HELIOS RENEWABLE ENERGY PROJECT

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APFP Regulation 5(2)(a)

Environmental Statement Chapter 8: Biodiversity

June 2024

8. Biodiversity

8.1. Introduction

8.1.1 This Chapter of the ES sets out baseline ecological information and provides an 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 ES set out in paragraph 8.1.3 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 [EN010140/APP/6.3.8.1];**
- **Appendix 8.2: Ornithological Survey Report[1] [EN010140/APP/6.3.8.2];**
- **Appendix 8.3: Otter and Water Vole Survey Report [EN010140/APP/6.3.8.3];**
- **Appendix 8.4: Confidential Badger Report [EN010140/APP/6.3.8.4];**
- **Appendix 8.5: Amphibian Baseline Report [EN010140/APP/6.3.8.5];**
- **Appendix 8.6: Bat Activity Survey Report [EN010140/APP/6.3.8.6];**
- **Appendix 8.7: Invertebrate Survey Report [EN010140/APP/6.3.8.7];**
- **Appendix 8.8: Arboricultural Impact Assessment [EN010140/APP/6.3.8.8];**
- **Appendix 8.9: Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9];**

[1] Annex 3 of Appendix 8.2 contains abridged details in relation to protected species which are sensitive to persecution.

- **Appendix 8.10: Consultation Record [EN010140/APP/6.3.8.10];** and,
- **Appendix 8.11: Statutory Biodiversity Metric Calculation Tool [EN010140/APP/6.3.8.11].**

8.1.4 This Chapter is supported by Figures 8.1 to 8.38, which are provided in **Appendices 8.1 – 8.6 [EN010140/APP/6.3.8.1-6.3.8.2].**

8.1.5 A copy of any letters/ emails of importance sent or received by the Applicant during consultation are included in Technical **Appendix 8.10 [EN010140/APP/6.3.8.10].**

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 (as amended);
- The Environment Act 2021;
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive);
- 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'[2] succeeds the UK Biodiversity Action Plan ('UK BAP') and 'Conserving Biodiversity – the UK Approach'. The list 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)[3] includes policies regarding Biodiversity (Chapter 5.4.42), which requires developments to:

> *'in line with the mitigation hierarchy, aim to avoid significant harm to biodiversity and geological conservation interests, including through consideration of reasonable alternatives …where significant harm cannot be avoided, impacts should be mitigated and as a last resort, appropriate compensation measures should be sought'.*

8.2.4 In addition, the Overarching NPS for Energy (EN-1) (paragraph 5.4.48) states that:

> *'in taking decisions, the Secretary of State 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 within the wider environment'.*

8.2.5 The Overarching NPS for Energy (EN-1) includes further information regarding biodiversity. The document states:

> *'In England applicants for onshore elements of any development are encouraged to use the most current version of the Defra biodiversity metric to calculate their biodiversity baseline and present planned biodiversity net gain outcomes (paragraph 4.5.5)*

[2] 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 05/02/2024)

[3] Department for Energy Security & Net Zero (2023). *Overarching National Policy Statement for Energy (EN-1)*. https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf (accessed 05/02/2024)

…

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 (paragraph 5.4.17)

…

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests (paragraph 5.4.19)

…

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' (paragraph 5.4.21).'

8.2.6 The Overarching NPS for Renewable Energy Infrastructure (EN-3)[4] includes the following information regarding biodiversity:

'The applicant should …. ensure that adverse impacts are avoided, minimised or mitigated in line with the mitigation hierarchy, and biodiversity enhancements are maximised (paragraph 2.1.78)

…

Solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, this can result in significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains which is encouraged (paragraph 2.10.89)

…

[4] Department of Energy and Climate Change (2023). *National Policy Statement for Renewable Energy Infrastructure (EN-3*). https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf (accessed 05/02/2024)

> *In England, 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' (paragraph 2.10.128).'*

8.2.7 NPS EN-3 together with NPS 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.

Local Planning Policy

8.2.8 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.

8.2.9 The Selby District Local Plan (2005)[5] 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

[5] 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 05/02/2024)

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) 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'; and
- 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'.

8.2.10 The Selby District Core Strategy Local Plan (2013)[6] includes Policy SP18: Protecting and Enhancing the Environment.

8.2.11 The emerging North Yorkshire Council Selby Local Plan (Revised Publication 2024)[7] 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

[6] 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 05/02/2024)

[7] North Yorkshire Council. (Revised Publication 2024). *Selby Local Plan (Revised Publication 2024)*. https://selby-consult.objective.co.uk/file/6303893 (accessed 01/05/2024)

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 agreements, conservation covenants and monitoring.

8.2.12 The Selby Biodiversity Action Plan[8] ('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 . 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

[8] 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 05/02/2024)

effects;

- 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:

- Impacts: Actions resulting in changes to an ecological feature, for example, removing a hedgerow; and
- Effects: 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 hedgerow habitat.

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 [EN010140/APP/6.1.3],** the consultation and Scoping process, and the current CIEEM and species specific 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 the Site and within 5km from the Site boundary, extended to 10km for internationally designated sites (comprising Special Protection Areas ('SPA'),

Special Areas of Conservation ('SAC') and Ramsar sites[9]); as shown in Figure 8.1 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**;

- Non-statutory designated sites for nature conservation (excluding geological sites): within the Site and within 2km from the Site boundary[10]; as shown in Figure 8.2 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**;
- Protected, priority and otherwise notable species (e.g. NERC Act 2006 Section 41 Species of Principal Importance): within the Site and within 2km from the Site boundary[11];
- Priority habitats (e.g., NERC Act 2006 Section 41 Priority Habitats): within Site and within 2km of the Site boundary[12];
- Widespread habitats and vegetation: within and immediately adjacent to the Site boundary[13]; as shown in Figure 8.3 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**;
- Non-breeding birds: within the Site and surrounding fields within 600m from the Site boundary, where access allowed, or where land could be viewed from publicly accessible locations[14]; as shown in Figure 8.8 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**;
- Breeding birds: within the Site and surrounding fields within 100m from the Site Boundary, where access allowed, or where land could be viewed from publicly accessible locations[15]; as shown in Figure 8.18 of **Appendix 8.2 [APPLICATION**

[9] 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 05/02/2024). Scottish guidance is used in the absence of an equivalent English document.

[10] 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 05/02/2024).

[11] 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 05/02/2024).

[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 05/02/2024).

[13] 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*

[14] 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

[15] 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.

REF];

- Otters and water vole: ditch networks within the Site; as shown in Figure 8.22 of **Appendix 8.3 [EN010140/APP/6.3.8.2]**; and,
- Badgers: within the Site and within 30m from the Site boundary (where access allowed); as shown in Figure 8.24 (confidential) of **Appendix 8.4 [EN010140/APP/6.3.8.4]**;
- Great crested newts ('GCN'): within the Site and within suitable breeding ponds/waterbodies within 250m of the Site boundary, where access allowed; as shown in Figure 8.28 of **Appendix 8.5 [EN010140/APP/6.3.8.5]**;
- Bats: within and immediately adjacent to the Site boundary[16]; as shown in Figure 8.33 of **Appendix 8.6 [EN010140/APP/6.3.8.6]**; and,
- Invertebrates: within and immediately adjacent to the Site boundary.

Assessment of Significance

8.3.9 The EIA Regulations require the ES to 'include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment' (Regulation 14(3)(b)). 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.

8.3.10 For the purposes of the ES, effects have been 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.

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

[16] Based on Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn*). The Bat Conservation Trust, London.

biodiversity in general.

8.3.12 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.'*

8.3.13 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 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.

8.3.14 The Proposed Development has been assessed on the basis as having a modelled operational lifespan of up to 40 years for the purpose of the assessment. Ecological effects have been described in terms of their duration as short-, medium- 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.

8.3.15 For the purposes of this assessment, the importance or sensitivity of an ecological feature have been 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 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.

Value or Sensitivity of Receptor / Geographic Scale of Importance	Definition Examples
	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.

8.3.16 Effects on ecological features have been 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.

8.3.17 Relevant European, national, and local guidance from governments and specialist organisations have been 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.

8.3.18 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.

8.3.19 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'.

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

8.3.21 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.

Environmental Parameters	Description
Reversibility	Reversible (or temporary) effects are those that occur 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.

8.3.22 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.

Magnitude	Criteria
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

8.3.23 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.

8.3.24 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 have been 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

8.3.25 An initial 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[17], Joint Nature Conservation Committee ('JNCC')[18] and Multi Agency Geographic Information for the Countryside ('MAGIC')[19] websites. A 5km search radius surrounding the Site boundary was adopted for all statutory designated sites, extending to 10km for international protected sites.

[17] Available at**:** https://designatedsites.naturalengland.org.uk/ (accessed 05/02/2024)

[18] Available at: http://jncc.defra.gov.uk/ (accessed 05/02/2024)

[19] Available at: https://magic.defra.gov.uk/MagicMap.aspx (accessed 05/02/2024)

8.3.26 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[20] pond surveys for district level licensing ('DLL') (England)[21] within 2km of the Site boundary.

8.3.27 Biological record data regarding non-statutory designated sites and records of protected and notable species was also obtained from the North and East Yorkshire Ecological Data Centre ('NEYEDC') and North Yorkshire Bat Group. A 2km search radius was used from the Site boundary. 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.

8.3.28 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.

8.3.29 The results of the desktop study are shown on Figure 8.1: Statutory Designated Sites Plan of **Appendix 8.1 [EN010140/APP/6.3.8.1]** and Figure 8.2: Non-statutory Designated Sites Plan of **Appendix 8.1 [EN010140/APP/6.3.8.1]** and discussed in greater detail within the associated Appendices.

Habitat Surveys

8.3.30 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.

[20] 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.

[21] 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 05/02/2024).

8.3.31 Surveys were undertaken in adherence to the UK Habitat Classification ('UKHabs') habitat categorisation system (V1.1)[22]. Detailed survey methodologies and findings are detailed in **Appendix 8.1 [EN010140/APP/6.3.8.1]** and habitat plans are provided in Figures 8.3 to 8.7 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**.

Species Surveys

8.3.32 The following baseline species-specific surveys and assessments were undertaken between April 2021 and October 2023:

- Breeding bird survey;
- Non-breeding bird survey (including both spring and autumn passage periods);
- Badger survey;
- Water vole and otter survey; and
- Great crested newt eDNA survey.

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

- **Appendix 8.2: Ornithology Baseline Survey Report[23] [EN010140/APP/6.3.8.3];**
- **Appendix 8.3: Otter and Water Vole Baseline Survey Report [EN010140/APP/6.3.8.3];**
- **Appendix 8.4: Confidential Badger Report [EN010140/APP/6.3.8.4];** and
- **Appendix 8.5: Amphibian Baseline Report [EN010140/APP/6.3.8.5].**

Additional Species Surveys

8.3.34 In addition to the baseline surveys referred to above, following consultation with statutory consultees (see 'Consultation' section below), additional ecological

[22] Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J. (2020). *The UK Habitat Classification User Manual Version 1.1* . https://ukhab.org/ (accessed 05/02/2024)

[23] Annex 3 of Appendix 8.2 contains abridged details in relation to protected species which are sensitive to persecution.

surveys were undertaken during the Spring and Summer of 2023. The primary aim of these surveys was to add context and enable future monitoring as agreed with NYC (see Table 8.5). However, results have been included within this ES and assessed where relevant.

8.3.35 These additional surveys consist of:

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

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

- **Appendix 8.6: Bat Activity Survey Report [EN010140/APP/6.3.8.6];** and
- **Appendix 8.7: Invertebrate Survey Report [EN010140/APP/6.3.8.7].**

Biodiversity Net Gain

8.3.37 It is not yet a mandatory requirement[24] for DCO applications to demonstrate a quantifiable biodiversity net gain ('BNG') of at least 10% under the Environment Act 2021; however, the Proposed Development will achieve a voluntary BNG in accordance with the relevant requirements of the updated National Policy Statements EN-1 and EN-3 and local policy.

8.3.38 Therefore, DEFRA's Statutory Biodiversity Metric Calculator[25] has been utilised to provide evidence of achievable on-Site BNG associated with the Proposed Development, which will be presented in a separate standalone Biodiversity Impact Assessment.

8.3.39 For the purposes of impact assessment, the delivery of a quantifiable BNG has been considered as an inherent part of the Proposed Development, i.e., as 'measures to be adopted by the project'.

[24] BNG delivery will be a legal requirement for all (terrestrial) NSIP projects from November 2025, further information available at: (accessed 05/02/2024)

[25] The BNG calculations have been undertaken utilising DEFRA's Statutory Biodiversity Metric Calculator, available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides (accessed 05/02/2024).

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, and during and following statutory consultation, and how these have been addressed through this Chapter. Ongoing consultation has also 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

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
EIA Scoping Opinion				
1	PINS	EIA Scoping Opinion (14th July 2022)	PINS content with scoping out indirect effects on statutorily designated sites >2km from the red line boundary if the ES demonstrates that there is no pathway for effect at identified sites and/or embedded mitigation avoids (secured via the DCO).	Adopted recommendations from PINS, see Table 8.9. See below (ID row 6).
			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.	Detailed species-specific surveys completed and results used to inform assessment, including impacts on statutorily designated sites, and have subsequently been included in the assessment.
			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.	Full extended habitat survey data is presented in **Appendix 8.1 Baseline Habitats and Desk Study Report [EN010140/APP/6.3.8.1].**

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			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.	Invertebrate survey undertaken and data is presented in **Appendix 8.7 Invertebrate Survey Report [EN010140/APP/6.3.8.7].**
			Construction lighting impacts on biodiversity should be scoped in at this time.	Lighting impacts scoped-in to the assessment with regards to bats.
			The ES should consider the potential for impacts on international sites designated for bats within a 30km study area or provide evidence to demonstrate the absence of a likely significant effect. Further bat activity surveys requested to inform the ES.	No internationally statutory designated sites designated for the presence of bats within 30km of the Site. Addressed further in paragraph 8.4.1. and Table 8.9.
			PINS requested further non-breeding bird survey effort to cover areas missed during the 2021-2022 survey season, unless otherwise agreed with NE.	Additional surveys undertaken. Full data is presented in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2].**
			PINS requested that all sensitive or vulnerable ecological features, should only be disclosed within confidential annexes.	No sensitive data identified and subsequently there are no confidential annexes to the ES.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
2	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.	Potential impacts to designated sites are included in paragraphs 8.5.81 to 8.5.85.
			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.	Potential impacts during the construction, operation and decommissioning phases are considered within Section 8.5.
			The ES should use an appropriate BNG metric together with ecological advice to calculate the change in biodiversity resulting from proposed development.	DEFRA's Statutory Biodiversity Metric Calculator has been used, as addressed in a separate standalone Biodiversity Impact Assessment submitted as part of the DCO Application.
3	NYCC / SDC (now NYC)	EIA Scoping response (5th July 2022)	The approach to ecological assessment set out in the scoping document was supported by NYCC/SDC, as was the commitment to include a BNG assessment as part of the Proposed Development application.	Noted, no further action required.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NYCC/SDC raised concerns regarding the scale of the Proposed Development and stated that cumulative impacts will need to be taken into account.	Cumulative impacts are considered within the assessment, as addressed in Section 8.8.
			NYCC/SDC stated that they are 'satisfied with the ecological elements proposed to be scoped into the Environmental Statement'.	Noted, no further action required.
4	Forestry Commission	EIA Scoping response (5th July 2022)	Forestry Commission 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.	Kerrick Spring Wood ancient woodland site is considered in paragraphs 8.5.87 to 8.5.97.
5	YWT	Virtual meeting on 4th August 2022	Applicant and YWT discussed options to incorporate appropriate habitat creation within the Site, that will allow for enhanced biodiversity and connectivity in the wider landscape.	Proposed biodiversity enhancements have been incorporated within the final Landscape Strategy Plan, as addressed in a separate standalone Biodiversity Impact Assessment submitted as part of the DCO Application
			Discussions were held with the Manager of Barlow Common who provided localised advice regarding habitat creation.	

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			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.	Survey data is provided in **Appendices 8.1 to 8.8 [EN010140/APP/6.3.8.1 to EN010140/APP/6.3.8.8]**.
6	PINS	Letter on behalf of the Applicant dated 3rd November 2022	Letter provided by applicant for further clarity to issues raised by PINS through the scoping process and requested further dialogue to discuss the requirement (or otherwise) for further targeted ecological surveys.	A virtual meeting with PINS was arranged to discuss the matters raised within the letter **Appendix 8.10 [EN010140/APP/6.3.8.10]**; see below (ID row 7).
7	PINS	Virtual meeting on 15th November 2022	Discussion between PINS and applicant 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 (ID row 8).
8 & 9	NE	Request for DAS by Avian Ecology Ltd on 7th December 2022	Seven questions submitted to be considered within the NE DAS advice (Q1 to Q7 below):	Entered into DAS agreement with NE and DAS responses provided on 30th March 2023.
			Q1. Does NE agree that, for the Proposed Development, surveys for invertebrates are not required?	Email request for meeting with the NYCC (now NYC) County Ecologist as advised by NE; see below (ID row 10).

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
		DAS response (DAS A008017) received in two documents on 30th March 2023	Q2. Does NE agree that, for the Proposed Development, bat activity surveys are not required?	Q2 response. 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. Bat activity surveys undertaken, as presented in **Appendix 8.6. [EN010140/APP/6.3.8.3]** Scope of surveys agreed with NYCC (now NYC). See row ID 11.
			Q3. Does NE agree that the approach to roosting bats (Preliminary Roost Assessment section) is appropriate?	Q3 response. NE agree that the proposed approach is proportionate and acceptable given the information available at this stage.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			Q4. 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?	Q4 response. NE recommend that NYCC (now NYC) are consulted with. Email request for meeting with the NYCC (now NYC) County Ecologist as advised by NE; see below (ID row 10).
			Q5. 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?	Q5 response. NE agree that the use of a 600m buffer is acceptable.
			Q6. 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?	Q6 response. NE state that a 600m survey buffer is acceptable. However, NE note that this buffer needs to cover the entire Site boundary including grid connection routes, this survey information will need to be included within the HRA. 600m buffer adopted. Further clarification on coverage of the grid connection is presented in Technical **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			Q7. Does NE agree that the extent (duration) of bird surveys undertaken is adequate and robust?	Q7 response. 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'*. Passage bird surveys completed. Details are presented in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**,.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
10	NYCC (now NYC)	Email request for meeting with the County Ecologist	Applicant submitted a 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, as detailed in row ID 11.

11	NYCC (now NYC) Ecologist	Virtual meeting on 4th May 2023	Applicant 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). The Applicant explained that PINS are in agreement with the survey proposals but desired reassurance from NE, 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, the applicant proposed that	Bat activity and invertebrate surveys were undertaken in 2023, the results of which are included in **Appendix 8.6 Bat Activity Survey Report [EN010140/APP/6.3.8.6]** and **8.7 Invertebrate Survey Report [EN010140/APP/6.3.8.7]**, respectively.

			rather than surveying any remaining parcels of 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 (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.	No further response; measures adopted, as addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]** Extensive non-breeding bird surveys have been undertaken and the potential for functionally linked areas is considered in paragraphs

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			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.	The Applicant adopted these measures for ornithological surveys, as addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2].**
			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 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.	Bat activity surveys undertaken at peak bat activity season. Details are presented in **Appendix 8.6 Bat Activity Survey Report [EN010140/APP/6.3.8.3].**

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NYCC (now NYC) Ecologist advised there is likely to be need for tree (bat roost) surveys if any trees are to be removed as part of the Proposed Development.	No trees are to be felled as a result of the Proposed Development; as such tree (bat roost) surveys, comprising preliminary ground level roost assessments of trees within and directly bounding the Site was not undertaken.
12	NE	Email from Applicant to NE.	Request for further response and clarification to points raised in NE DAS A008017 response of 30/03/2023.	Response summarised below in email dated 9th May 2023 (row ID 13).
			Applicant requested clarification on the requirement for VP surveys, which have not been a requirement for other locally or comparable projects.	Response received on the 9th May 2023; as detailed in row ID 13.
13	NE	Email from NE to Applicant dated 9th May 2023.	NE clarified their position on ornithology surveys; agreed VP surveys are not required and the methodology proposed was acceptable.	No further action required.
			NE 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.	Passage surveys (spring and autumn) completed, as presented in **Appendix 8.2 Ornithology Survey Report [EN010140/APP/6.3.8.2].**

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
14	NE	Request for DAS by Avian Ecology Ltd sent on 10th May 2023	N/A	Meeting arranged for 29th June 2023; see below (ID row 15).
Statutory Consultation (addressed in the ES)				
15	NE	Virtual meeting on 29th June 2023	Meeting between NE and applicant arranged to agree baseline survey requirement following previous correspondence with NE.	Passage surveys were undertaken in spring (April and May) and autumn (September and October) 2023, the results of which are included in **Appendix 8.2 Ornithology Survey Report [EN010140/APP/6.3.8.2].**
			NE advised that some assessment would be required for bird passage, undertaken either through desk study or through passage surveys.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**
			NE advised that, although 1% of the corresponding SPA population is a widely accepted benchmark for assessing likely significant effects in the HRA, if the results approach 1%, discussion will be required regarding how the birds are using the Site per season.	See below (ID row 16).

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE and applicant discussed potential for the Site to be functionally linked to the Lower Derwent Valley Special Protection Area (SPA) and Humber Estuary SPA for use by non-breeding birds.	See below (ID row 16).
16 & 17	NE	Request for DAS by Avian Ecology Ltd on 19th July 2023 DAS response (DAS/A009135) received on 31st August 2023	Applicant submitted two questions to be considered within the NE DAS advice:	Response received on the 31st August 2023; see below (ID row 17).
			Q1. Does Natural England agree with the conclusions of the draft Ornithology technical appendix, in that the Site does not constitute functionally linked land ('FLL') to either the Lower Derwent Valley SPA or the Humber Estuary SPA?	NE concur that significant effects on breeding nightjar associated with the Thorne and Hatfield Moors SPA are unlikely to occur, either alone or in combination, **Appendix 8.10 [EN010140/APP/6.3.8.10].**
			Q2. If Natural England does not agree with the Applicant that the Site does not constitute FLL, then can Natural England provide the criteria used for the definition of FLL on which this view has been based, and also confirm that their approach towards this solar Nationally Significant Infrastructure (NSIP) is consistent with that applied to other solar NSIP projects, particularly in relation to the Lower Derwent Valley SPA or the Humber Estuary SPA (as well as to SPAs elsewhere in the country)?	NE required further information on a number of points listed below, and did not have enough information to rule out impacts on FLL at time of writing.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that the full results of the data search are provided in the final Ornithology technical appendix, including a visual representation and / or map. NE advised that clarification around whether the references made to records 'on-site' include the 600m buffer area.	Addressed in Appendix 8.2 Ornithological Survey Report, Section 3.1 and Figure 8.21 of **Appendix 8.2 [EN010140/APP/6.3.8.2].**
			NE noted that there was no assessment of potential impacts on the autumn passage period in the draft Ornithology technical appendix, therefore potential impacts on FLL could not be ruled out at the time of writing. NE confirmed that an assessment of potential impact on passage birds can be informed by historical records, consideration of observations of wintering birds and bird surveys at the appropriate time of year. NE recommended that autumn passage surveys are undertaken.	Passage surveys were undertaken in spring (April and May) and autumn (September and October) 2023, the results of which are included in **Appendix 8.2 Ornithology Survey Report [EN010140/APP/6.3.8.2].**

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that further definition is provided in the final Ornithology technical appendix around '*all suitable open land'*, and what habitat types are considered to fall within this definition. NE requested clarification on whether the 600m buffer of the grid connection area has been surveyed, and if not, whether this is due to the habitat in the corridor itself not being deemed to be suitable for SPA / Ramsar birds.	Addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**, Section 2; paragraph 2.2.17.
			NE recommend that nocturnal surveys (specifically waders) are carried out at the site.	Nocturnal surveys were undertaken in the period January to Match 2024. Results are provided in EN010140/APP/8.3., and have been considered in the assessment,
			NE noted that VP surveys remain NE's recommended methodology for undertaking passage and wintering bird surveys.	See above - Email from NE to Applicant dated 9th May 2023. NE clarified their position on ornithology surveys, and agreed VP surveys are not required and the methodology proposed was acceptable.
			NE requested clarification on which fields have been surveyed on which dates within the final Ornithology technical appendix.	Addressed in **Appendix 8.2 Ornithological Survey Report, [EN010140/APP/6.3.8.2]** Table 2.6.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that the full survey results are included within the Ornithology technical appendix, alongside full definitions of how target species have been defined.	Addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**, Section 2 and 3, specifically paragraph 2.2.6 for target species definition.
			NE provided 'Annex B: Humber Estuary Special Protection Area: non-breeding waterbird assemblage' and 'Annex B1: Lower Derwent Valley Special Protection Area: non-breeding waterbird assemblage' for clarification on the important component species that should be considered for each site. NE advised that the presence of target species of the Lower Derwent Valley SPA / Ramsar is re-assessed.	Addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**, Table 3.10 and 3.11.
			NE advised that the threshold of 'a significant number of birds has been defined as 0.5% of the GB population or 1000 individuals' is specific to the north-west, and advice given above is used for this project.	1% of the corresponding SPA population was used as a threshold, as addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]** paragraph 3.2.34 and Table 3.10 and 3.11.
			NE advised that the latest Wetland Bird Survey ('WeBS') 5-year mean peak for the Humber Estuary is used to determine the percentages of the Humber Estuary and Lower Derwent Valley species' populations recorded.	Addressed in **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2]**, paragraphs 3.2.34 to 3.2.42.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			Information to Inform HRA Advice	
			NE advised that likely significant effect cannot be ruled out at the screening stage of the Information to Inform HRA Section. NE advised that the results of the bird surveys and other relevant data will need to be considered at the HRA appropriate assessment stage. NE advised that this should be assessed alone and in-combination.	**Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]** assesses the potential for impacts on functionally linked land to determine whether the proposed development is likely to have an adverse effect on site integrity of the Humber Estuary SPA / Ramsar and Lower Derwent Valley SPA / Ramsar, following the precautionary principle.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that the general rule of thumb NE advise of for the Humber Estuary and Lower Derwent Valley is that if ≥1% (based on the WeBS 5-year mean) of any SPA/ Ramsar bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration / assessment is required. Although 1% is the generally used rule of thumb, further discussion is required around how the birds are using the Site in each season, even if numbers are below 1%. NE advised that it would be beneficial to demonstrate that the habitat type was representative in the years of survey.	Addressed in **Appendix 8.2 Ornithological Survey Report EN010140/APP/6.3.8.2]**, paragraphs 3.2.34 to 3.2.42 and Table 3.10 - 3.12.
			NE advised that construction / operational noise or visual disturbance impacts on SPA / Ramsar species are considered in the Information to Inform HRA.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**
			NE advised that an in-combination assessment is included in the Information to Inform HRA.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
18	NE	Consultation in accordance with Section 42 of the Planning Act 2008: letter dated 19th Dec 2023 (Version 2)	NE noted that air quality is a potential impact pathway relevant to this application for SAC located within 10km of the Site. NE advised that an assessment is made of all potential air quality impacts on statutory designated sites for all stages of the project, and included as part of the HRA.	A separate letter response has been prepared by Air Quality Consultant concerning this issue (Air Quality Consultants Technical Note, 23rd February 2024).
			NE advised that further assessment should be provided regarding potential impacts on the Humber Estuary SPA / Ramsar and Lower Derwent Valley SPA / Ramsar in the HRA.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**
			NE advised that advice included in the DAS response dated 31st August 2023 in relation to non-breeding bird survey report is considered. NE also required further information on several points relating to surveys and data interpretation in the Ornithology technical appendix, as noted in the DAS response dated 31st August 2023.	See above (ID row 17).

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that glint and glare impacts on birds from the panels are considered in the ES.	Glint and Glare impacts on birds are not considered likely; the Applicant is not aware of any evidence of such an effect, and notes that NE publication 'Evidence review of the impact of solar farms on birds, bats and general ecology 2016' (NEER012[26]) makes no reference to this possible effect. Subsequently no further consideration is considered necessary. Furthermore, as discussed in Table 2.6 of **Chapter 2 EIA Methodology [EN010140/APP/8.1.2]**, Glint and Glare is scoped out of the ES as no significant effects are expected, supported by the findings of **Appendix 2.5 Glint and Glare Assessment [EN010140/APP/8.3.2.5]**.

[26] Natural England (2017) Evidence review of the impact of solar farms on birds, bats and general ecology (NEER012).

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that the potential for the solar panels to affect flight paths of wintering and passage SPA / Ramsar birds which are utilising FLL are assessed within the Information to Inform HRA.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**
			NE advised that an in-combination assessment is undertaken at both the screening and appropriate assessment stage of the Information to Inform HRA. NE advised that when considering in-combination impacts of loss of functionally linked land, the results of surveys undertaken for those developments are considered to understand whether there is a cumulative loss of land which can support wintering or passage birds.	Addressed in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**
			NE advised that impacts on Eskamhorn Meadows SSSI cannot be ruled out until an assessment is made of all potential air quality impacts on the statutory designated site for all stages of the project.	A separate letter response has been prepared by Air Quality Consultant concerning this issue (Air Quality Consultants Technical Note, 23rd February 2024).

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advised that there is no specific assessment of impacts on neither the Humber Estuary SSSI nor the Derwent Ings SSSI and advised that potential impacts on designated features are considered and appropriate justification provided where impacts are ruled out. Also identified the following nationally designated sites relevant to this application: • Thorne, Crowle & Goole Moors SSSI; • Hatfield Moors SSSI; • Breighton Meadows SSSI; and, • Derwent Ings SSSI.	Thorne, Crowle & Goole Moors SSSI, Hatfield Moors SSSI, Breighton Meadows SSSI, Derwent Ings SSSI and Humber Estuary SSSI have been included in Table 8.6 and the potential impacts on these sites, along with the Humber Estuary SSSI, are considered in Table 8.9.
			NE advised that BNG is delivered in line with Selby local plan policy NE3 and that it is best practice to submit a biodiversity gain plan and completed biodiversity metric with the application. NE recommend using the latest version of the Defra biodiversity metric to calculate BNG and adhere to the rules and principles set out within the metric guidance.	Defra's Statutory Biodiversity Metric Calculation Tool (the Metric) was utilised to provide evidence of BNG, adhering to rules and principles set out within the Statutory Metric User Guide and the Selby local plan policy NE3, as addressed in a separate standalone Biodiversity Impact Assessment submitted as part of the DCO Application

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
19	NYC	Consultation in accordance with Section 42 of the Planning Act 2008: letter dated 19th Dec 2023 (Version 2)	NYC encouraged the use of the most up to date version of the Defra Biodiversity Metric.	The Metric was utilised to provide evidence of BNG, as addressed in a separate standalone Biodiversity Impact Assessment submitted as part of the DCO Application.
			NYC advised that details in relation to securing the long-term monitoring and management are included in the Landscape Environmental Management Plan (LEMP).	Addressed in Outline Landscape and Ecological Management Plan **('oLEMP Appendix 7.9 [EN010140/APP/8.3.7.9]**).
20	NE	Technical Note Submitted by Applicant: 9th April 2023	The applicant submitted a letter in response to Natural England's letter dated 19th December.	See Technical Note: Consultation in accordance with Section 42 of the Planning Act 2008: Helios Renewable Energy Project Development Consent Order. Response to Natural England letter dated 19th December 2023.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
21	NE	DAS response (DAS/A009135) dated 26th April 2024	NE do not consider that it is appropriate to interpret the 1% rule of thumb in a way that only loss of functionally linked land which has been recorded as being used by ≥1% of the designated site population of a species is likely to lead to a significant effect. NE therefore advise that the 1% approach can be used as a rule of thumb, but this should be combined with other assessment. Regarding qualifying assemblage, NE advise that adverse effects may occur on a designated SPA/Ramsar, even if only a single species of an assemblage is affected and that assessment in relation to the relevant designated site populations (i.e., the Humber Estuary SPA/Ramsar and Lower Derwent Valley SPA/Ramsar in this case) are focused on in the assessment of impacts on these sites.	**Appendix 8.2 Ornithological Survey Report [EN010140/APP/8.3. 8.2]** (paragraphs 3.2.34 to 3.2.42 and Table 3.10 - 3.12) and paragraphs 8.4.45 to 8.4.56 and Table 8.11 of this chapter outline how the application categorises FLL and uses the results of field surveys to determine the potential for effects.

ID	Consultee	Type and Date	Summary of Consultation Response	Response to Consultee: ES
			NE advise that assessment of air quality impacts relating to any European site is included in the HRA.	A separate letter response has been prepared by Air Quality Consultant concerning this issue (Air Quality Consultants Technical Note, 23rd February 2024). There is no pathway for likely significant effect on internationally, or nationally protected sites; as such, as assessment of air quality has not been included in the HRA.

Limitations and Assumptions

8.3.41 There are no substantive limitations to the ecological assessment process recorded at this stage and there have been no identified substantive limitations to this 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 [EN010140/APP/6.3.8.1]** 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. There are no European statutory designated sites designated for bats within 30km of the Site. These sites are summarised in Table 8.6 and are shown in Figure 8.1 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**. The Thorne, Crowle & Goole Moors SSSI, Hatfield Moors SSSI, Breighton Meadows SSSI, Derwent Ings SSSI and Humber Estuary SSSI are also included as a result of consultation with NE.

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 closest Site Boundary	Qualifying Features
Barlow Common Local Nature Reserve ('LNR')	480m north	Mosaic of woodland, wetland, reedbeds and four large ponds.
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.
Breighton Meadows SSSI	6.43km north-east	Notified for its nationally and internationally important alluvial flood meadow plant community and its assemblage of breeding birds associated with lowland damp grasslands.

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		Overlaps with Lower Derwent Valley Ramsar, Lower Derwent Valley SAC and Lower Derwent Valley SPA.
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:

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		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 Estuaries intertidal mudflats and sandflats

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		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)

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		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 Common shelduck (non-breeding) European golden plover (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding)

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		Bar-tailed godwit (non-breeding) Common redshank (non-breeding) River lamprey Sea lamprey Non-breeding waterfowl assemblages of international importance.
Humber Estuary SSSI	6.6km east	Estuary, comprising intertidal mudflats, sandflats and coastal saltmarsh and the associated saline lagoons, sand dunes and standing waters. Supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margin. Overlaps with Humber Estuary Ramsar, Humber Estuary SAC and Humber Estuary SPA.
Skipwith Common SAC	8.5km north	Qualifying features: Northern Atlantic wet heaths with *Erica tetralix*; Wet heathland with cross-leaved heath European dry heaths
Derwent Ings SSSI	8.73km north-east	Series of neutral alluvial flood meadows, fen and swamp communities and freshwater habitats lying adjacent to the River Derwent. Important for a wide range of breeding

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
		wetland bird species and supports internationally important concentrations of waterfowl. Overlaps with Lower Derwent Valley Ramsar, Lower Derwent Valley SAC and Lower Derwent Valley SPA.
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).
Thorne, Crowle & Goole Moors SSSI	9.11km south-east	Largest extent of lowland raised mire in England. Important for its breeding and wintering, bird populations. Overlaps with Thorne & Hatfield Moors SPA and Thorne Moor SAC.
Hatfield Moors SSSI	17km south-east	Encompasses the peatland of Hatfield Moor together with a system of drainage ditches within adjacent agricultural land. Supports a diverse breeding community of heathland birds. Overlaps with Thorne & Hatfield Moors SPA.

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 8.2 of **Appendix 8.1 [EN010140/APP/6.3.8.1].**

Table 8.7: Non-Statutory Designated Sites for Nature Conservation

Site Name	Approximate Distance and Direction from the closest Site Boundary	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.

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
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 rabbit *Oryctolagus cuniculus* grazed moderately neutral or acidic farmland. Supports a variety of flora and fauna species.
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.
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.

Site Name	Approximate Distance and Direction from the closest Site Boundary	Qualifying Features
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 [EN010140/APP/6.3.8.1].**

Table 8.8: Priority Habitats

Priority habitat	Designation	Distance of nearest habitat from the closest Site boundary
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

Priority habitat	Designation	Distance of nearest habitat from the closest Site boundary
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[27] 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 and a second veteran oak tree (National Tree ID: 14481) approximately 70m east of the first tree along Sandwith Lane. An Arboricultural Impact Assessment prepared by Barton Hyett Associates Ltd. is provided at **Appendix 8.8 [EN010140/APP/6.3.8.8]**.

8.4.7 A review of the NE Open Data Geoportal[28] 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 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 (UKHabs codes: c1.74, c1a, c1a8, c1c, c1c5, c1c.74, c1c5.73, and

[27] Available at: https://ati.woodlandtrust.org.uk/ (accessed 05/02/2024)

[28] 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 05/02/2024)

c1d);

- Neutral Grassland (UKHabs codes: g3c, g3.10, and g3.10.77,);
- Modified Grassland (UKHabs codes: g4, g4.11, g4.10.11.16, and g4.11.64.540;
- Hedgerows (UKHabs codes: h2a.11.76, h2a.76, and h2a.77);
- Line of Trees (UKHabs code: w1g6);
- Ditches (UKHabs code: r1.191);
- Ponds (UKHabs code: r1a.19);
- Woodlands (UKHabs codes: w1g, w1g.36, w1g.53, w1g.56, w1g.76, w1f7.12.37, and w2b.12.36);
- Scrub (UKHabs codes: h3d, h3d.11, h3h, and h3h.11); and
- Urban (UKHabs 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 [EN010140/APP/6.3.8.1]**. Baseline habitats recorded within the Site during extended UKHabs surveys, are illustrated in Figures 8.4 to 8.7 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**.

Invertebrates

Desk Study

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.

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.

Habitat Suitability

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, ponds, and woodland are considered likely to support a more diverse invertebrate community than arable fields, although such features have been 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.

Invertebrate Survey

8.4.16 Detailed results are presented in **Appendix 8.7 [EN010140/APP/6.3.8.7].**

8.4.17 A total of 235 species were recorded during the survey; six of which are either notable or listed as Species of Principal Importance (SPI) under Section 41 of the NERC Act 2006:

- A tortoise beetle *Cassida nebulosa*;
- A leafhopper *Pediopsis tiliae*;
- Cereal stem moth;
- Cinnabar moth;
- Hill cuckoo bee; and
- Large yellow-faced bee.

8.4.18 The species list was entered into Pantheon[29], a software application which assesses the importance of invertebrate assemblages. 'Rich flower resource' was the only assemblage found to be favourable based on the five survey visits undertaken, with 23 species recorded. However, 'scrub edge', 'bark and sapwood decay' and 'fungal fruiting bodies' are considered likely to also achieve favourable status with increased survey effort.

[29] https://pantheon.brc.ac.uk/ [Accessed 09/02/2024]

Birds

Desk Study

8.4.19 The NEYEDC data search returned no records from within the Site itself, however records of grey partridge, mallard, moorhen, wren, willow warbler, spotted flycatcher and linnet were returned within the 600m site buffer. There were 119 records of 44 notable bird species were returned from within 2km of the Site, including a variety of priority species commonly associated with the farmland and woodland habitats surrounding the Site.

8.4.20 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.

8.4.21 A detailed desk study is presented in the ornithological survey report (**Appendix 8.2 [EN010140/APP/6.3.8.2]**).

Breeding Bird Survey

8.4.22 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 [EN010140/APP/6.3.8.2]** and within Figures 8.18 and 8.20 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**.

8.4.23 The breeding bird assemblage recorded within the Site is representative of farmland habitats of the region. A total of 46 species were recorded breeding within the Site or within 100m of the Site boundary (as presented in Table 8.9).

8.4.24 Of these, 25 breeding 'notable species' were recorded on or within 100m of the Site; notable species were defined as those Red-listed or Amber-listed on 'Birds of Conservation Concern 5'[30]. Twelve Red List[31] species were recorded; corn bunting,

[30] 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 05/02/2024)

[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 05/02/2024)

greenfinch, house martin, house sparrow, lapwing, linnet, mistle thrush, skylark, starling, tree sparrow, yellowhammer, and yellow wagtail. A further 13 Amber List species were identified; mallard, sparrowhawk, stock dove, woodpigeon, kestrel, rook, wren, dunnock, song thrush, willow warbler, whitethroat, bullfinch and reed bunting as showing breeding behaviour.

8.4.25 Of the notable species, 13 are classified as of Principal Importance under Section 41 of the NERC Act (2006). These are; lapwing, skylark, dunnock, song thrush, starling, house sparrow, tree sparrow, yellow wagtail, bullfinch, linnet, corn bunting, yellowhammer and reed bunting.

8.4.26 Eight are also listed under the Selby LBAP; lapwing, skylark, starling, house sparrow, tree sparrow, linnet, corn bunting and yellowhammer.

8.4.27 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. Details are provided in confidential Annex 3 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**.

8.4.28 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.

Table 8.9: Breeding Birds Recorded Survey Results

Species	Estimated no. pairs	Conservation Status
Mallard	2	BoCC - Amber
Coot	1	BoCC - Green
Stock Dove	4	BoCC - Amber
Woodpigeon	21	BoCC - Amber
Collared Dove	3	BoCC - Green
Lapwing	4	NERC S.41, BoCC – Red, LBAP
Sparrowhawk	1	BoCC - Amber
Buzzard	5	BoCC - Green

Species	Estimated no. pairs	Conservation Status
Great Spotted Woodpecker	2	BoCC - Green
Kestrel	2	BoCC - Amber
Magpie	1	BoCC - Green
Jackdaw	1	BoCC - Green
Rook	39	BoCC - Amber
Carrion Crow	7	BoCC - Green
Coal Tit	3	BoCC - Green
Blue Tit	24	BoCC - Green
Great Tit	7	BoCC - Green
Skylark	30	NERC S.41, BoCC - Red, LBAP
Swallow	2	BoCC - Green, LBAP
House Martin	2	BoCC - Red
Long-tailed Tit	12	BoCC - Green
Willow Warbler	3	BoCC - Amber
Chiffchaff	17	BoCC - Green
Reed Warbler	1	BoCC - Green
Blackcap	24	BoCC - Green
Garden Warbler	2	BoCC - Green
Lesser Whitethroat	2	BoCC - Green
Whitethroat	15	BoCC - Amber
Goldcrest	3	BoCC - Green
Wren	44	BoCC - Amber
Starling*	7	NERC S.41, BoCC - Red, LBAP
Song Thrush	13	NERC S.41, BoCC - Red, LBAP
Mistle Thrush	2	BoCC - Red
Blackbird	39	BoCC - Green
Robin	48	BoCC - Green
Tree Sparrow	1	NERC S.41, BoCC - Red, LBAP

Species	Estimated no. pairs	Conservation Status
House Sparrow	21	NERC S.41, BoCC - Red
Dunnock	12	NERC S.41, BoCC - Red
Yellow Wagtail	7	NERC. S 41. BoCC - Red, LBAP
Pied Wagtail	3	BoCC - Green
Chaffinch	30	BoCC - Green
Bullfinch	1	NERC S.41, BoCC - Red
Greenfinch	7	BoCC - Red
Linnet	9	NERC S.41, BoCC - Red
Goldfinch	14	BoCC - Green
Corn Bunting	10	NERC S.41, BoCC - Red, LBAP
Yellowhammer	22	NERC S.41, BoCC - Red
Reed Bunting	5	NERC S.41, BoCC - Red
BoCC = Birds of Conservation Concern (Stanbury et al. (2021)) NERC = Species of Principal Importance (Section 41 of the NERC Act (2006))		

8.4.29 Ground-nesting notable species which use open agricultural fields within the Site consisted of one wader species (lapwing) and three passerines (i.e., small, perching birds); skylark, corn bunting and yellow wagtail, all of which are listed species of Principal Importance under Section 41 of the NERC Act 2006. Table 8.10 presents ground-nesting bird species identified during field surveys of the Site and survey area.

8.4.30 Lapwings were considered to have failed breeding attempts, as no chicks were recorded, and the four pairs identified in early spring (April) had reduced to a single pair by May. Poor breeding productivity is typical for this species in modern farmed landscapes where unfavourable (winter sown) crops are planted, as these grow quickly in spring and largely preclude successful breeding attempts. Winter sown crops are also established to preclude skylarks from breeding multiple times in a single breeding season for the same reason; in more naturalistic (grassland type) habitats, skylarks will breed up to four times per season and therefore produce higher numbers of young.

Table 8.10. Ground-nesting Bird Status Summary

Species	Maximum no. pairs	Pairs within Development Area	Pairs outside the Development Area
Lapwing	4*	4	0
Skylark	30	25	5
Yellow wagtail	7	6	1
Corn bunting	10	7	3

Non-Breeding Bird Survey

8.4.31 Detailed results are presented in the ornithological survey report (**Appendix 8.2 [EN010140/APP/6.3.8.2]**), and within Figures 8.8 to 8.16 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**.

8.4.32 'Target Species' (as defined in **Appendix 8.2 [EN010140/APP/6.3.8.2]**) consisted of wetland birds such as waders, waterfowl and gulls and Annex 1 of the Birds Directive/ Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) raptors and owls. Target Species therefore included all those which represent qualifying features of the Lower Derwent Valley SPA, Lower Derwent Valley Ramsar site, Humber Estuary SPA and Humber Estuary Ramsar site (and the corresponding overlapping SSSI's).

8.4.33 A total of 12 visits were carried out between October 2021 and March 2022. Within the survey period, a total of seven Target Species were recorded within the Site and an additional 14 Target Species were recorded within the 600m Buffer Zone.

8.4.34 A further 12 visits were carried out on additional land (following project design amends) between October 2022 and March 2023. Within this survey period, no Target Species were recorded within the Site, however 12 Target Species within the 600m Buffer Zone.

8.4.35 Four spring passage surveys in April and May 2023 were carried out over the entire Site and 600m Buffer Zone. A total of four Target Species were noted within the Site and 16 Target Species were recorded within the 600m Buffer Zone.

8.4.36 Three autumn passage surveys in September and October 2023 were carried out over the entire Site and 600m Buffer Zone. A total of seven Target Species were

observed within the Site and 17 Target Species within the 600m Buffer Zone.

8.4.37 A total of three nocturnal surveys were completed between January and March 2024 to ascertain whether there were any notable roosts of birds associated with the SPAs/Ramsars sites during nocturnal high tides at the Humber Estuary in comparison to those observations during daytime surveys, or evidence of foraging by nocturnal species. These covered all suitable fields within the Site, with surveyors using thermal imaging cameras to aid detection of species and where possible record the birds to species level. A total of nine Target Species were observed within the Site and three Target Species within the 600m buffer.

8.4.38 Activity within the Site was low throughout the wintering bird survey periods, with Target Species being limited to individuals, pairs, and sporadic small flocks. During the 2021-2022 winter surveys, lapwings were intermittently recorded e.g. Field 25 saw a maximum flock size of 72 birds in February 2022; Field 234, during two of the survey visits, recorded a maximum flock size of 92 birds in October 2021 among other records of smaller flock sizes. Additional low numbers of Target Species recorded within the Site during the 2021-2022 Winter Bird Surveys comprised: mallard, little egret, grey heron, little grebe, golden plover (maximum of two birds), and common gull.

8.4.39 No Target Species were recorded within the Site during the 2022-2023 wintering bird survey period.

8.4.40 The 600m buffer zone from the Site, as shown in Figure 8.8 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**, similarly supported low numbers of target species sporadically spread across fields across all Winter Bird Surveys (110 pink-footed geese were recorded in Field 194 on one occasion during the 2021/ 22 winter being the most notable record). The only exception was a lake, located adjacent to Field 339 (see Figure 8.12: Non-Breeding Bird Survey 2021-2022 Results – Map 4 of **Appendix 8.2 [EN010140/APP/6.3.8.2]**), which was found to support a more diverse range of waterbirds of open water habitats compared to surrounding arable landscape.

8.4.41 Activity within the Site remained low throughout the spring passage surveys. Five Target Species were recorded within the Site; shelduck, little egret, lapwing and oystercatcher, with a peak count of three lapwing. Greylag goose (maximum count of four), Mediterranean gull, mallard and grey heron were also recorded flying over

the Site.

8.4.42 Seven Target Species were recorded within the Site during autumn passage surveys, comprising grey heron, lapwing, oystercatcher, black-headed gull, common gull, herring gull and lesser black-backed gull, with a peak count of 170 black-headed gulls in Field 20.

8.4.43 The 600m buffer zone similarly supported low numbers of Target Species during the spring and autumn passage surveys. However, the lake adjacent to Field 339 held higher numbers of Target Species, with flocks of mallard, tufted duck, gadwall, shoveler and coot exceeding peak counts of ten birds during the spring and/or autumn 2023 surveys.

8.4.44 A total of nine Target Species (mallard, teal, moorhen, grey heron, lapwing, woodcock, snipe, barn owl and tawny owl) were recorded within the Site during Nocturnal Bird Survey. Three Target Species (mallard, mute swan and coot) were recorded on the lake adjacent to Field 339 in the 600m buffer zone.

8.4.45 The main purpose of the non-breeding bird surveys was to ascertain whether the Site (and adjacent habitats, within 600m) constitute functionally linked land (FLL) to Lower Derwent Valley SPA, Lower Derwent Valley Ramsar, Humber Estuary SPA and Humber Estuary Ramsar (Table 8.6). This is achieved by determining the use of the Site and adjacent habitats by Target Species, then further determining whether levels of use are significant in terms of numbers (percentage of population) and frequency of use.

8.4.46 Target Species recorded included qualifying features of the above named statutory designated sites, alone, under Article 4.1 or 4.2 of the Directive, and others collectively make up a qualifying waterbird assemblage, under Article 4.2 of the SPA citations.

8.4.47 For the purposes of the assessment and determining FLL, the following criteria have been used to determine significant levels of activity by qualifying interest species (excluding assemblage-only species):

- A species count exceeds 1% of the Humber Estuary/Lower Derwent Valley SPA/Ramsar's known non-breeding population; or
- A species count exceeds 1,000 individuals; and

- A species count exceeds the 1% of SPA/Ramsar and/or 1,000 individuals for 2/3rds of the survey visits (i.e. regular use). This latter (frequency) threshold is derived from NE report NERC361 (202132) in the absence of any other published criteria.

8.4.48 For those species which are only part of a qualifying assemblage (so are not individually a qualifying species), one of three thresholds would need to be reached to categorise the Site and 600m buffer as being potentially FLL. These again follow NE report NECR361, and are defined as:

- 1% of each and every listed species that make up the assemblage;
- 1%, or more, of the designated species nationally (GB) important population; or,
- Over 2,000 birds of the qualifying species.

8.4.49 SPA / Ramsar population data has been derived from BTO Wetland Bird Survey (WeBS) reports[33], and associated results presented on the BTO WeBS website.

8.4.50 Table 8.11 provides the peak counts for those SPA/ Ramsar qualifying species Target Species, regularity of usage and evidence of FLL for the Site and 600m buffer around the Site. Within Table 8.11, peak counts are the winter 2021/22 and 2022/23 are combined totals given survey areas (including parts of the Site) typically differed between the winter survey periods. This is considered appropriate and precautionary given there may be some level of duplication in the bird counts with the survey areas in close proximity to one another.

8.4.51 As stated above, a site should be considered to be functionally linked if the 1% threshold is exceeded for two thirds of the survey visits. Note, the 1% of the SPA threshold is only applicable for alone qualifying species, and for species only part of the waterbird assemblage (shaded in Table 8.11) the criteria in section 8.4.45 are considered.

8.4.52 Those alone qualifying species listed within Table 8.11 comprised golden plover (Lower Derwent Valley SPA and Humber Estuary SPA and Ramsar), teal (Lower Derwent Valley SPA and Ramsar), wigeon (Lower Derwent Valley SPA and Ramsar),

[32] Natural England 'Identification of Functionally Linked Land supporting Special Protection Areas (SPAs) waterbirds in the North West of England' (NECR361).

[33] Austin, G.E., Calbrade, N.A., Birtles, G.A., Peck, K., Shaw, J.M. Wotton, S.R., Balmer, D.E. and Frost, T.M. (2023.) Waterbirds in the UK 2021/22: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

and shelduck (Humber Estuary SPA and Ramsar).

8.4.53 All other listed qualifying species form part of waterbird assemblages (lapwing and gadwall assemblage species of the Lower Derwent Valley SPA, and lapwing, mallard and oystercatcher, and also wigeon and teal assemblage species of the Humber Estuary SPA).

8.4.54 Within Table 8.11, Lower Derwent Valley SPA/Ramsar is referred to as 'LDV' and Humber Estuary SPA/Ramsar as 'HE'. Note, where the FLL threshold is provided for species which form part of the waterbird assemblage, the lowest threshold is provided based on the criteria from section 8.4.45 (i.e. 2,000 birds or 1% of GB population).

Table 8.11: Target Species (SPA/Ramsar qualifying species) Peak Counts and Regularity during the Survey Period

Species	Peak Count	FLL threshold (2/3rds of surveys would need to reach this bird number)	Regularity of use in percentage (number of surveys when species recorded in brackets)	Number of surveys where FLL threshold was exceeded.
The Site (Winter 2021/22 & 2022/23)				
Golden plover	2	31 (LDV) 208 (HE)	4.8% (1/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Lapwing	211	2,000 birds (LDV & HE)	92% (11/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Mallard	4	2,000 birds (HE)	41.7% (5/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
600m buffer (Winter 2021/22 & 2022/23)				
Gadwall	64	310 birds (based on GB population) (LDV)	100% (12/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Mallard	52	2,000 birds (HE)	92% (11/12 (2021/22)) & 41.7% (5/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))

Species	Peak Count	FLL threshold (2/3rds of surveys would need to reach this bird number)	Regularity of use in percentage (number of surveys when species recorded in brackets)	Number of surveys where FLL threshold was exceeded.
Teal	21	73 (LDV) 2,000 birds (HE)	33% (4/12 (2021/22) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Wigeon	73	115 (LDV) 2,000 birds (HE)	50% (6/12 (2021/22) & 0% (2022/23)	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Oystercatcher	2	2,000 birds (HE)	8% (1/12 (2021/22)) & 0% (0/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
Lapwing	28	2,000 birds (LDV & HE)	33% (4/12 (2021/22)) & 42% (5/12 (2022/23))	0% (0/12 (2021/22)) & 0% (0/12 (2022/23))
The Site (Passage Spring 2023)				
Shelduck	2	65 (HE)	50% (2/4)	0% (0/4)
Oystercatcher	3	2,000 birds (HE)	75% (3/4)	0% (0/4)
Lapwing	5	2,000 birds (LDV & HE)	75% (3/4)	0% (0/4)
600m buffer (Passage Spring 2023)				
Shelduck	2	65 (HE)	25% (1/4)	0% (0/4)

Species	Peak Count	FLL threshold (2/3rds of surveys would need to reach this bird number)	Regularity of use in percentage (number of surveys when species recorded in brackets)	Number of surveys where FLL threshold was exceeded.
Gadwall	6	310 birds (based on GB population) (LDV)	25% (1/4)	0% (0/4)
Mallard	16	2,000 birds (HE)	75% (3/4)	0% (0/4)
Oystercatcher	3	2,000 birds (HE)	50% (2/4)	0% (0/4)
Lapwing	2	2,000 birds (LDV & HE)	25% (1/4)	0% (0/4)
The Site (Passage Autumn 2023)				
Oystercatcher	4	2,000 birds (HE)	66% (2/3)	0% (0/3)
Lapwing	14	2,000 birds (LDV & HE)	100% (3/3)	0% (0/3)
600m Buffer (Passage Autumn 2023)				
Gadwall	52	310 birds (based on GB population) (LDV)	100% (3/3)	0% (0/3)
Mallard	15	2,000 birds (HE)	100% (3/3)	0% (0/3)

Species	Peak Count	FLL threshold (2/3rds of surveys would need to reach this bird number)	Regularity of use in percentage (number of surveys when species recorded in brackets)	Number of surveys where FLL threshold was exceeded.
Wigeon	2	115 (LDV) 2,000 birds (HE)	33% (1/3)	0% (0/3)
Lapwing	14	2,000 birds (LDV & HE)	33% (1/3)	0% (0/3)
The Site (Nocturnal Bird Surveys 2024)				
Mallard	6	2,000 birds (HE)	100% (3/3)	0% (0/3)
Lapwing	1	2,000 birds (LDV & HE)	100% (3/3)	0% (0/3)
600m buffer (Nocturnal Bird Surveys 2024				
Mallard	5	2,000 birds (HE)	33% (1/3)	0% (0/3)

8.4.55 Following Table 8.11, no Target Species which is (alone or as part of an assemblage) a qualifying species of the Humber Estuary SPA and Ramsar, or Lower Derwent Valley SPA and Ramsar used the Site, or 600m buffer, in numbers which would be indicative of FLL.

8.4.56 Subsequently, on the results of the Non-breeding Bird Surveys, the Site and 600m Buffer Zone are not considered to constitute FLL for any internationally important designated site with qualifying bird interests. A separate 'Information to Inform Habitats Regulations Assessment' report is presented as **Appendix 8.9 [EN010140/APP/6.3.8.9]**.

Bats

Desk Study

8.4.57 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.

8.4.58 No recent records of roost locations were provided; however, all six historical records involve roosting pipistrelle bats, with the closest record returned in urban habitat approximately 200m north-west of the Proposed Development cable route.

8.4.59 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

8.4.60 The dominant habitats consist of intensively managed agricultural land, the majority of which is used for arable purposes (see Figures 8.4 to 8.7 of **Appendix 8.1 [EN010140/APP/6.3.8.1]**). 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.

8.4.61 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[34] and guidance applicable at the time of survey[35], the Site is therefore considered to have low overall commuting and foraging value for bat species.

Habitat Assessment: Roosting Bats

8.4.62 Two small buildings were identified within the National Grid Drax 132kV Substation and Access (see Figure 8.6 of **Appendix 8.1 [EN010140/APP/6.3.8.1]** and **Figure 3.2 Parameter Plan [EN010140/APP/8.2.3.2]** of the ES). 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.

8.4.63 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 habitat survey (see **Appendix 8.1 [EN010140/APP/6.3.8.1]**).

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

Bat Activity Surveys

Manual Activity Transects

8.4.65 Bat activity was recorded across all six surveyed transects, each subject to a manual activity survey undertaken during spring (April 2023), summer (August 2023) and

[34] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-23-FINAL-NO-PRINT-10.10.23.pdf?v=1696925348&_gl=1*zlukqu*_ga*MjAxMjkwNjY2NC4xNzA3OTI3NjE3*_ga_G28378TB9V*MTcwNzkyNzYxNi4xLjAuMTcwNzkyNzYxNi4wLjAuMA **(**accessed on 05/02/2024)

[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)

autumn (September 2022).

8.4.66 A minimum of five species were recorded, including common pipistrelle, soprano pipistrelle, noctule, brown long-eared bat and Myotis species. Observed activity was limited to pipistrelle, noctule and Myotis bats, which included both foraging and commuting behaviour.

8.4.67 Bat activity per species varied both between transects, and between seasons. However, overall recorded activity was noted to be highest at Transect 1, accounting for 31.2% of overall activity distributed across Site. Likewise, seasonal activity was noted to be highest during autumn (458 total passes), accounting for 54% of seasonal activity.

8.4.68 Common pipistrelle was noted to be the most frequently recorded species across the Site during activity transects, accounting for 87% of recorded activity. Common pipistrelle activity was also noted to be consistently higher in comparison to other species during each seasonal period (per transect).

Automatic Activity Surveys

8.4.69 A total of seven monitoring stations were deployed on-Site during spring (May-June 2023), summer (July-August 2023) and autumn (September-October 2022), across a representative range of habitats considered to be ecologically important for bats.

8.4.70 A minimum of six species were recorded on-Site, including common, soprano and Nathusius' pipistrelle, noctule, brown long-eared bat and Myotis species.

8.4.71 The majority of species recorded were noted to be active across the Site. Likewise, all six species recorded were noted to be present on-Site during each seasonal recording period, although seasonal presence varied.

8.4.72 Collective bat activity across the Site accounted for 26,270 bat passes, equating to an overall Bat Activity Index (BAI) of 8.70 calls per hour over the combined survey period.

8.4.73 Relative to other species, common pipistrelle activity was noted to be highest overall (BAI: 7.83 passes per hour), whilst overall BAI for the remaining species accounted for <1 pass per hour on average. Similarly, common pipistrelle activity noted to be consistently higher at each individual monitoring location across the Site, and further

noted to be higher per season, relative to other species recorded.

8.4.74 Locations sampled are primarily indicative of edge habitats (e.g., woodland edge) or linear features (e.g., treelines, hedgerows, or wet ditches); bat activity recorded indicates that these habitats function as both foraging and commuting opportunities for bats. Notably, the locations which featured the highest overall activity are found in association with woodland and/or wooded linear features and are functionally linked to multiple woodland parcels within the north of the Site.

Badger

8.4.75 Badger information is provided in **Appendix 8.4 [EN010140/APP/6.3.8.4]**.

Water Vole and Otter

8.4.76 Detailed results are presented in **Appendix 8.3 [EN010140/APP/6.3.8.3]**.

Desk Study

8.4.77 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.

8.4.78 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

8.4.79 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 [EN010140/APP/6.3.8.3]**). 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.

8.4.80 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

8.4.81 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

8.4.82 Detailed results are presented in the Amphibian Baseline Report (**Appendix 8.5 [EN010140/APP/6.3.8.5]**).

Desk Study

8.4.83 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.

8.4.84 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.

8.4.85 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 Figure 8.28 of **Appendix 8.5 [EN010140/APP/6.3.8.5]**), and another directly adjacent (shown as P34 within Figure 8.28 of **Appendix 8.5 [EN010140/APP/6.3.8.5]**). 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 boundary, the closest of which is located approximately 0.8km north-

[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 05/02/2024)

east within Barlow Common LNR.

Environmental DNA (eDNA) Sampling Results

8.4.86 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, as shown in Figures 8.28 to 8.32 of **Appendix 8.5 [EN010140/APP/6.3.8.5]**.

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

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

Reptiles

Desk Study

8.4.89 The data search identified 19 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.

8.4.90 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

8.4.91 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.

8.4.92 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

8.4.93 The data search also returned recent records consisting of brown hare, red squirrel and polecat within 2km of the Site since 2005. Five recent brown hare records and one historical record in surrounding habitats were provided, 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 and therefore presence is established.

8.4.94 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 mis-identified, escaped or deliberately released animals, therefore local populations of the species are not considered likely within or surrounding the Site.

8.4.95 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.

8.4.96 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 within on-Site/adjacent woodlands and utilise the linear field boundary features for foraging/commuting purposes.

Invasive Species

Desk Study

8.4.97 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 (17 records), Canadian waterweed (one record), Japanese

[37] Available at: https://www.rsst.org.uk/where-to-find-red-squirrels/ (accessed 05/02/2024)

knotweed (one record), giant hogweed (one record) and Nuttall's waterweed (one record). No records were returned within the Site itself.

8.4.98 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

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

8.4.100 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 [EN010140/APP/6.3.8.1]** for more information).

Future Baseline Conditions

8.4.101 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.

8.4.102 Climate change projections (see **Chapter 12 Climate Change [EN010140/APP/6.1.12]** of the ES) 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.

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

Approach to the Mitigation Hierarchy and BNG

8.4.104 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).

8.4.105 The Proposed Development's design evolution has sought to avoid areas of significant biodiversity value, such as field boundary hedgerows and ditch networks. Where impacts are unavoidable, these have been minimised, such as new access routes through hedgerows.

8.4.106 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'[38]) ('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.

8.4.107 The BRE guidance states that:

'with appropriate land management, solar farms have the potential to support

[38] 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 05/02/2024)

> *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'*

8.4.108 The oLEMP (**Appendix 7.9 [EN010140/APP/6.3.7.9]**) provides 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 NPS for Energy (EN-1).

8.4.109 In order to assess the biodiversity impacts associated with the Proposed Development, Defra's Statutory Biodiversity Metric Calculation Tool was utilised[39]. Based on the information provided within the **Figures 7.8-7.11 Landscape Strategy Plan [EN010140/APP/6.2.7.8-EN010140/APP/6.2.7.11]**, the calculation results show that the Proposed Development will result in a biodiversity net gain of 55.70% in Habitat Units[40], 61.11% in Hedgerow Units and 9.05% in watercourse units as shown in the headline results extracted from the full Metric spreadsheet, reproduced below. The full Metric spreadsheet is provided separately to this report in **Appendix 8.11: Statutory Biodiversity Metric Calculation Tool [EN010140/APP/6.3.8.11]**.

[39] Condition assessment information was not collected for all habitat parcels present within the Site. Where condition assessment information was not collected, the condition of baseline habitats (where applicable) has been assumed to be 'good'. Where condition assessment information was collected, this has been translated from Metric 3.1 to the Statutory Biodiversity Metric.

[40] Adjustments have been made in the Landscape Strategy to account for the loss of temporary arable field margins game bird mix.

Statutory Biodiversity Calculation Tool Headline Results

Helios Renewable Energy Project

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Headline Results

Scroll down for final results ⚠

On-site baseline	*Habitat units*	1109.10	
	Hedgerow units	132.36	
	Watercourse units	111.26	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	1726.89	
	Hedgerow units	213.25	
	Watercourse units	121.32	
On-site net change (units & percentage)	*Habitat units*	617.79	55.70%
	Hedgerow units	80.89	61.11%
	Watercourse units	10.07	9.05%
Off-site baseline	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	617.79	
	Hedgerow units	80.89	
	Watercourse units	10.07	
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

Determining Features to be Scoped-in for Detailed Assessment

8.4.110 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. Receptors scoped in follow consultation regarding field surveys with key stakeholders as detailed in Table 8.5.

8.4.111 Table 8.12 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 8.12: 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 (480m north) & Eskamhorn Meadows SSSI (2.31km south-east)	Regional/County and National	Due to the static nature of the sites' qualifying habitat interests and spatial separation between the designated sites and the Site, measures to be adopted and good practice measures to protect ecological features of interest (as detailed in Section 8.5) 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 (2.22km north-east), Lower Derwent Valley SAC (6.47km north-east), Humber Estuary SAC (6.64km east), Thorne Moor SAC (9.09km south-east), and Skipwith Common SAC (8.5km north).	International & National	Due to the static nature of the sites' qualifying habitat interests, spatial separation between the designated sites and the Site, measures to be adopted and good practice measures (as detailed in Section 8.5) 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.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Thorne & Hatfield Moors SPA (9.09km south-east)	International	Due to the spatial separation between the designated site and the Site 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 (6.47km/6.55km north-east) & Humber Estuary SPA/Ramsar (6.64km east)	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, as discussed in paragraphs 8.4.42 – 8.4.51 and **Appendix 8.2 Ornithological Survey Report [EN010140/APP/6.3.8.2].** Therefore, due to these survey results, the spatial separation between the designated sites and the Site (over 6km), it is considered that measures to be adopted and good practice measures (as detailed in Section 8.5) will be sufficient to prevent any direct or indirect effects on these designated sites from occurring. Subsequently these designated sites are **scoped-out** from detailed assessment. Non-breeding birds are considered separately with regards to potential impacts at a local level. The potential for likely significant effects upon European sites is considered in **Appendix 8.9: Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9]**.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
The Thorne, Crowle & Goole Moors SSSI (9.11km south-east), Hatfield Moors SSSI (17km south-east), Breighton Meadows SSSI (6.43km north-east), Derwent Ings SSSI (8.73km north-east) and Humber Estuary SSSI (6.6km east)	National	No additional impacts to those addressed in **Appendix 9.8 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.9.8]**' for the overlapping SAC/SPA/Ramsar Sites. **Scoped-out** of the 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 between the designated sites and the Site, these are **scoped-in** to the assessment.
Non-statutory designated sites (spatially separated)	Regional - Local	Due to the static nature of the sites' qualifying habitat interests and spatial separation between the designated sites and the Site, measures to be adopted and good practice measures (as detailed in Section 8.5) will be sufficient to prevent any impacts from

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		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 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-in** to the assessment.
Breeding birds	Site – Local	The Proposed Development has been designed to avoid boundary features which support the majority of breeding bird species. Such species will benefit from the Proposed Development and commitment to BNG through habitat enhancements. However, some ground nesting birds of open landscapes, such as skylark, yellow wagtail and lapwing may be subject to displacement. Ground-nesting species **scoped-in** to the assessment.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Non-breeding birds (including both over-wintering and passage periods)	Site - Local	The Site and 600m buffer zone consistently supported low numbers of Target Species during all non-breeding season surveys (including passage periods). The only exception was the lake located adjacent to Field 339 (outside the Site), 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 likely to be negligible and therefore not significant. Small numbers of waterbirds (most notably lapwing) may be subject to minor levels of displacement from the Site or adjacent land. 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. The potential for likely significant effects upon qualifying bird assemblages associated with European sites is provided in Appendix 8.9 Information to Inform Habitats Regulations Assessment [APPLICATION REF].

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Bats – foraging/commuting	Site	There are no European statutory designated sites designated for bats within 30km of the Site, or nationally designated sites within 10km. The Proposed Development has been designed to avoid boundary features which provide the large majority of habitats for foraging and commuting bats. The commitment to deliver measurable habitat gains through the BNG process, adoption of sensitive lighting strategies (as detailed within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9]**) 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. Foraging/commuting bats are considered within the mitigation section.
Bats - Roosting	Local	Two small buildings identified within the National Grid Drax 132kV substation compound, with negligible-low suitability for roosting bats. Neither building will be impacted by the Proposed Development.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		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 (Appendix 7.9 [EN010140/APP/6.3.7.9])** which will include the 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. Roosting bats are considered within the mitigation section to ensure legislative compliance.
Badgers	Site	Further information provided in **Appendix 8.4 [EN010140/APP/6.3.8.4]**. Badgers are considered within the mitigation section to ensure legislative compliance.
Water Vole and Otter	Local – Regional	No evidence of either species recorded during the surveys undertaken in 2022 and 2023.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		Avoidance of impacts to ditches/ watercourses has been incorporated into measures to be adopted (as detailed in Section 8.5). 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. Water voles and otters are considered within the mitigation section to ensure legislative compliance.
Amphibians	Site	The presence of GCN was confirmed in P34 (see Figure 8.28 of **Appendix 8.5 [EN010140/APP/6.3.8.5]**), adjacent to the Site). All other waterbodies surveyed returned negative results for GCN. The extensive provision of habitat enhancements through the delivery of BNG will provide increased terrestrial habitat availability for local populations of amphibians of all locally present species (including common toad). P34 is not located within 250m of any long-term Proposed Development, with only low impact grid-connection works through agricultural farmland planned within 250m, but 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.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		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[41], which ensures that the favourable conservation status of the species will be maintained. Otherwise, a Reasonable Avoidance Measures (RAMs) approach for amphibians will be utilised and detailed within the detailed CEMP. Amphibians are considered within the mitigation section to ensure legislative compliance with regards to GCN.
Reptiles	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. Reptiles are considered within the mitigation section to ensure legislative compliance.

[41] 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 05/02/2024)

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
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 oLEMP (**Appendix 7.9 [EN010140/APP/6.3.7.9]**). Red squirrel is **scoped-out** of the assessment, as the Site is outside of the current range of the species. Other priority mammals are considered within the mitigation section.
Invertebrates	Site	Targeted baseline surveys have been undertaken and have been used to inform the 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 and surrounding environment. Subsequently, there is no identified pathway for a significant adverse effect from the Proposed Development. **Scoped-out** of the assessment.

Ecological Feature	Geographic Scale of Importance	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Invasive Species	Local	Himalayan balsam has been recorded within the Site and Pontic rhododendron has been recorded immediately adjacent to the Site. Invasive species are considered in the mitigation section to ensure 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 8.12) have been considered. Effects are initially assessed with consideration of measures to be adopted only, with residual effects (after the implementation of additional mitigation measures, where necessary) presented thereafter.

Measures to be Adopted by the Project

8.5.2 The design of the Proposed Development includes a range of inherent measures to be adopted which avoid or reduce the potential for adverse ecological impacts, including retaining identified higher value habitat features such as hedgerows, ditches watercourses and woodlands, and focusing the large majority of the built development proposals within lower ecological value agricultural land. Additionally, sensitive, or higher 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. Subsequently, avoidance of ecological features of value has been an inherent part of the design process for the Proposed Development.

8.5.3 **Figure 3.2 Parameter Plan [EN010140/APP/6.2.3.2]** of the ES includes the extensive provision of areas of habitat creation. The Landscape Strategy, as detailed in **Figures 7.8 to 7.11 [EN010140/APP/6.2.7.8- EN010140/APP/6.2.7.11]**, includes extensive habitat creation which will diversify and strengthen the biodiversity interest of the Proposed Development itself, and neighbouring areas.

Construction Phase Measures to be Adopted

8.5.4 An Outline Construction Environmental Management Plan (**'oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1]**) is included within the ES.

8.5.5 The potential for adverse effects during the construction phase have been minimised through the implementation of habitat protection buffers, including up to 15m from the lowland mixed deciduous woodland (on site), the Ancient Woodland and Traditional Orchards (surrounding the Site) as well as the provision of 5m 'buffer zones' either side of hedgerows and field ditches, and 8m buffers from ponds , to be

maintained throughout the construction phase. These will be controlled through standard good construction and environmental working practices as an integral part of the Proposed Development, detailed within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**. A detailed CEMP will be secured as a DCO requirement and agreed prior to construction works with NYC.

8.5.6 An ecologically sensitive approach to construction will be implemented through the provision of the CEMP. The **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])** 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 'toolbox talks'.

8.5.7 The **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])** 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.

8.5.8 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(s) will be responsible for undertaking and/or co-ordinating checks for protected species before providing confirmation that construction activities can commence. The ECoW(s) 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 **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Habitats

8.5.9 The Proposed Development's layout has been designed to avoid impact on features of ecological value, including hedgerows, field margins, ponds, and ditches within and surrounding the Site. Such features will be retained and protected during the construction process.

8.5.10 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'[42] and current guidance provided by NE[43]; adopting 15m 'buffer zones' in relation to the protection of woodland habitats.

8.5.11 Further information relating to the protection of habitat features is provided within the detailed CEMP to be secured as a DCO requirement, further to the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Ground-nesting Breeding Birds

8.5.12 Possible effects of construction comprise indirect impacts to nesting birds through disturbance and direct impacts to nesting birds where 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 effects 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 will take place outside of the bird breeding season, where possible. 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. Species afforded protection from disturbance through Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) will be further protected under supervision from the ECoW. This may include, for example, appropriate disturbance free buffers around an active nest.

8.5.14 Works will be permitted to proceed only when the ECoW is satisfied that no disturbance-related offences will occur under the legislation, with appropriate

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

[43] Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions (accessed 05/02/2024)

protection measures set in place as necessary (and supervised by the ECoW).

8.5.15 Further information relating to the protection of breeding birds during construction will be provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1]).**

8.5.16 Displacement of ground-nesting bird species is discussed under Operational Effect (paragraph 8.5.115 to 8.5.116).

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 will take place Monday-Friday between 8am to 6pm, and may therefore continue past sunset during winter months. Whilst works are required after sunset, measures will be put in place to manage temporary lighting used within the Site during the construction phase. This is set out within **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])** and informed by current guidance provided within 'Guidance Note 08/23: Bats and artificial lighting at night' (2023)[44] 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 (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Bats – Roosting

8.5.20 Trees present within the Site will be retained and 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[45] any

[44] Bat Conservation Trust and Institution of Lighting Professionals. (2023). Guidance Note 08/23: Bats and artificial lighting at night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ (accessed 05/02/2024)

[45] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-23-FINAL-NO-PRINT-10.10.23.pdf?v=1696925348&_gl=1*zlukqu*_ga*MjAxMjkwNjY2NC4xNzA3OTI3NjE3*_ga_G28378TB9V*MTcwNzkyNzYxNi4xLjAuMTcwNzkyNzYxNi4wLjAuMA **(**accessed on 05/02/2024)

trees requiring removal will be subject to a ground level tree assessment (GLTA) in order to assess the tree's potential to support roosting bat species. Trees with Potential Roost Feature-Multiple (PRF-M) will be subject to a detailed aerial 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 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.

8.5.21 If works on trees with Potential Roost Feature-Individual (PRF-I) are necessary, these will be felled under RAMS and Precautionary Working Method Statement, in line with BCT guidance and UK bat Mitigation Guidelines[46]; 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.

8.5.22 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.

8.5.23 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.

8.5.24 Further information regarding bat roost protection is provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Badger

8.5.25 Badger information is provided within Confidential **Appendix 8.4 [EN010140/APP/6.3.8.4].**

8.5.26 The Proposed Development's layout has been designed to avoid impacting habitats

[46] Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield. https://cieem.net/wp-content/uploads/2023/09/Bat-Mitigation-Guidelines-2023-V1.1.pdf [accessed 14/02/2024].

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.

8.5.27 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.

8.5.28 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.

8.5.29 Further information regarding badger protection will be provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Water Vole and Otter

8.5.30 The Proposed Development's layout has been designed to avoid impacting linear ditch habitats with potential suitability to support these species. No evidence of water vole was found during surveys. However, where 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.

8.5.31 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.

8.5.32 Further information regarding water vole and otter protection will be provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Amphibians

8.5.33 No ponds will be directly impacts be the Proposed Development. The Proposed Development has been designed to largely avoid impact to hedgerows, field margins, ponds, and ditches within and surrounding the Site, and which provide suitable terrestrial habitats for amphibians. These features will largely be retained and protected during the construction process.

8.5.34 One pond (P34, see Figure 8.30: Pond Location Plan – Map 2 of **Appendix 8.5 [EN010140/APP/6.3.8.5])** was confirmed to support GCN, but is not located within 250m of any long-term proposed infrastructure, 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 on terrestrial habitat associated with the installation of grid connection equipment.

8.5.35 The Proposed Development's exact grid connection route within the underground cable corridor area shown on **Figure 3.2 Parameter Plan [EN010140/APP/6.2.3.2]** of the ES 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 ensure 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 'toolbox talk' and watching brief by the ECoW to minimise risk of accidental harm, further information is provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1]**).

Reptiles

8.5.36 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. Details will be secured through a detailed CEMP submitted to NYC.

Other Protected and Notable Species

8.5.37 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 for small to medium sized mammals.

8.5.38 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 are provided within the **oCEMP (Appendix 5.1 [EN010140/APP/6.3.5.1])**.

Invasive Non-native Species

8.5.39 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.

8.5.40 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.

8.5.41 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.

8.5.42 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.

8.5.43 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 boundary. Further information is provided within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**.

8.5.44 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 to be Adopted

Ecological Monitoring

8.5.45 Extensive habitat enhancement provision is adopted within the Proposed Development and will be implemented as part of the construction phase, which includes the creation of new habitats of high ecological value.

8.5.46 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.

8.5.47 Commitment to delivering 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.

8.5.48 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.

8.5.49 Operational phase ecological monitoring schedules and objectives are set out within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**.

8.5.50 Impacts have been addressed as far as reasonably practicable through avoidance in the design of the Proposed Development. Further specific mitigation measures are discussed below within this section.

Bats

8.5.51 The Proposed Development will not be subject to long-term 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. Any lighting that is to be required will be directed away from existing linear habitats and woodland typically used by bat species. This will be achieved by the use of low-level lighting and lighting hoods to prevent the spillage of light from its intended source as per the recommendations set out in *Lighting in the UK, Bats and Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers*[47].

Invasive Non-native Species

8.5.52 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 to be Adopted

8.5.53 Site baseline conditions are likely to change significantly over the Proposed Development's modelled operational 40-year lifespan, in line with the landscape proposals, 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 likely to be similar to those already described in relation to the construction phase.

8.5.54 Updated ecological surveys will be undertaken prior to the commencement of 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 measures to comply with planning policy and wildlife legislation

[47] Bat Conservation Trust and Institution of Lighting Professionals (2023). Guidance Note 08/23: Bats and artificial lighting at night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ (accessed 05/02/2024)

applicable at the time.

8.5.55 The potential for adverse effects during the decommissioning phase will be controlled through standard good construction and environmental working practices as an integral part of the Proposed Development, detailed within the Outline Decommissioning Environmental Management Plan **(oDEMP Appendix 5.3 [EN010140/APP/6.3.5.3])**, which will be formalised by a detailed DEMP, through DCO requirement, following guidance applicable at the time.

8.5.56 A suitably qualified and experienced Ecological Clerk of Works ('ECoW') (or team of ECoWs) will be appointed prior to the commencement of decomissioning 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 decommissioning activities can commence. The ECoW will also maintain a watching brief as necessary throughout the decommissioning phase to ensure compliance with relevant legislation, including adhering to any protected species mitigation measures required, such as mitigation requirements associated with a EPSML or DLL application, if required. Further information is provided within the detailed **oDEMP Appendix 5.3 [EN010140/APP/6.3.5.3]).**

Mitigation Measures

8.5.57 Specific applied mitigation measures, as covered in the oCEMP, are summarised as:

- Habitat protection buffers to be maintained throughout the construction phase and identified with appropriate fencing and signage along with Site team briefings at 'tool box talks', comprising:
    - 15m buffer lowland mixed deciduous woodland (on site) and the Ancient Woodland and Traditional Orchards (surrounding the Site);
    - 5m 'buffer zones' either side of hedgerows;
    - 5m 'buffer zones' either side of field ditches; and,
    - 8m buffer surrounding ponds (on site).
- Trees present within the Site will be retained and protected during construction.

If plans change and trees require removal/felling, prior to removal, in accordance with Collins (2023, any trees requiring removal will be subject to a GLTA in order to assess the tree's potential to support roosting bats. Trees with PRF-M will be subject to further surveys and, if required, a EPSML licence obtained by Natural England. Trees with PRF-I will be felled under RAMS and Precautionary Working Method Statement;

- Vegetation removal should take place outside of the bird breeding season. However, 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;

- 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;

- If any reptiles are discovered during construction activities, they will be captured and released within the receptor areas to be agreed during detailed design;

- A 20m buffer will be maintained from active badger setts set out with Heras fencing or similar, with no works to be undertaken within this area unless covered under a specific method statement and agreed by the ECoW. Where setts are likely to be impacted, these will be closed under a Natural England licence during the appropriate season (July to November inclusive);

- Temporary exposed pipes (>150mm outside diameter) should be blanked off at the end of each working day to prevent mammals gaining access when contractors are off-site and daily inspections to ensure temporary exposed pipes are blanked off at the end of each working day;

- No insecticide or herbicide will be used unless specifically authorised by the Environmental Manager and/or ECoW.; and,

- If any invasive flora species is found with the Site, it will be treated by a specialist contractor in accordance with best practice guidance where it encroaches on the Site boundary.

Ground-nesting Birds

8.5.58 Site surveys identified the presence of four species of ground-nesting birds (Table 8.10), all of which are listed as Species or Principal Importance under the NERC Act (2006). Effects on populations beyond the Site level are considered non-significant, following the creation of extensive meadow grassland, which will be beneficial for ground-nesting passerines (skylark, corn bunting and yellow wagtail) as it will increase food availability and therefore breeding productivity for remaining pairs both with and around the Site. As an additional good practice measure, the oLEMP includes habitat management measures specifically aimed at skylarks. A series of 'skylark plots' will be provided annually in each breeding season. These will be provided over a land identified as the 'Ground Nesting Bird Mitigation and Compensation Area (GNBMCA)' (Annex A of the **oLEMP [Appendix 7.9 [EN010140/APP/6.3.7.9]**). Sufficient Ground Nesting Bird Mitigation and Compensation Area exists within the Order Limits to provide adequate territories and this provision can be secured through the requirements of the Order. The Applicant controls additional land within which further territories can be provided as enhancement. Measures will be implemented annually for the operational life of the Proposed Development (40 years).

8.5.59 The precise locations of plots will be rotated to enable continued crop rotation, which is necessary for continued effective food production. All skylark plots will be implemented and located in accordance with current UK government guidance. Further details are provided in the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9]**)

Adopted Enhancement Measures

8.5.60 Enhancement measures which will be implemented specifically for ecology, which are covered in more detail below, include:

- **Creation of meadow grassland;**
- **Installation of bird nesting boxes;**
- **Installation of bat boxes;**
- **Enhancements to on-site pond (P4); and,**
- **Creation of habitat piles, providing suitable refuges for amphibians and reptiles.**

8.5.61 Measures to be adopted by the project will also provide benefits for a range of species, these are also detailed below. Through the provision of BNG and the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**, 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 improve as a result of less intensive farming practices.

8.5.62 This ES Chapter therefore also includes consideration of the potential benefits of the Proposed Development.

Outline Landscape and Ecological Management Plan **('oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**

8.5.63 The **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])** 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.

8.5.64 Breeding Birds (excluding ground nesting species)

8.5.65 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 throughout the Site. These enhancements are detailed within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9]),** and will be secured in the detailed LEMP through DCO requirement. These enhancements comprise the following:

- At least two barn owl nest boxes will be installed on suitable mature trees 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 bird nest boxes of various design, positioned within existing hedgerow habitats within the Site.

Bats – Foraging/Commuting

8.5.66 The habitat retention and extensive enhancement and provision of new habitats required for landscape and visual purposes will also 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.

Bats – Roosting

8.5.67 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 are detailed within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])** and will be included in the detailed LEMP.

Amphibians and Reptiles

8.5.68 Information provided within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**includes pond enhancement works to the on-Site pond (P4), and 8m buffers maintained around the surrounding and adjacent ponds during the construction process.

8.5.69 Habitat piles will be created (cut vegetation arising from on-Site habitat management practices) within the Site boundary, potentially providing suitable refuges for amphibian and reptile species.

8.5.70 General habitat enhancement measures provided as part of the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])** are anticipated to be beneficial for amphibian and reptile populations.

Other Protected and Notable Species

8.5.71 Measures such as retaining identified higher value habitat features such as hedgerows, ditches, and woodlands, and the provision of extensive habitat enhancements (as detailed within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**, will avoid or reduce the potential for adverse ecological impacts amongst a range of species, including brown hare, hedgehog, and polecat. Such measures are anticipated to provide benefits for of commoner species including invertebrates.

Assessment of Likely Significant Effects

Construction Phase

8.5.72 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

8.5.73 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).

8.5.74 Disturbance effects associated with lighting, noise, vibration, and construction machinery/ equipment will be localised within the Site, be of a temporary and short-term nature, and will be controlled through the implementation of the CEMP. Working hours will be subject to restrictions, thereby minimising the potential for impacts upon nocturnal species associated with both non-statutory designated sites.

8.5.75 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'[48] and current guidance provided by NE[49]; 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).

8.5.76 The Site boundary bordering both LWSs 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.

8.5.77 The measures to be adopted 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.

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

Habitats

8.5.79 The dominant habitats within the Site comprise intensively managed arable farmland of low ecological value; the layout of the Proposed Development has been designed so that the infrastructure **(Figure 3.2 Parameter Plan [EN010140/APP/6.2.3.2])** located primarily within areas of this habitat of low ecological value.

8.5.80 The field boundary hedgerows comprising predominantly of species-poor hedgerows, ditch networks, and grassland field margins, pond, adjacent woodland

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

[49] Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions (accessed 05/02/2024)

(including the adjacent Kerrick Spring Wood ancient woodland site), and adjacent traditional orchard represent habitats of higher ecological value, albeit limited in their distribution within and immediately surrounding the Site. These habitats will be almost entirely retained and therefore direct impacts avoided.

8.5.81 The construction of solar farms generally requires very low levels of direct and long-term land take (typically less than 5% footprint on the ground) for the infrastructure[50]. Direct loss of habitat is therefore considered to be small and will comprise almost entirely arable land of low ecological value.

8.5.82 Effects during construction relate to physical disturbance, primarily comprising temporary 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.

8.5.83 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 largely be avoided through the adoption of trenchless drilling methodology. Further specific information will be provided within the detailed CEMP.

8.5.84 Hedgerow removal is restricted to no more than minor works to enable Site access and internal cabling between field parcels. 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 (to a maximum of 5m wide). If any hedgerows are to be removed to enabling cabling work, they will be reinstated following completion of the works.

8.5.85 Avoidance measures incorporated within the Proposed Development design include

[50] 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 05/02/2024)

the provision of 5m 'buffer zones' either side of hedgerows and field ditches, which will be subject to habitat creation during the construction period (as set out within the **oLEMP (Appendix 7.9** [**EN010140/APP/6.3.7.9**]), thereby protecting and enhancing the ecological capacity of these linear features.

8.5.86 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'[51]. Woodland buffer zones will be subject to habitat enhancements (set out within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9]**), thereby providing greater habitat connectivity through the Site and wider environment.

8.5.87 Buffers of 8m surrounding ponds will be maintained during the construction process (set out in the **oCEMP (Appendix 5.1** [**EN010140/APP/6.3.5.1**])) with significant habitat enhancements provided within this buffer, for the benefit of species associated with these water bodies and the wider Site biodiversity value.

8.5.88 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.

8.5.89 The Proposed Development will not be subject to long-term nightly illumination. Any lighting that is to be required will be directed away from existing linear habitats and woodland to maintain dark corridors. This will be achieved by the use of low-level lighting and lighting hoods to prevent the spillage of light from its intended source.

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

8.5.91 The commitment to deliver BNG through significant habitat enhancements and provision within the Site as part of the construction process (as set out within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9])**, the Proposed Development will

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

deliver clear habitat enhancements, resulting in biodiversity gains within the Site and the wider environment.

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

Ground-nesting Breeding Birds

8.5.93 The ground-nesting breeding bird assemblage recorded within the Site is typical of lowland farmland habitats.

8.5.94 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.

8.5.95 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.

8.5.96 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 immediately adjacent land, 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.

8.5.97 Ground nesting bird species were recorded during breeding bird surveys. Pairs within the developed part of the Site comprised; lapwing (up to 4 pairs), skylark (25 pairs), yellow wagtail (6 pairs) and corn bunting (7 pairs); however it was considered that breeding lapwing were unlikely to have been successful, probably due to cropping regimes. Such species will likely be displaced from active construction areas within the Site, depending on the time of year that construction works are undertaken.

8.5.98 Areas of suitable nesting habitat for ground-nesting birds will however remain

available in the wider agricultural landscape, in addition, meadow grassland will be created within the Site and 'skylark plots' will be included both within the GNBMCA. This will provide suitable habitats for these species. Further specific habitat creation information for ground-nesting bird species is provided within the **oLEMP (Appendix 7.9 [EN010140/APP/6.3.7.9]**), a detailed LEMP will be prepared prior to commencement of the Proposed Development and will be secured by a DCO requirement.

8.5.99 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 design process.

8.5.100 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

8.5.101 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 long-term/permanent basis. Some effects may reduce with habituation or remain for the lifespan of the Proposed Development.

8.5.102 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

8.5.103 There will be no operational adverse (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 **oLEMP (Appendix 7.9** [**EN010140/APP/6.3.7.9**]) habitat connectivity with these sites and habitats within the wider environment will create 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.

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

Habitats

8.5.105 BNG will be delivered through habitat enhancement provision adopted by the project 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 to be secured through DCO requirement; outline information is provided within the **oLEMP (Appendix 7.9** [**EN010140/APP/6.3.7.9**]).

8.5.106 Protection measures to prevent impacts to surrounding priority habitats such as adjacent woodland parcels will be adopted, informed by a detailed LEMP; outline information is provided within the **oLEMP (Appendix 7.9** [**EN010140/APP/6.3.7.9**]).

8.5.107 The existing land within the Proposed Development is dominated by intensively managed arable farmland with assemblages of 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.

8.5.108 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.

Breeding Birds

8.5.109 The level of human activity on Site during the operational phase of the Proposed Development will be considerably lower than during the construction phase. Operational activities would be short term and confined to within the Site, and the landscape strategy 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.

8.5.110 Creation of new habitats and on-going management is anticipated to provide benefit for most breeding bird species recorded on Site, including at least nine species of Principal Importance (Table 8.9) which are associated with hedgerows and field margins, or will benefit from meadow creation. These are; starling, song thrush, tree sparrow, house sparrow, dunnock, bullfinch, linnet, yellowhammer and reed bunting.

8.5.111 In addition, a broad range of commoner and widespread species are anticipated to benefit from habitat improvements, including a range of Red List and Amber List Birds of Conservation Concern such as house martin, willow warbler, whitethroat, wren, mistle thrush and greenfinch.

8.5.112 It is also considered likely that the ecologically enhanced habitats within the Site will afford increased foraging opportunities (by virtue of higher prey densities) for foraging raptors, such as kestrel, buzzard, barn owl and hobby.

8.5.113 Ground-nesting species such as skylark, yellow wagtail, corn bunting and lapwing, which favour open arable habitats, would likely be displaced long-term from breeding within the areas around the solar panels, the substation and BESS compound (**Figure 3.2 Parameter Plan [EN010140/APP/6.2.3.2]**). Areas of suitable nesting habitat would however remain available in the wider agricultural landscape for these species.

8.5.114 Skylarks, yellow wagtails and corn buntings have, however frequently been recorded within solar farm developments, and it is likely that the increased invertebrate abundance following cessation of agriculture will provide increased food abundance for these species whilst nesting. Subsequently, whilst a reduced area may be available for nesting, it is likely that breeding productivity (number of young raised) will increase for retained pairs within the Site or using adjacent habitats.

8.5.115 Subsequently, impacts to breeding birds during the operational phase would be of

moderate beneficial (positive) magnitude on a receptor of Local value and sensitivity, which are consequently moderate beneficial (**significant**) effects.

Decommissioning Phase

8.5.116 The Site baseline conditions are likely to change significantly over the Proposed Development's modelled operational lifespan of 40 years due to the growth of proposed landscaping and potential climate change, 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. 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.

8.5.117 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.

8.5.118 An oDEMP is provided in **Appendix 5.3** [**EN010140/APP/6.3.5.3**]; 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. The DEMP will follow guidance applicable at the time. Further information is provided below.

Non-Statutory Designated Sites

8.5.119 Implementation of 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. Such measures will be sufficient to prevent any direct or indirect impacts to the adjacent non-statutory designated sites.

8.5.120 Subsequently there will be negligible magnitude impacts of neutral significance on a receptor of Regional – Local value and sensitivity as a result of decommissioning related activities. These represent a negligible (**not significant**) effect.

Habitats

8.5.121 It is anticipated that the habitat baseline will change significantly over the Proposed Development's operational lifespan of 40 years.

8.5.122 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).

8.5.123 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

8.5.124 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.

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

8.5.126 Hedgerows and trees (both planted and retained during the construction process) located along field boundaries may 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.

8.5.127 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).

8.5.128 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. Cumulative Effects

8.6.1 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.

8.6.2 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** [**EN010140/APP/6.1.15]** of the ES.

8.6.3 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.

8.6.4 Twelve applications are located within 5km of the Site, three of which comprise large installations of solar-related developments (denoted with *):

- *Land South of A645, Wade House Lane, Drax (ref: 2023/0128/EIA);
- *East Yorkshire Solar Farm NSIP (PINS ref: EN010143);
- Drax Bioenergy with Carbon Capture and Storage Project NSIP (PINS Ref: EN010120);
- Land Off New Road, Drax (Ref: 2020/1357/FULM);
- Land Off Hales Lane, Drax (Ref: 2021/1089/FULM);
- *Land North and South of Camela Lane, Camblesforth (ref: 2021/0788/EIA);
- Drax Power Station, Drax (Ref: 2022/0107/NYSCO);

- Land to the East of New Road, Drax (Ref: 2022/0711/EIA);
- Land East of Broadacres, Mill Lane, Carlton (Ref: ZG2023/0732/OUTM);
- Land Adjacent to Barlow Common Road, Barlow, Selby (Ref: 2022/0287/SCN);
- Newlands Farm, Turnham Lane, Cliffe, Selby (Ref: 2021/0348/SCN); and
- Eggborough Power Station, Selby Road, Eggborough (Ref: 2019/1343/EIA).

8.6.5 One additional application for the installation of a large solar related development is located within 10km of the Site:

- Land near Osgodby Grange, South Duffield Road, Osgodby, Selby (ref: 2021/0978/FULM).

8.6.6 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 BNG 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 beneficial (positive) magnitude on a Local value and sensitivity, which are consequently **significant** beneficial effects.

8.6.7 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.

8.6.8 With the implementation of the oLEMP and BNG commitments, the Proposed Development is considered likely to lead to beneficial impacts on all identified receptors (except for non-breeding birds), which therefore represent a **significant** beneficial effect.

8.6.9 Cumulative effects on non-breeding SPA/ Ramsar qualifying bird species are not anticipated to be significant on the basis of extremely low levels of activity recorded during the passage and over-wintering periods within the Site. Non-breeding bird survey data, concerning SPA/ Ramsar qualifying species, for the following projects was reviewed:

- Land South of A645, Wade House Lane, Drax (ref: 2023/0128/EIA);
- East Yorkshire Solar Farm NSIP (PINS ref: EN010143);
- Drax Bioenergy with Carbon Capture and Storage Project NSIP (PINS Ref: EN010120);
- Land North and South of Camela Lane, Camblesforth (ref: 2021/0788/EIA);
- Land to the East of New Road, Drax (Ref: 2022/0711/EIA); and
- Land near Osgodby Grange, South Duffield Road, Osgodby, Selby (ref: 2021/0978/FULM).

8.6.10 No SPA/ Ramsar qualifying bird species were recorded during surveys for the 'Land South of A465', 'Land North and South of Camela Lane' and 'Land near Osgodby Grange' projects.

8.6.11 **Table 8.13** provides the results of the cumulative assessment for non-breeding SPA/ Ramsar qualifying bird species. Note, given the surveys for the projects were undertaken at different times/ years it is considered highly likely that at least some of the birds recorded will be the same birds. The results, which combine the counts from all projects are thus considered precautionary. Note, also for the regularity score (in terms of number of surveys) in **Table 8.13**, only the survey visits for those projects where the SPA qualifying species was recorded was considered, to also ensure a precautionary approach.

8.6.12 There are some occasions were the species (such as golden plover are included as an alone qualifying species and part of the assemblage for the Humber Estuary

SPA). In this instance, the species is treated as an alone qualifying species to consider it with the highest regard.

8.6.13 The results from the field surveys from the 2021/22 are used in the cumulative assessment, to avoid over-complicating the assessment with inclusion also of the 2022/23 field survey results. Given no FLL thresholds were met during field surveys in 2021/22 and 2022/23 for any SPA qualifying species (see Table 8.11) this is considered appropriate

Table 8.13: Cumulative Assessment for non-breeding SPA/ Ramsar Qualifying Bird Species

Designated Site	**SPA / Ramsar Qualifying Species**	**Peak count as % of SPA 5-year mean**					**Regularity when FLL threshold met**
		Proposed Development	**'East Yorkshire Solar Farm'**	**'Drax Bioenergy'**	**'Land to the East of New Road'**	**Total %**	
Alone SPA/ Ramsar Qualifying Species							
Humber Estuary SPA & Ramsar	Golden plover	0.01	0.17	0.26	0	0.44	0 out of 30 surveys
	Shelduck	0.03	0	0	0	0.03	0 out of 12 surveys
Lower Derwent Valley	Golden plover	0.06	1.15	1.76	0	2.97	2 out of 30 surveys (6.67%)
Waterbird Assemblage SPA/ Ramsar Qualifying Species							
Designated Site	SPA / Ramsar Qualifying Species	Peat Count					Threshold met (2,000 birds or ≥1 GB popn)
		Proposed Development	'East Yorkshire Solar Farm'	'Drax Bioenergy'	'Land to the East of New Road'	Total	
Humber Estuary SPA & Ramsar	Lapwing	211	51	0	0	262	N
	Mallard	4	36	30	0	70	N
	Oyster-catcher	4	6	0	0	10	N

8.6.14 Note, wigeon and teal (both alone qualifying species of the Lower Derwent Valley SPA/ Ramsar, and assemblage species for the Humber Estuary SPA/ Ramsar), curlew (assemblage species for the Humber Estuary SPA/ Ramsar), greylag goose (assemblage species for the Lower Derwent Valley SPA/ Ramsar) and redshank (alone qualifying species of Humber Estuary SPA/ Ramsar) were also recorded in typically small numbers during some of the other projects, but were not recorded using the Site during the field surveys. Of these only wigeon (peak of 73) and teal (peak of 21) were recorded during field surveys in the 600m buffer around the Site, but with no evidence of FLL with any of the SPAs/ Ramsars was identified. Wigeon and teal were recorded using the lake by field 339 which is c. 200m from the Site at its closest point (grid connection). Goodship and Furness (2022) document a disturbance buffer of 200-500m for wigeon during the non-breeding season, with the higher range, for highly intrusive activities like boating disturbance. As well as the spatial separation, the lake is also buffered from the Site (and thus Proposed Development) by arable habitat including field boundaries, reducing visual disturbance to species like wigeon and teal using the lake.

8.6.15 For those SPA/ Ramsar qualifying species which used the Site, and were recorded at other projects (as summarised in **Table 8.13**) the FLL threshold was not met for any assemblage qualifying species when considered cumulatively with other projects, nor did any of the alone qualifying species (golden plover and shelduck) meet the threshold where FLL would be identified (>1% of SPA population and during 2/3 of the surveys) when considered cumulatively with other projects.

8.6.16 Subsequently cumulative and in-combination effects on non-breeding birds (including SPA/Ramsar qualifying species) are considered to be no more than minor adverse, and therefore **not significant**.

8.6.17 The potential for the Proposed Development to lead to adverse effects on European Sites, alone or in combination with other projects, is considered separately in **Appendix 8.9 Information to Inform Habitats Regulations Assessment [EN010140/APP/6.3.8.9].**

8.7. Summary

Introduction

8.7.1 This Chapter of the ES, 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

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

8.7.3 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.

8.7.4 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.

8.7.5 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.

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

8.7.7 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

8.7.8 The Proposed Development has been designed to largely retain important ecological features within the Site. This includes the retention of hedgerow networks, woodland, trees and ditches, with the exception of minor hedgerow removal to

enable Site access and internal cabling between field parcels; thereby maintaining effective nature connectivity networks within the wider environment.

8.7.9 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. Defra's Statutory Biodiversity Metric Calculation Tool show that the Proposed Development will result in a biodiversity net gain of 55.70% in Habitat Units, 61.11% in Hedgerow Units and 9.05% in watercourse units. The commitment to a BNG above NPPF requirements, and adopted as a fundamental design principle, ensures that the Proposed Development will deliver a substantial ecological benefit.

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

8.7.11 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 agricultural use) will provide further benefit, in particular for invertebrate populations.

8.7.12 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.

8.7.13 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.

8.7.14 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

8.7.15 With 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.

8.7.16 Table 8.14 contains a summary of the assessment of the likely significant effects of the Proposed Development.

Table 8.14: 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 Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Short-term	Negligible **Neutral**	None required				X	X	X	X	Negligible **Neutral**
Effects on Habitats	Long-term	Major (beneficial) **Significant**	None required							X	Major beneficial **Significant**
Effects on Breeding Birds	Short-term	Minor (adverse) **Not significant**	None required							X	Minor adverse **Not significant**
Operational Phase (accounting for Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Long-term	Moderate (beneficial) **Significant**	None required				X	X	X	X	Moderate beneficial **Significant**
Effects on Habitats	Long-term	Major (beneficial) **Significant**	None required							X	Major beneficial **Significant**
Effects on Breeding Birds	Long-term	Moderate (beneficial)	None required							X	Moderate beneficial **Significant**

Potential Effect	Nature of Effect*	Significance **	Secondary mitigation/ Enhancement Measures	Geographical Importance ***							Residual Effects ****
				I	UK	E	R	C	B	L	
		Significant									
Decommissioning Phase (accounting for Measures to be Adopted by the Project)											
Effects on Non-Statutory Designated Sites	Short-term	Negligible **Neutral**	None required				X	X	X	X	Negligible **Neutral**
Effects on Habitats	Short-term	Negligible to minor (adverse) **Neutral/not significant**	None required							X	Negligible to minor adverse **Neutral/not significant**
Effects on Breeding Birds	Short-term	Minor (adverse) **Not significant**	None required							X	Minor adverse **Not significant**
Cumulative Effects											
Construction Phase											
Cumulative Effects on Non-Statutory Designated Sites	Short-term	Negligible **Neutral**	None required					X	X	X	Negligible **Neutral**

Potential Effect	Nature of Effect*	Significance **	Secondary mitigation/ Enhancement Measures	Geographical Importance ***							Residual Effects ****
				I	UK	E	R	C	B	L	
Cumulative Effects on Habitats	Long-term	Major (beneficial) **Significant**	None required							X	Major beneficial **Significant**
Cumulative Effects on Breeding Birds	Short-term	Negligible **Neutral**	None required							X	Negligible **Neutral**
Operational Phase											
Cumulative Effects on Non-Statutory Designated Sites	Short-term	Negligible **Neutral**	None required					X	X	X	Negligible **Neutral**
Cumulative Effects on Habitats	Long-term	Major (beneficial) **Significant**	Enhancement measures associated with the Proposed Development and the four surrounding solar-related developments will							X	Major beneficial **Significant**

Potential Effect	**Nature of Effect***	**Significance ** **	**Secondary mitigation/ Enhancement Measures**	**Geographical Importance ***							**Residual Effects ****
				I	**UK**	**E**	**R**	**C**	**B**	**L**	
			result in a net gain for biodiversity.								
Cumulative Effects on Breeding Birds	Short-term	Negligible **Neutral**	None required							X	Negligible **Neutral**
Nature of Effect *	Permanent or Temporary Short-term, Medium-term, or Long-term										
Significance**	Major/ Moderate/ Minor/ Negligible Beneficial/ Adverse										
Geographical Importance ***	I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local										
Residual Effects ****	Major / Moderate / Minor / Negligible Beneficial / Adverse										