessary throughout the construction phase to ensure compliance with relevant legislation, including adhering to any protected species mitigation measures required, such as GCN mitigation requirements associated with a EPSML or DLL application, if required. Further information will be provided within the CEMP.

8.5.8. An oLEMP will be prepared and submitted with the final ES which specifies how the habitats within the operational array will be managed. Post-construction site management and monitoring will be specified, designed to reduce interference with created and retained habitats while promoting their establishment and biodiversity contribution. This will contribute to the establishment of coherent ecological networks, supporting the BNG targets of the Environment Act 2021.

Construction Phase Measures

8.5.9. As discussed, the potential for adverse effects during the construction phase will be controlled through the standard good construction and environmental working practices adopted by the project as an integral part of the Proposed Development, detailed within the oCEMP and secured via DCO requirement.

8.5.10. Habitat protection buffers will be maintained throughout the construction phase and will be implemented as part of the oCEMP, and identified with appropriate fencing and signage along with site team briefings at 'tool box talks'.

8.5.11. A suitably qualified and experienced ECoW will be appointed prior to the commencement of construction activities and through whom appropriate ecological advice will be provided throughout. The ECoW will be responsible for undertaking and/or coordinating checks for protected species before construction and decommissioning activities commence. The ECoW (or appointed 'clerk' on behalf of the ECoW) will also maintain a watching brief as necessary throughout the construction phase to ensure compliance with relevant legislation. Further information will be provided within the detailed CEMP.

Breeding Birds

8.5.12. A possible effect of construction is the direct impacts to nesting birds through disturbance to species associated with field boundary habitats and direct impacts to ground nesting species, if works are undertaken in the breeding season (March to August inclusive). As the Proposed Development will be implemented in gradual phases (over an approximate period of 12 months), not all of the Site would be subject to disturbance at the same time.

8.5.13. In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), vegetation removal should take place outside of the bird breeding season. If vegetation works (including any crop or hedgerow removal required to facilitate development) are necessary during the breeding season, any suitable nesting habitat to be affected by works will be checked by a suitably experienced ecologist prior to works commencing via the ECoW. Nesting bird checks may need to be repeated during different phases of work or at different times during the nesting bird season, depending on the timing of construction activities.

8.5.14. Works would be permitted to proceed only when the ecologist is satisfied that no disturbance-related offences will occur under the legislation, with appropriate protection measures set in place as necessary and supervised by the ECoW.

8.5.15. Further information relating to the protection of breeding birds will be provided within the detailed CEMP**.**

8.5.16. A variety of artificial nesting features (generally boxes but using a variety of designs attractive to different species) will be added within existing habitats, such as on mature trees, within the hedgerow network and across woodland areas; ensuring that bird species have a wide variety of increased long-term nesting opportunities right across the Site. These enhancements will be detailed within the oLEMP (to be submitted with the final ES). However, these will include the following:

- At least two barn owl nest boxes will be installed on a suitable mature tree away from main roads surrounding the Site;
- At least two tawny owl nest boxes positioned in woodland belts/mature hedgerow trees located within the Site;
- At least two kestrel boxes positioned within mature hedgerow trees within the Site, in close proximity to areas of grassland to be created; and

- At least 60 small open-fronted and hole-fronted nest boxes of various design, positioned within existing hedgerow habitats within the Site;

Bats – Foraging/Commuting

8.5.17. The field boundary habitats comprising predominantly of species-poor hedgerows, ditch networks, and grassland field margins, pond, woodland parcels will be largely retained and therefore direct impacts on commuting/foraging bats avoided.

8.5.18. Construction works are unlikely to continue past sunset. However, in the unlikely event that works are required after sunset measures will be put in place to manage temporary lighting used within the Site during the construction phase. This will be set out within oCEMP and informed by current guidance provided within 'Bats and Lighting in the UK: Bats and the Built Environment Series' (2018)[39] to avoid the potential for construction-related impacts from lighting.

8.5.19. Indirect impacts to retained foraging/commuting habitats and associated invertebrate prey of foraging bats as a result of construction related pollution (such as airborne dust impacts and surface water runoff) will be managed through adopted measures detailed within the oCEMP.

8.5.20. Extensive permanent habitat enhancement measures implemented as part of the construction process (as opposed to current seasonal cropping regimes), will provide additional enhanced foraging opportunities for a variety of bat species. Thereby enhancing the Site's suitability for foraging bat species and reducing the reliance of bats on existing narrow linear field boundary habitats within the Site.

Bats – Roosting

8.5.21. Trees present within the Site will be retained, protected during construction. If plans change and trees require removal/felling as part of the Proposed Development (for instance to aid access requirements or for health and safety purposes), prior to removal, in accordance with current Bat Conservation Trust ('BCT') guidance[40] any

[39] Institution of Lighting Professionals / Bat Conservation Trust. (2018). *Guidance Note 08/18 Bats and artificial lighting in the UK Bats and the Built Environment series.*https://cdn.bats.org.uk/uploads/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?v=1542109349 (accessed 08/05/2023)

[40] Colins, J. (ed). (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).* https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 (accessed on 07/06/2023)

trees requiring removal will be subject a preliminary roost assessment in order to assess the trees potential to support roosting bat species. Trees with moderate or high roost potential will be subject to a detailed climbing inspection and/or emergence/re-entry surveys in the appropriate season. If bats are confirmed roosting within the tree(s), no removal will take place until an EPSML licence has been issued by NE and necessary mitigation measures set in place under the supervision of a licensed ecologist. This will ensure there are no adverse impacts on roosting bats and will maintain the favourable conservation status of the roosting bat species in the wider environment.

8.5.22. If works on trees with low bat roosting potential are necessary, these will be felled using RAMs in line with BCT guidance; the trees will be soft felled in sections which are lowered to the ground and left on Site overnight (not stacked) before removal. Should a bat (or nesting bird) be found during this process then works will cease immediately and an ecologist contacted immediately for advice.

8.5.23. The two small buildings identified within the substation area at Drax Power Station with negligible-low suitability for roosting bats will not be impacted by the Proposed Development. However, if plans change, these buildings will be subject to emergence/re-entry in accordance with current BCT guidance. If bats are confirmed roosting within the buildings, works will not take place until a EPSML has been issued and necessary mitigation measures set in place under the supervision of a licensed ecologist.

8.5.24. These above measures will ensure there are no adverse impacts on roosting bats and will maintain the favourable conservation status of the roosting bat species in the wider environment.

8.5.25. Further information regarding bat roost protection will be provided within the detailed CEMP.

8.5.26. Additional bat roost provision will be made through the inclusion of a minimum of 60 bat roost boxes on suitable mature and semi-mature trees along the Site field boundaries and within the woodland within the Site. Boxes will be erected in suitable habitats, at an appropriate height (ideally above 4m in height) and with clear flight paths to utilise the Site field boundary features. These enhancements will be detailed within the oLEMP (to be submitted with the final ES).

Badger

8.5.27. Badger information is provided within Appendix 8.4**.**

8.5.28. The Proposed Development's layout has been designed to avoid impacting habitats potentially used by badgers for foraging and commuting (field boundary features). These habitats will be retained and protected during the construction process. As the solar photovoltaic ('PV') panels are raised off the ground, and the perimeter security fence will retain suitable gaps/badger gates at the base to allow free movement of badgers, no habitat loss or severance effects will result.

8.5.29. Badger activity can show seasonal variation and badgers can quickly establish new setts. Considering the highly mobile nature of badgers and the seasonality of their activity, a pre-construction badger survey (within 50m of the Site boundary, where access allows) will be completed by a suitably qualified ecologist immediately prior to the commencement of development/site clearance works to determine levels of badger activity and to check for any newly constructed setts in and surrounding the Site.

8.5.30. If baseline conditions have altered and significant disturbance to badgers or their setts cannot be avoided, one or both of the following options will be incorporated:

- The Proposed Development's design will be further amended to avoid works which may impacts on the sett; and/or
- A disturbance/mitigation licence will be obtained from NE before construction commences.

8.5.31. Further information regarding badger protection will be provided within the detailed CEMP.

Water Vole and Otter

8.5.32. The Proposed Development's layout has been designed to avoid impacting linear ditch habitats with potential suitability to support these species. However, as a precaution, if construction works are required within 5m of a ditch, these will be preceded by a pre-construction water vole / otter survey, which will be completed by a suitably qualified ecologist immediately prior to the commencement of construction works to determine the continued absence of the species within the Site.

8.5.33. Should signs of water vole presence, or an active otter holt/resting place be confirmed, works in or adjacent to the ditches will only proceed under suitable mitigation measures as advised by the project ecologist and, if necessary, under a Mitigation Licence issued by NE.

8.5.34. Further information regarding water vole and otter protection will be provided within the detailed CEMP.

Amphibians

8.5.35. P34 is not located within 250m of any permanent proposed development, with only low impact grid-connection works through agricultural farmland planned within 250m, outside of the core 50m buffer surrounding the pond. The potential for impacts to GCN will therefore be restricted to trenching works associated with the installation of grid connection equipment.

8.5.36. The Proposed Development's exact grid connection route within the underground cable corridor area shown on Figure 3.2 Parameter Plan of the PEIR is not yet confirmed. However, in the unlikely event that trenching works cannot avoid habitat clearance works within 50m of the pond in suitable GCN habitat (i.e. hedgerows, ditches etc,), this will be subject to a EPSML or an alternative method, such as DLL, which will ensures that the favourable conservation status of the species will be maintained. Otherwise, RAMs for amphibians will be sufficient to minimise any potential impacts on individual amphibians. The RAMs will include a 'tool box talk' and watching brief by the ECoW to minimise risk of accidental harm, further information is provided within the oCEMP.

8.5.37. In addition, information provided within the oLEMP will include pond enhancement works to the on-Site pond (P4), and 30m buffers maintained around surrounding adjacent ponds. Habitat piles will be created (cut vegetation arising from on-Site habitat management practices) within the Site boundary, potentially providing suitable refuges for amphibian species (further details will be provided in the oLEMP to be submitted with the final ES).

8.5.38. The Proposed Development's layout has been designed to avoid impact to hedgerows, field margins, ponds, and ditches within and surrounding the Site. These habitats provide suitable (albeit limited) terrestrial habitats for amphibians. These features will be retained and protected during the construction process. The

proposed habitat retention and proposed enhancements (hedgerow enhancements, hedgerow planting, woodland/scrub planting and diverse grassland) will provide a clear habitat gain for amphibians by providing enhanced terrestrial habitat for foraging/hibernation purposes, thereby potentially removing amphibians' likely reliance on the retained field boundary features.

Reptiles

8.5.39. A series of RAMs will be implemented to avoid significant impacts on reptile populations. The RAMs will include a 'tool box talk' and watching brief by an appropriately qualified ecologist to minimise risk of accidental harm. Further details will be provided within the oCEMP.

Other Priority Mammal Species

8.5.40. The commitment to provide measurable on-Site BNG, includes embedded elements which avoid or reduce the potential for adverse ecological impacts amongst a range of species, including brown hare, hedgehog, and polecat. These measures include retaining identified higher value habitat features such as hedgerows, ditches, and woodlands, and the provision of extensive habitat enhancements (to be detailed within the oLEMP to be submitted with the final ES).

8.5.41. As the Proposed Development's solar PV panels are raised off the ground, and the perimeter security fence will retain suitable gaps/mammal gates at the base to allow free movement of priority mammal species, no habitat loss or severance effects will result.

8.5.42. A series of RAMs will be implemented to avoid significant impacts on mammal populations. The RAMs will include a 'tool box talk' and watching brief by an appropriately qualified ecologist to minimise risk of accidental harm, further details will be provided within the oCEMP.

Invasive Non-native Species

8.5.43. Pontic rhododendron and Himalayan balsam are listed under Part II of Schedule 9 of The Wildlife & Countryside Act 1981 (as amended). It is an offence to plant or otherwise cause such species to grow in the wild. This includes allowing the species to grow/spread and spreading the species or transferring polluted ground material from one area to another.

8.5.44. Soil containing these species or traces of them is classified as non-hazardous waste according to the Environmental Protection Act (Duty of Care) Regulations 1991. Therefore, a permit issued by the Environment Agency is required to transfer polluted material off-site.

8.5.45. Section 23 of the Infrastructure Act 2015 amended the Wildlife and Countryside Act 1981 by inserting a new Schedule 9A to introduce a statutory regime of species control agreements and orders. This schedule ensures that, landowners act on Schedule 9 invasive species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread.

8.5.46. Prior to the commencement of the construction program an invasive species walkover survey will be undertaken during an appropriate time of year (May – October) in order to assess the spread of invasive species within the Site.

8.5.47. An appropriate invasive species treatment program will be implemented by a licensed and experienced invasive species contractor, a detailed method statement will be produced to inform these actions and prevent further spread within the Site during the construction process, detailing the commitment to control or undertake long-term eradication of the species from within the Site boundaries. Further information will be provided within the oLEMP to be submitted with the final ES.

8.5.48. The appointed ECoW will include information regarding invasive non-native species within the toolbox talk, including providing informing contractors on avoidance / good practice measures required to avoid facilitating the spread of these species. Should further areas of spread / other invasive species be encountered on-Site prior to or during construction, the advice of the appointed ECoW will be sought, and appropriate measures taken in order to achieve legislative compliance.

Operational Phase Measures

Ecological Monitoring

8.5.49. Extensive habitat enhancement provision is embedded within the Proposed Development and provided as part of the construction phase, which includes the creation of new habitats of high ecological value. During the operational phase, created and existing semi-natural habitats within the Site will be subject to long-term management by suitably qualified/experienced professionals. The management of

these semi-natural habitats will be informed by a detailed LEMP, to be secured through DCO requirement.

8.5.50. Commitment to deliver quantifiable BNG will include the requirement for long-term ecological monitoring through the lifespan of the Proposed Development by a suitably qualified ecologist. These ecological monitoring surveys will assess the success of mitigation and enhancement measures detailed within the LEMP, and if necessary, provide recommendations for remedial actions required to achieve the biodiversity objectives detailed within the LEMP and/or adhere to relevant wildlife conservation legislation at that time.

8.5.51. Additional post-construction species specific monitoring may be required as stipulated as a legal requirement within an EPSML (or other species-specific mitigation licence) (see the Construction Phase Measures section above). Any such monitoring will be in addition to the ecological monitoring discussed above, to ensure compliance with the licence conditions.

8.5.52. Operational phase ecological monitoring schedules and objectives will be set out within the oLEMP to be submitted with the final ES.

8.5.53. Impacts have been addressed as far as reasonably practicable through avoidance and embedded in the design of the Proposed Development. Further specific mitigation measures are discussed below.

Bats

8.5.54. The habitat retention and extensive enhancement and provision of new habitats associated with the construction phase of the Proposed Development will allow for the consistent long-term improvement in the quality and quantity of available foraging/commuting bat habitats and the protection of potential tree roosts within the Site. This will provide extended opportunities for foraging/commuting bats compared to baseline opportunities which are largely concentrated within linear field margin habitats.

8.5.55. The Proposed Development will not be subject to permanent nightly illumination. Lighting during operation will be limited to temporary lighting required for access and maintenance in the unlikely event that such actions are required after dark. Such temporary lighting design will adopt ‘ecologically sensitive’ lighting in-line with

current guidance[41]. All temporary lighting will avoid the illumination of existing field margin habitats, surrounding woodland parcels, and created semi-natural habitats associated with the construction phase, thereby allowing the continued usage of the Site by bat foraging/commuting species and protecting any potential tree roosting features on-Site.

Amphibians and Reptiles

8.5.56. Habitat piles will be created (using cut vegetation arising from on-Site habitat management practices during the operational phase) within the Site boundary, potentially providing suitable refuges for amphibian and reptile species, Further information will be set out within the oLEMP to be submitted with the final ES.

Invasive Non-native Species

8.5.57. Ecological monitoring (see above) will assess the success of the invasive non-native species eradication measures discussed in the construction mitigation measures section above. If further infestations are recorded, an appropriate invasive species treatment program will be implemented by a licensed and experienced invasive species contractor.

Decommissioning Phase Measures

8.5.58. Site baseline conditions are likely to change significantly over the Proposed Development's modelled operational 40-year lifespan, in line with habitat condition targets associated with BNG, resulting in large scale habitat creation. Prediction of these conditions and likely future decommissioning effects on biodiversity is considered to be unreliable. However, potential impacts from decommissioning are considered to be similar to those already described in relation to the construction phase, namely direct and indirect disturbance, temporary/permanent habitat loss and vegetation removal.

8.5.59. Updated ecological surveys will be undertaken prior to the Proposed Development's decommissioning to record the presence of protected and notable species and habitats and identify potential effects any necessary protection and mitigation

[41] Institution of Lighting Professionals / Bat Conservation Trust. (2018). *Guidance Note 08/18 Bats and artificial lighting in the UK Bats and the Built Environment series.*https://cdn.bats.org.uk/uploads/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?v=1542109349 (accessed 08/05/2023)

measures to comply with planning policy and wildlife legislation applicable at the time. The following mitigation measures are considered likely to be required to inform the decommissioning phase of the Proposed Development (subject to wildlife legislation applicable at the time).

Breeding Birds

8.5.60. In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), vegetation removal should take place outside of the bird breeding season. If decommissioning works are necessary during the breeding season, any suitable nesting habitat to be affected by works (including grassland habitats beneath and surrounding the solar panels) will be checked by a suitably experienced ecologist prior to works commencing. Works would be permitted to proceed only when the ecologist is satisfied that no offence will occur under the corresponding legislation. Nesting bird checks may need to be repeated during different phases of work or at different times during the nesting bird season, depending on the timing of decommissioning activities.

Bats – Foraging/Commuting

8.5.61. Decommissioning works are unlikely to continue past sunset. However, in the unlikely event that works are required after sunset, measures will be put in place to manage temporary lighting used within the Site. Measures will be informed by a Decommissioning Environmental Management Plan ('DEMP') following guidance applicable at the time.

8.5.62. Pollution impacts to retained field margin habitats used by foraging/commuting bats will be avoided and managed through adopted measures detailed within the DEMP.

Badger

8.5.63. A pre-decommissioning badger survey (within 50m of the Site boundary, where access allows) will be completed by a suitably qualified ecologist immediately prior to the commencement of decommissioning works to determine levels of badger activity and to check for any newly constructed setts in and surrounding the Site.

8.5.64. If baseline conditions have altered and significant disturbance to badgers or their setts cannot be avoided, one or both of the following options will be incorporated

(subject the legislation applicable at the time):

- Working methods will be amended to avoid works which may impacts on the sett; and/or
- A disturbance/mitigation licence will be obtained from NE before construction commences.

8.5.65. Further information regarding badger protection will be provided within the outline DEMP ('oDEMP').

Water Vole and Otter

8.5.66. The decommissioning process will avoid impacting linear ditch habitats with potential to support these species. However, as a precaution, if construction works are required within 5m of a ditch, these will be preceded by a pre-commencement water vole / otter survey, which will be completed by a suitably qualified ecologist to determine the continued absence or presence of the species within the Site.

8.5.67. Should signs of water vole presence, or an active otter holt/resting place be confirmed, works in or adjacent to the ditches will only proceed under suitable mitigation measures as advised by the project ecologist and, if necessary, under a mitigation licence issued by NE.

8.5.68. Further information regarding water vole and otter protection will be provided within the oDEMP.

Amphibians

8.5.69. A pre-commencement GCN survey will be undertaken (following adopted guidelines relevant at the time of the decommissioning program). This will provide up to date information regarding the geographical spread of the species within and surrounding the Site, and inform the legislative process associated with the decommissioning process.

8.5.70. If survey results indicate that the requirement for EPSML is unlikely to be required, RAMs for amphibians will be sufficient to minimise any potential impacts on individual amphibians. The RAMs will include a 'toolbox talk' and watching brief by a suitably

qualified ECoW to minimise risk of accidental harm. Further information will be provided within the DEMP.

Reptiles

8.5.71. A series of RAMs will be implemented to avoid significant impacts on reptile populations. The RAMs will include a 'toolbox talk' and watching brief by an appropriately qualified ecologist to minimise risk of accidental harm. Further details will be provided within the DEMP.

Other Priority Mammal Species

8.5.72. A series of RAMs will be implemented to avoid significant impacts on mammal populations. The RAMs will include a 'toolbox talk' and watching brief by an appropriately qualified ecologist to minimise risk of accidental harm, further details will be provided within the DEMP.

The Mitigation Hierarchy and BNG

8.5.73. Compliance with planning policy in the NPPF requires that the Proposed Development considers and engages a mitigation hierarchy, requiring the highest level to be applied, where possible. The mitigation hierarchy is also fundamental to BNG. There are four sequential steps that must be taken throughout the lifecycle of a project where there is potential for impacts on relevant ecological receptors:

- Avoidance – actions taken to avoid causing impacts to the environment prior to beginning development (for example, moving the development to a different location);
- Minimisation – measures taken to reduce the duration, intensity, extent and/or likelihood of the unavoidable environmental impacts caused by development (for example, adapting the development design to minimise impacts);
- Restoration or rehabilitation – actions taken to repair environmental degradation or damage following unavoidable impacts caused by development; and
- Offsets – measures taken to compensate for any adverse environmental impacts caused by development which cannot be avoided, minimised and/or

restored (e.g., including habitat creation to offset losses).

8.5.74. The Proposed Development's design evolution has sought to avoid areas of significant biodiversity value, such as field boundary hedgerows and ditch networks. Habitat enhancement measures and ongoing management practices will be proposed in line with guidance published by the Building Research Establishment ('Biodiversity Guidance for Solar Developments'[42]) ('the BRE guidance') that will enhance and safeguard key habitats for the benefit of wildlife and enhance the ecological value of land currently under agricultural use.

8.5.75. The BRE guidance states that:

> *'with appropriate land management, solar farms have the potential to support wildlife and contribute to national biodiversity targets. Indeed, solar farms may have several additional advantages in that they are secure sites with little disturbance from humans and machinery once construction is complete. Recent research suggests biodiversity gains on solar farms can be significant'*

8.5.76. The ES chapter (and associated appendices) will provide further information regarding the proposed long-term management of the land for the duration of the project to conserve and improve landscape habitat connectivity with the wider landscape for wildlife through protecting and enhancing potentially important wildlife corridors and habitats within the Site boundary. This will contribute to the establishment of coherent ecological networks, supporting the targets of the Draft NPS for Energy (EN-1).

8.5.77. Through provision of BNG and the oLEMP, the Proposed Development will deliver habitat enhancements, which will provide a clear benefit for a broad range of dependent species. Further, the removal of land from arable production will lead to a reduction (or complete removal) of agricultural chemical overspray and drift where this currently occurs on the Site. This would lead to improved conditions for terrestrial and aquatic invertebrates, which in turn will benefit dependent species, such as foraging bats or some farmland birds. Water quality and soil health will also likely

[42] BRE (2014) *Biodiversity Guidance for Solar Developments*. https://files.bregroup.com/bre-co-uk-file-library-copy/filelibrary/nsc/Documents%20Library/NSC%20Publications/National-Solar-Centre---Biodiversity-Guidance-for-Solar-Developments--2014-.pdf (accessed 28/06/2023)

improve as a result of less intensive farming practices.

8.5.78. This PEIR and final ES chapter will therefore also include consideration of the potential benefits of the Proposed Development.

Assessment of Likely Significant Effects

Construction Phase

8.5.79. Potential construction phase ecological effects associated with the Proposed Development are considered to relate to:

- Direct land take (habitat loss) to accommodate the Proposed Development;
- Temporary disturbance and land take for construction, laydown areas and construction compounds (land restored thereafter);
- Disturbance to, fragmentation or severance of connecting habitat or potential commuting routes within and adjacent to the Site; and
- Disturbance and pollution (indirect effects such as noise and vibration, dust, pollution from surface water run-off) resulting from site clearance and construction, plant and vehicles movements and site workers' activities.

Non-Statutory Designated Sites

8.5.80. The Proposed Development has been designed to avoid all direct impacts to non-statutory sites for nature conservation. Measures to be adopted by the project, including the CEMP are an integrated element of the construction phase which sets out the methods by which construction will be managed to avoid, minimise, and mitigate any adverse effects on the local and wider environment, ensures there will be there is no pathway for direct or indirect effects on non-statutory designated sites located within the wider landscape. Therefore, only the following two sites, located adjacent to the Site boundary are considered:

- Field near Primrose Hill, Cat Babbleton NY SINC (SE62-18); and,
- Sand Pitt Wood and Barffs Close Plantation NY SINC (SE62-12).

8.5.81. Disturbance effects associated with lighting, noise, vibration, and construction machinery / equipment will be localised within the Site, and be of a temporary and short-term nature, and will be controlled through the implementation of the CEMP.

As working hours will be subject to restrictions, night-time disturbance will be avoided, thereby minimising the potential for impacts upon nocturnal species associated with all four non-statutory designated sites.

8.5.82. Standard measures to ensure runoff control and pollution prevention will be implemented and the proposed works surrounding the non-statutory sites will adhere to 'British Standards BS5837:2012 Trees in relation to design, demolition and construction'[43] and current guidance provided by NE[44]; adopting 15m 'buffer zones' in relation to the protection of woodland habitats. These measures will safeguard habitats located within the non-statutory designated sites. No direct or indirect effects are therefore anticipated on any non-statutory designated sites adjacent to Site (and located within the wider landscape).

8.5.83. The Site boundary bordering the four LWSs discussed above will have temporary appropriate signage displayed during the construction phase of the Proposed Development in order to ensure that accidental damage to habitats within the LWSs does not occur.

8.5.84. The embedded mitigation and good practice measures to be adopted by the project will be sufficient to prevent any measurable direct and indirect impacts to non-statutory designated sites discussed above at paragraph 8.5.80.

8.5.85. Subsequently, impacts will be of negligible magnitude on a receptor of Regional – Local value and sensitivity, which are consequently **not significant.**

Habitats

8.5.86. The dominant habitats within the Site comprise intensively managed arable farmland of low ecological value; this habitat will be utilised for the large majority of the Proposed Development.

8.5.87. The field boundary hedgerows comprising predominantly of species-poor hedgerows, ditch networks, and grassland field margins, pond, adjacent woodland (including the adjacent Kerrick Spring Wood ancient woodland site), and adjacent orchard represent habitats of higher ecological value, albeit limited in their distribution within

[43] British Standards Institute. (2012). *BS5837:2012 Trees in relation to design, demolition and construction*

[44] Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions (accessed 05/06/2023)

and immediately surrounding the Site. These habitats will be largely retained and therefore direct impacts avoided.

8.5.88. The construction of solar farms generally requires very low levels of direct and permanent land take (typically less than 5% footprint on the ground) for the infrastructure[45]. Direct loss of habitat is therefore considered to be small and will comprise almost entirely low ecological value arable land.

8.5.89. Effects during construction relate to physical disturbance, primarily comprising temporary compaction and soil disturbance from plant machinery and vehicles in addition to the loss of arable habitat. This disturbance will be temporary during the construction phase. Given the low ecological value of this habitat and its prevalence within the local landscape this disturbance is considered to be negligible.

8.5.90. Grid connection works will largely comprise of minor excavation impacts to existing arable and developed land (existing tracks, roads and Drax grid connection compound), A limited amount of semi-natural habitats (mainly associated with trenching works through modified grassland within the Drax Golf Club Course) will result in minor short-term disturbance. Potential impacts to hedgerows, ditches, woodland, and the woodland/scrub covered banks of the Railway line will be avoided through the adoption of directional drilling methodology. Further specific information will be provided within the detailed CEMP.

8.5.91. Hedgerow removal is restricted to no more than minor works to enable access. Access tracks for the Proposed Development will utilise existing ditch crossing points, existing gaps in hedgerows and existing field entrance gates etc. with only very localised disturbance of very short sections of hedgerow surrounding existing access points potentially required (a maximum of 5m wide).

8.5.92. Embedded avoidance measures incorporated within the Proposed Development design include the provision of 5m 'buffer zones' either side of hedgerows and field ditches, which will be subject to habitat creation during the construction period (to be set out within the oLEMP to be submitted with the final ES), thereby protecting and enhancing the ecological capacity of these linear features.

[45] BRE (2014) *Biodiversity Guidance for Solar Developments*. https://files.bregroup.com/bre-co-uk-file-library-copy/filelibrary/nsc/Documents%20Library/NSC%20Publications/National-Solar-Centre---Biodiversity-Guidance-for-Solar-Developments--2014-.pdf (accessed 28/06/2023)

8.5.93. The layout of the Proposed Development has been designed to maintain a stand-off buffer of at least 15m wide between the solar layout and broadleaved semi-natural woodlands (including the adjacent Kerrick Spring Wood ancient woodland site). Access routes will also avoid impacts to existing mature hedgerow trees and will adhere to 'British Standards BS5837:2012 Trees in relation to design, demolition and construction'[46]. Woodland buffer zones will be subject to habitat enhancements (to be set out within the oLEMP to be submitted with the final ES), thereby providing greater habitat connectivity through the Site and wider environment.

8.5.94. 30m buffers will be maintained surrounding the on-Site pond and adjacent ponds during the construction process, with significant habitat enhancements provided within this buffer, for the benefit of species associated with these water bodies and the wider Site biodiversity value.

8.5.95. Existing modified and neutral grassland field margins (where present) will be temporarily impacted by the Proposed Development construction activities. However, these will be enhanced and significantly increased, with the provision of grassland field margin planting surrounding solar parcels throughout the entire Site.

8.5.96. In addition, the Proposed Development will not be lit during construction, maintaining dark corridors along boundary habitats including woodland edges and hedgerows. Where lighting is required during the winter months (due to shorter day lengths), lighting will be positioned away from hedgerows and woodland to maintain dark corridors.

8.5.97. Direct impact to on-Site habitats and Indirect impacts on neighbouring habitats are assessed as negligible-minor adverse and therefore **not significant** effects.

8.5.98. The commitment to deliver measurable BNG gains through significant habitat enhancements and provision within the Site as part of the construction process (as to be set out within the oLEMP to be submitted with the final ES), the Proposed Development will deliver clear habitat enhancements, resulting in biodiversity gains within the Site and the wider environment.

8.5.99. Subsequently, overall impacts to habitats will be of major beneficial (positive) magnitude on a receptor of Local value and sensitivity, which are **significant** effects.

[46] British Standards Institute. (2012). *BS5837:2012 Trees in relation to design, demolition and construction*

Breeding Birds

8.5.100. The breeding bird assemblage recorded within the Site is typically representative of farmland habitats.

8.5.101. Potential effects on birds during construction include the temporary loss of nesting opportunities (but only if construction takes place during the breeding season) or foraging habitat, directly within the Site, or indirectly within adjacent areas through disturbance.

8.5.102. Hedgerows and trees located along field boundaries (which will be retained and protected as part of the Proposed Development) support a range of typical farmland nesting bird species. These habitats will likely be subject to minor and localised indirect disturbance or displacement for a temporary period during the construction process.

8.5.103. Local bird populations will be expected to have become tolerant to existing background activity and disturbance from normal farm operations and local infrastructure (road, rail etc.). Construction disturbance will be short term and confined to within the Site, and the layout design includes suitable protection buffers around woodland, hedgerows and ditches which serve to separate potentially disturbing activities from locations most likely to be used by birds for foraging, shelter or breeding.

8.5.104. Ground nesting species such as skylark, yellow wagtail and lapwing which are ground nesting species which favour open arable habitats will likely be permanently displaced from active construction areas within the Site, depending on the time of year that construction works are undertaken. Areas of suitable nesting habitat will however remain available both in the wider agricultural landscape, in addition, skylark plots will be created within retained arable land within the Site and areas of meadow grassland habitats will be created within the Site to provide suitable habitats for these species. Further specific habitat creation information will be provided within the oLEMP to be submitted with the final ES.

8.5.105. The effects of temporary disturbance, habitat loss and displacement on local bird populations during construction are considered to be minor in the context of the availability of extensive habitat locally and the retention/creation/enhancement of habitats suitable for nesting bird species within the embedded design process.

8.5.106. Subsequently, overall impacts to breeding bird species will be of minor adverse magnitude on a receptor of Site – Local value and sensitivity, which are **not significant** effects.

Operational Phase

8.5.107. Operational effects are defined as effects following the construction of the Proposed Development. Operational effects generally relate to disturbance of adjacent habitats or species, on either a temporary or permanent basis. Some effects may reduce with habituation or remain for the lifespan of the Proposed Development.

8.5.108. There are no additional operational effects relating to land take other than those already addressed in the Construction Phase section above.

Non-Statutory Designated Sites

8.5.109. There will be no operational negative effects on non-statutory designated sites over and above those described in the Construction effects section above. It is considered that with the management of habitats buffers and good practice measures (as detailed within the LEMP) habitat connectivity with these sites and habitats within the wider environment will create a larger, stronger, and more ecologically resilient natural corridors in the landscape compared to the current baseline, which comprises intensively managed farmland bordering the non-statutory sites.

8.5.110. Subsequently, impacts to non-statutory sites will be of moderate (positive) magnitude on a receptor of Regional - Local value and sensitivity, which are consequently moderate beneficial (**significant**) effects.

Habitats

8.5.111. BNG will be delivered through habitat enhancement provision embedded within the Proposed Development and provided as part of the construction phases, this will include the creation of new habitats of high ecological value, such as wildflower meadow grassland, tussocky grassland, wetland meadow creation, pond/wetland scrape creation, hedgerow, woodland belt, and scrub planting. During the operational phase, these created and existing semi-natural habitats within the Site boundary will be subject to long-term management by suitably qualified/experienced professionals, informed by a regular ecological monitoring program and biodiversity objectives during the Proposed Development's operational lifespan. The management of these

semi-natural habitats will be informed by a detailed LEMP; outline information will be provided within the oLEMP to be submitted with the final ES.

8.5.112. Protection measures to prevent impacts to surrounding priority habitats such as adjacent woodland parcels will be adopted, informed by a detailed LEMP; outline information will be provided within the oLEMP to be submitted with the final ES.

8.5.113. The existing land within the Proposed Development is dominated by intensively managed arable farmland with assemblages or flora and fauna largely concentrated within linear networks such as field margin habitats, hedgerows, woodland blocks, ditch networks which are retained within the Proposed Development. Habitat management practices within the Proposed Development will include the management of these important habitats and extensive newly created adjacent habitat; informed by a LEMP, creating a more resilient and strengthened network of linear habitats of biodiversity value within the Proposed Development, thereby enhancing ecological connectivity between the Proposed Development and the wider landscape.

8.5.114. Subsequently, impacts to habitats during the operational phase will be of high (positive) magnitude on a receptor of Local value and sensitivity, which are consequently major beneficial (**significant**) effects.

Decommissioning Phase

8.5.115. Site baseline conditions are likely to change significantly over the Proposed Development's modelled operational lifespan of 40 years, and prediction of these conditions at the time of writing is considered unreliable in terms of predicting likely future decommissioning effects on biodiversity. However, potential impacts from decommissioning are considered to be similar to those already described in relation to the construction phase, namely direct and indirect disturbance, temporary/permanent habitat loss and vegetation removal. Updated ecological desk study and species-specific surveys will therefore be necessary prior to decommissioning to record the presence of protected and notable species and habitats and identify potential effects and any necessary protection and mitigation measures to comply with planning policy and wildlife legislation applicable at the time.

8.5.116. Long-term land management within the Site post-decommissioning phase will be

largely based and managed in adherence to agricultural/land management government policies and agri-environment grant opportunities available at that time.

8.5.117. A detailed DEMP, to be secured by DCO requirement and which would be finalised once the party responsible for undertaking decommissioning works on the Site has been appointed, will form an integral element of the decommissioning phase which sets out the methods by which decommissioning will be managed to avoid, minimise, and mitigate any adverse effects on the local and wider environment. Further information is provided below.

Non-Statutory Designated Sites

8.5.118. The DEMP will ensure there will be there is no pathway for direct or indirect effects on non-statutory designated sites located adjacent to the Site.

8.5.119. Disturbance effects associated with decommissioning will be of a temporary and short-term nature and will be controlled through the implementation of the DEMP. As working hours will be subject to restrictions, night-time disturbance will be avoided, thereby minimising the potential for impacts upon nocturnal species associated with the non-statutory designated sites.

8.5.120. Standard measures to ensure runoff control and pollution prevention will be implemented and the proposed works surrounding the non-statutory sites will adhere to woodland protection guidance documents adopted at that time. No direct or indirect effects are therefore anticipated on any non-statutory designated sites adjacent to the Site (and located within the wider landscape).

8.5.121. The embedded mitigation and good practice measures detailed within the DEMP will be sufficient to prevent any direct and indirect impacts to adjacent non-statutory designated sites. Subsequently, there will be negligible magnitude impacts of neutral significance on non-statutory designated sites as a result of decommissioning related disturbance/ impacts. Therefore, a negligible (**not significant**) effect is anticipated.

Habitats

8.5.122. It is acknowledged that the habitat baseline will change significantly over the Proposed Development's modelled operational lifespan of 40 years, with habitats subject to improvements, management, and monitoring over this lifespan, resulting in measurable BNG. Whilst it is acknowledged that long-term land management

within the Site post-decommissioning phase will be for the landowners to decide (taking into account agricultural / land management government policies and agri-environment grant opportunities available at that time), it is considered that habitat enhancements adopted under the LEMP will provide an opportunity to maintain improved biodiversity value to the Site in the long-term post-decommissioning.

8.5.123. The DEMP will set out the methods by which decommissioning will be managed to avoid, minimise, and mitigate any adverse effects on habitats of biodiversity value, which will be informed by a pre-decommissioning habitat survey (adopting the standard habitat survey methodology at that time).

8.5.124. Subsequently, impacts to habitats during the Proposed Development's decommissioning phase will be of negligible-minor adverse magnitude on a receptor of Local value and sensitivity, which are consequently **not significant** effects.

Breeding Birds

8.5.125. Potential effects on breeding birds during decommissioning include the temporary disturbance to suitable nesting habitat (but only if decommissioning takes place during the breeding season), directly within the Site, or indirectly within adjacent areas through disturbance.

8.5.126. Due to the commitment to achieve measurable BNG within the Site, it is considered that the habitats remaining within the Site post-decommissioning will be of a greater importance for breeding birds in comparison to the current pre-construction baseline habitats.

8.5.127. Hedgerows and trees (both planted and retained during the construction process) located along field boundaries will likely be subject to only minor and localised indirect disturbance or displacement for a temporary period during the decommissioning process. This process will be informed by a DEMP in adherence to current policy and legislation at that time and will incorporate any required mitigation measures.

8.5.128. Depending on the time of year that decommissioning works are undertaken, ground nesting species such as skylark, yellow wagtail and lapwing may also be subject to temporary localised disturbance, but following from the decommissioning process, will be able to continue to utilise the Site for breeding purposes (subject to favourable

agricultural land management).

8.5.129. Subsequently, overall impacts to breeding bird species will be of minor adverse (short-term) magnitude on a receptor of Site – Local value and sensitivity, which are consequently **not significant** effects.

8.6. Mitigation Measures

Construction Phase

8.6.1. No further mitigation measures are proposed in addition to the embedded mitigation and measures to be adopted by the project.

Operational Phase

8.6.2. No further mitigation measures are proposed in addition to the embedded mitigation and measures to be adopted by the project.

Decommissioning Phase

8.6.3. No further mitigation measures are proposed in addition to the embedded mitigation and measures to be adopted by the project.

8.7. Residual Effects

8.7.1. Further to implementation of the embedded mitigation and measures to be adopted by the project, the residual effects are expected to remain the same as identified. There will be no significant adverse residual effects on any ecological features as a result of the Proposed Development. All adverse residual effects remain negligible or minor adverse, with significant beneficial effects arising from the substantial habitat enhancements associated with BNG delivery.

Construction Phase

Non-Statutory Designated Sites

8.7.2. The embedded mitigation and good practice measures detailed within the oCEMP

are considered sufficient to prevent any measurable direct and indirect impacts to the above-named non-statutory designated sites.

8.7.3. Subsequently, impacts will be of negligible magnitude on a receptor of Regional – Local value and sensitivity, which are consequently **not significant** effects.

Habitats

8.7.4. The commitment to deliver measurable BNG gains through significant habitat enhancements and provision within the Site as part of the construction process (as detailed within the oLEMP), will deliver clear habitat enhancements, resulting in biodiversity gains within the Site and the wider environment. Protection measures during the construction process will be implemented in line with guidance provided within the detailed CEMP.

8.7.5. Subsequently, overall impacts to habitats will be of high (positive) magnitude on a receptor of Local value and sensitivity, which are consequently major beneficial (**significant**) effects.

Breeding Birds

8.7.6. Ground nesting species will likely be displaced by the construction process, however mitigation, in the form of the creation of open grassland habitats within the Site will provide suitable nesting opportunities for these species.

8.7.7. The commitment to deliver measurable BNG gains through significant habitat enhancements (to be detailed within the oLEMP to be submitted with the final ES), will result in the Proposed Development delivering clear habitat enhancements for the benefit for a range of farmland bird species. Protection measures will be implemented in line with guidance provided within the detailed CEMP.

8.7.8. Subsequently, overall impacts to breeding bird species will be of minor adverse (short-term) magnitude on a receptor of Site – Local value and sensitivity, which are consequently **not significant** effects.

Operational Phase

Non-Statutory Designated Sites

8.7.9. There will be no operational negative effects on non-statutory designated sites over

and above those described in the Construction effects section above. It is considered that with the management of habitats buffers and good practice measures (as detailed within the LEMP), there will be improved habitat connectivity with these sites as well as habitats within the wider environment which will create a larger, stronger, and more ecologically resilient natural corridors in the landscape compared to the current baseline, which comprises intensively managed farmland bordering the non-statutory sites.

8.7.10. Subsequently, impacts to non-statutory sites will be of moderate (positive) magnitude on a receptor of Regional - Local value and sensitivity, which are consequently moderate beneficial (**significant**) effects.

Habitats

8.7.11. During the operational phase, created and existing semi-natural habitats within the Site will be subject to long-term management, informed by a regular ecological monitoring program.

8.7.12. Subsequently, impacts to habitats during the operational phase will be of high (positive) magnitude on a receptor of Local value and sensitivity, which are consequently major beneficial (**significant**) effects.

Decommissioning Phase

Non-Statutory Designated Sites

8.7.13. The embedded mitigation and good practice measures detailed within the DEMP will be sufficient to prevent any direct and indirect impacts to adjacent non-statutory designated sites. Subsequently, there will be negligible magnitude impacts of neutral significance on non-statutory designated sites as a result of decommissioning related disturbance/ impacts. Therefore, negligible effects (**not significant**) are anticipated.

Habitats

8.7.14. The DEMP will set out the methods by which decommissioning will be managed to avoid, minimise, and mitigate any adverse effects on habitats of biodiversity value,

8.7.15. Subsequently, impacts to habitats during the decommissioning phase will be of negligible-minor adverse magnitude on a receptor of Local value and sensitivity,

which are consequently **not significant** effects.

Breeding Birds

8.7.16. Habitat remaining within the Site post-decommissioning will be of a greater importance for breeding birds in comparison to the current pre-construction baseline habitats. Field boundaries will likely be subject to only minor and localised indirect disturbance for a temporary period, but following from the decommissioning process will continue to offer suitable habitat for breeding purposes (subject to favourable agricultural land management). This process will be informed by a DEMP in adherence to policy and legislation applicable at that time.

8.7.17. Subsequently, overall impacts to breeding bird species will be of minor adverse (short-term) magnitude on a receptor of Site – Local value and sensitivity, which are consequently **not significant** effects.

8.8. Cumulative Effects

8.8.1. Total land take for renewable energy developments such as the Proposed Development is typically low (less than 5% footprint on the ground). Construction works are low impact and short-term and require limited excavation and ground disturbance for a temporary period of time, much of which will be undertaken on land subject to annual minor excavation and regular disturbance through tilling/ploughing and normal agricultural management practices.

8.8.2. The Proposed Development is located in a rural area, with few other developments likely to have any discernible cumulative or in-combination effects. The only developments requiring consideration are detailed within Table 15.1 in Chapter 15 Cumulative Effects of the PEIR.

8.8.3. There are no cumulative direct effects on statutory or non-statutory designated sites or their associated qualifying interest species from the cumulative impacts of land take associated with the Proposed Development and the associated consented developments summarised in Table 15.1 during the construction or operational phases of the developments.

8.8.4. Four applications comprise large installations of solar-related developments, comprising:

- Land South of A645, Wade House Lane, Drax (ref: 2023/0128/EIA);
- East Yorkshire Solar Farm NSIP (PINS ref: EN010143);
- Land North and South of Camela Lane, Camblesforth (ref: 2021/0788/EIA); and
- Land near Osgodby Grange, South Duffield Road, Osgodby, Selby (ref: 2021/0978/FULM).

8.8.5. Given the nature of these developments (and the Proposed Development), the actual land take and associated habitat loss is a small percentage, with construction effects, largely temporary and reversible. Habitat losses comprise low ecological value agricultural land, and the solar developments provide clear commitments to achieve significant measurable biodiversity gains. Cumulatively, this represents a local gain in habitats of ecological importance, which will also cumulatively strengthen habitat connectivity in the wider landscape. Areas within these developments will also be subject to lower levels of disturbance (resulting from the cessation of intensive arable management) and hence will provide areas of refuge for foraging and shelter for a range of species. Cumulative biodiversity net gain is therefore likely in relation to the Proposed Development and these four other solar application sites, as set out above. Subsequently, it is considered that impacts to habitats will be of high (positive) magnitude on a Local value and sensitivity, which are consequently **significant** beneficial effects.

8.8.6. No significant cumulative effects on protected or notable species will occur because of the Proposed Development with mitigation measures in place as outlined in this chapter and the other schemes considered as part of the cumulative impact assessment (either through considerate design, BNG delivery, good practice measures or avoidance, protection and mitigation measures). As a result, no significant adverse cumulative effects will result from all phases of the Proposed Development in combination with these other projects.

8.9. Summary

Introduction

8.9.1. This chapter of the PEIR, along with the accompanying Appendices, assesses the potential effects on biodiversity during construction, operation and decommissioning of the Proposed Development. Effects have been assessed in accordance with

guidance set out in the CIEEM guidelines.

Summary

8.9.2. The Proposed Development comprises an area of predominantly agricultural land adjacent to the built-up area of Camblesforth.

8.9.3. Habitats within the Site are dominated by arable farmland, associated with species-poor hedgerow systems and dry and wet ditches, pond and occasional blocks of semi-natural broad-leaved woodland. The large majority of the Site comprises open fields of limited biodiversity value, and subject to farmland management.

8.9.4. In the wider environment, the Site is surrounded by expansive areas of arable farmland to the north, south, east and west, and the Drax Power Station adjacent to the proposed grid connection point.

8.9.5. Comprehensive ecological surveys have been undertaken over several years to inform this assessment; providing the required information regarding habitats along with protected species, such as otter, badger, water voles, breeding and non-breeding birds. These surveys were also used to inform the iterative design of the Proposed Development and avoidance of ecological features of value, such as hedgerows, woodland and ditches, has been a core design principal.

8.9.6. Habitat retention, creation and species enhancement measures will be incorporated to benefit biodiversity and key species, and will significantly enhance opportunities for wildlife within the Site and the wider environment.

8.9.7. The Site is not set within, or linked to, any statutory designated site for nature conservation; extensive field surveys have found no evidence of regular use of significant numbers of over-wintering or passage birds. Subsequently, the Proposed Development will not negatively affect any such designation.

Mitigation and Enhancement

8.9.8. The Proposed Development has been designed to retain important ecological features within the Site. This includes retention of hedgerow networks, woodland, trees and ditches; thereby maintaining effective nature connectivity networks within the wider environment.

8.9.9. The Proposed Development also includes significant habitat enhancement provisions; these will be managed for the benefit of wildlife over the long term and will provide biodiversity gains for a wide variety of species. Additionally, the proposed creation of diverse grasslands, tree planting and hedgerow planting will deliver a quantifiable BNG. The commitment to a BNG above mandatory or policy requirements, and adopted as a fundamental design principle, ensures that the Proposed Development will deliver a substantial ecological benefit.

8.9.10. Additional species-specific enhancements are proposed, including the provision of a variety of artificial nesting structures for birds and roosting locations for bats.

8.9.11. The included BNG for habitats, combined with other measures, will provide new and enhanced features that can be used for breeding, foraging, overwintering and refuge by a range of species, from birds and bats to amphibians, reptiles and invertebrates. The cessation of the use of agricultural chemicals across the Site (following removal from farming use) will provide further benefit, in particular for invertebrate populations.

8.9.12. The Proposed Development will not lead to any adverse impacts surrounding non-statutory designated sites for nature conservation. Protection measures include adding habitat buffer zones and adopting good practice working measures. The habitat enhancements across the Site will provide benefit by increasing opportunities for many of the species associated with the sites and increase and improve ecological connectivity.

8.9.13. Measures are set out to avoid or mitigate against potentially adverse effects during both the construction, operation and decommissioning periods of the Proposed Development. These measures will be detailed within the detailed CEMP, LEMP and DEMP.

8.9.14. Additional measures have been identified where required to ensure legislative compliance and the protection of wildlife, including pre-commencement/construction surveys and, where necessary, mitigation licences issued by NE which will ensure that the favourable conservation status of relevant species will be maintained.

Conclusion

8.9.15. With embedded design measures and mitigation in place as described, the Proposed

Development will not result in any significant adverse effects on any habitats or species, or on statutory and non-statutory designated sites. Major beneficial effects are anticipated as a result of habitat creation and diversification accompanied by long-term habitat management for the benefit of biodiversity.

8.9.16. Table 8.10 contains a summary of the preliminary assessment of the likely significant effects of the Proposed Development.

Table 8.10: Table of Significance – Biodiversity

Potential Effect	Nature of Effect*	Significance **	Secondary mitigation/ Enhancement Measures	Geographical Importance ***							Residual Effects ****
				I	UK	E	R	C	B	L	
Construction Phase (accounting for Embedded Mitigation and Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Short-term	Negligible (adverse)	None required					X	X	X	Negligible
Effects on Habitats	Long-term	Major (beneficial)	None required							X	Major beneficial
Effects on Breeding Birds	Short-term	Minor (adverse)	None required							X	Minor adverse
Operational Phase (accounting for Embedded Mitigation and Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Long-term	Moderate (beneficial)	None required					X	X	X	Moderate beneficial
Effects on Habitats	Long-term	Major (beneficial)	None required							X	Major beneficial
Decommissioning Phase (accounting for Embedded Mitigation and Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Short-term	Negligible (adverse)	None required					X	X	X	Negligible adverse
Effects on Habitats	Short-term	Negligible to minor (adverse)	None required							X	Negligible to minor adverse
Effects on Breeding Birds	Short-term	Minor (adverse)	None required							X	Minor adverse
Cumulative Effects											
Construction Phase											
Cumulative Effects	Short-term	Negligible	None required					X	X	X	Negligible

Potential Effect	Nature of Effect*	Significance **	Secondary mitigation/ Enhancement Measures	Geographical Importance ***							Residual Effects ****
				I	UK	E	R	C	B	L	
on Non-Statutory Designated Sites		(adverse)									adverse
Cumulative Effects on Habitats	Long-term	Major (beneficial)	None required							X	Major beneficial
Cumulative Effects on Breeding Birds	Short-term	Negligible (adverse)	None required							X	Negligible adverse
Operational Phase											
Cumulative Effects on Non-Statutory Designated Sites	Short-term	Negligible (adverse)	None required					X	X	X	Negligible adverse
Cumulative Effects on Habitats	Long-term	Major (beneficial)	Enhancement measures associated with the Proposed Development and the four surrounding solar-related developments will result in a cumulative biodiversity net gain.							X	Major beneficial
Cumulative Effects on Breeding Birds	Short-term	Negligible (adverse)	None required							X	Negligible adverse
Nature of Effect * Significance** Geographical Importance ***	Permanent or Temporary Short-term, Medium-term, or Long-term Major/ Moderate/ Minor/ Negligible Beneficial/ Adverse I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local										

Potential Effect	Nature of Effect*	Significance **	Secondary mitigation/ Enhancement Measures	Geographical Importance ***							Residual Effects ****
				I	UK	E	R	C	B	L	
Residual Effects ****	Major / Moderate / Minor / Negligible		Beneficial / Adverse								

8.10. Information to Inform Habitats Regulations Assessment

Screening for Likely Significant Effects

8.10.1. Under the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (the Habitats Regulations), any development that may have a likely significant effect ('LSE') on a European-designated site (i.e., SPA, SAC and Ramsar designations), either alone or in combination with other plans or projects, requires an Appropriate Assessment ('AA') to be carried out by the relevant competent authority, to determine whether the development would have an adverse effect on the integrity of the European-designated site.

8.10.2. A screening process is required to determine whether any of the predicted impacts of the Proposed Development would result in an LSE on a European-designated site.

8.10.3. Following scoping responses provided by Natural England (see Table 8.5), a screening assessment is presented here to provide the competent authority with the information required to determine if the Proposed Development would have an LSE on the following European-designated sites, and subsequently if an AA is required:

- Lower Derwent Valley SPA/Ramsar; and,
- Humber Estuary SPA/Ramsar.

8.10.4. Further information regarding these designated sites is provided below.

Lower Derwent Valley SPA

8.10.5. The Lower Derwent Valley SPA is located 6.47km to the north-east of the Site, and is designated for the following qualifying features:

- Bewick's swan (Non-breeding);
- Eurasian wigeon (Non-breeding);
- Eurasian teal (Non-breeding);
- Northern shoveler (Breeding);
- European golden plover (Non-breeding); and,
- Ruff (Non-breeding) Waterbird assemblage.

8.10.6. The conservation objectives for the SPA, and subject to natural change are as

follows:

> Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
>
> - The extent and distribution of the habitats of the qualifying features;
> - The structure and function of the habitats of the qualifying features;
> - The supporting processes on which the habitats of the qualifying features rely;
> - The population of each of the qualifying features, and
> - The distribution of the qualifying features within the site.

Lower Derwent Valley Ramsar

8.10.7. The Lower Derwent Valley Ramsar site is located 6.55km to the north-east of the Site, and is designated for the following qualifying avian features:

- Ruff (Spring passage);
- Whimbrel (Spring passage);
- Assemblages of wintering waterbirds;
- Eurasian wigeon (non-breeding); and
- Eurasian teal (non-breeding).

8.10.8. The Ramsar site is also designated for its alluvial flood meadows and assemblages of aquatic invertebrates, however, due to separation distances and lack of hydrological connectivity, these features are not considered further.

Humber Estuary SPA

8.10.9. The Humber Estuary SPA is located 6.64km east to the east of the Site, and is designated for the following qualifying features:

- Bittern (non-breeding and breeding);
- Common shelduck (non-breeding);
- Marsh harrier (breeding);

- Hen harrier (non-breeding);
- Avocet (breeding and non-breeding);
- European golden plover (non-breeding);
- Knot (non-breeding);
- Dunlin (Non-breeding);
- Ruff (non-breeding);
- Black-tailed godwit (non-breeding);
- Bar-tailed godwit (non-breeding);
- Common redshank (non-breeding);
- Little tern (breeding); and
- Waterbird assemblage.

8.10.10. The conservation objectives for the SPA, and subject to natural change are as follows:

> Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Humber Estuary Ramsar

8.10.11. The Humber Estuary Ramsar site is located 6.64km east to the east of the Site, and is designated for the following qualifying features:

- Common shelduck (non-breeding);
- European golden plover (non-breeding);
- Knot (non-breeding);

- Dunlin (Non-breeding);
- Black-tailed godwit (non-breeding);
- Bar-tailed godwit (non-breeding);
- Common redshank (non-breeding); and
- Waterbird assemblage.

Potential Pathways for LSE

8.10.12. The Proposed Development is not located within and does not form part of any European-designated site. As such, there will be no direct LSE upon the above four identified European/international designated sites.

8.10.13. The qualifying features for the above-named sites could potentially utilise land outside the European-designated site boundaries, otherwise known as 'functionally linked' land[47]. The Site is, however, not considered to be located within an area of significant and/or regular use by SPA bird populations and the potential for disturbance and displacement during the construction, operational and decommissioning phases of the Proposed Development is considered to be inconsequential in the context of the Conservation Objectives of the above-mentioned SPA/Ramsar Natura 2000 sites.

8.10.14. The potential for the Site and surrounding land within 600m of the Site to support qualifying numbers of species and/or assemblages was assessed through desk study and extensive non-breeding bird surveys, the results of which are detailed within Appendix 8.2.

8.10.15. The desk study found no evidence of waterbird assemblages recorded within 600m of the Site and non-breeding bird surveys have found consistently low numbers of waterfowl using habitats within and surrounding the Site, on a sporadic basis only.

[47] In the recent Natural England report, Available at http://publications.naturalengland.org.uk/publication/6303434392469504 (accessed 09.06.2023) FLL is defined as: areas of land occurring within 20 km of an SPA, that are regularly used by significant numbers of qualifying bird species. A significant number of birds was defined as 0.5% of the Great Britain (GB) population, or 1000 individuals. As the NE report uses this 0.5% GB population criteria it is subsequently appropriate to apply the same criteria to summarise whether significant numbers of wetland bird species were recorded within the Survey Area during the non-breeding bird survey effort. The NE report determines that regular usage is defined as being used by significant numbers of birds for seven or more years since 2010. Clearly this is not compatible with the wintering bird surveys undertaken; however, the NE report further states that Stroud *et al.* (2001) define 'regular' as when a threshold is met in two thirds of the season for which adequate data is available.

8.10.16. For European-designated site qualifying species, no evidence of regular use by significant numbers of birds was found.

8.10.17. Based on the information gathered during the desk study and non-breeding bird surveys, it is it is concluded that the Site and immediate surroundings do not form supporting habitat for the adjacent SPAs/Ramsar sites and there is no functional linkage between the development site and these adjacent Natura 2000 sites.

8.10.18. Disturbance and displacement effects upon the qualifying features of European sites are subsequently screened out and no seasonal working (mitigation), designed to avoid periods of peak waterbird usage, is considered necessary.

Potential for Likely Significant Effects

8.10.19. The information provided concludes the absence of LSEs upon European-designated sites, either as a result of the Proposed Development alone or in combination with other plans or projects.

8.10.20. Subsequently, AA of the Proposed Development upon the identified European-designated sites is therefore not required in the absence of the potential for LSE upon their qualifying features. It is further concluded that specific mitigation for potential impacts on the identified European-designated sites is not necessary.