

Light Valley Solar

Shadow Habitats Regulations Assessment

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Light Valley Solar

DCO Submission

Shadow Habitats Regulations Assessment

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1 Introduction

1.1 Project background

- 1.1.1 Light Valley Solar Limited (the ‘Applicant’) is seeking a Development Consent Order (DCO) for the construction, operation, maintenance and decommissioning of a solar photovoltaic (PV) electricity generating facility with an associated Battery Energy Storage System (BESS) and grid connection infrastructure to connect to the National Grid at Monk Fryston. The Proposed Development is classified as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 due to its generating capacity being over 100MW. The Application seeks a DCO to construct, operate and ultimately decommission for the Proposed Development.
- 1.1.2 A detailed description of the Proposed Development is provided in Chapter 2: The Proposed Development (ES Volume 1) **[EN0110012/LVS/APP/06.01.02]**.

1.2 Purpose of the report

- 1.2.1 The following documents have also been prepared and submitted with the DCO Application. The assessment considers potential impact pathways relating to terrestrial biodiversity, ornithology, and aquatic ecology, drawing upon the relevant Environmental Statement (ES) chapters and technical appendices which include the following:
- 1) Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06]**.
 - 2) Chapter 12: Ornithology (ES Volume 1) **[EN0110012/APP/LVS/06.01.12]**.
 - 3) Appendix 12.2: Non-Breeding Bird Survey Report (ES Volume 3) **[EN0110012/APP/LVS/06.03.12.02]**.
- 1.2.2 All figures detailing ornithology, terrestrial ecology and aquatics are presented in ES Volume 2. This Report is also supported by the following:
- 1) Figure 1.1: Site Location Plan and Order Limits (ES Volume 2) **[EN0110012/APP/LVS/06.02.01.01]**.
 - 2) Figure 2.1: Illustrative Site Layout Plan (ES Volume 2) **[EN0110012/APP/LVS/06.02.02.01]**. This outlines the indicative locations for the equipment included within the Proposed Development.
 - 3) Figure 10.2: Environmental Designations (ES Volume 2) **[EN0110012/APP/LVS/06.02.10.02]**.
 - 4) Figure 12.1 Proposed Development Overview **[EN0110012/APP/LVS/06.02.12.01]**.
 - 5) Figure 12.2 SSSI Impact Risk Zone – Lower Derwent Valley **[EN0110012/APP/LVS/06.02.12.02]**.

- 6) Figure 12.3 Ornithological Survey Areas **EN0110012/APP/LVS/06.02.12.03**].
- 7) Figure 12.4 Predicted Construction Noise Levels at SDS 1 **EN0110012/APP/LVS/06.02.12.04**].

- 1.2.3 Under the Conservation of Habitats and Species Regulations 2017 (as amended), hereafter referred to as the ‘Habitats Regulations’, all competent authorities must consider whether any plan or project could affect a European site (either alone, or in combination with other plans or projects) before it can be authorised or carried out. The Habitats Regulations remain fully in force in domestic law following the UK’s withdrawal from the European Union, and the applicable assessment tests are unchanged. Further detail on the legislative and policy framework, including the status of the national site network and Ramsar sites, is set out in Section 2. Where the potential for Likely Significant Effects (LSE) cannot be excluded, the competent authority must undertake an Appropriate Assessment (AA) of the implications of the plan or project for the identified European site(s).
- 1.2.4 The purpose of this report is to provide evidence to determine the potential for the Proposed Development to impact on European sites. This will enable the competent authority (in this case the Secretary of State) to make the AA decision in accordance with U.K. legislation (refer to Section [2](#) for further legislative details).

1.3 The Proposed Development

- 1.3.1 The Proposed Development comprises a solar photovoltaic (PV) electricity generating station of over 100 megawatts (MW) and ‘associated development’ comprising a Battery Energy Storage System (BESS), grid connection infrastructure and other infrastructure integral to the construction, operation and maintenance, and decommissioning phases.
- 1.3.2 The main element of the Proposed Development comprises seven Solar Development Sites (Solar Development Sites 1-4 and 6-8) that will accommodate the Solar PV Panels. The BESS is intended to store surplus electricity generated by the solar PV system and/or energy from the grid. A BESS Compound will be located within Solar Development Site 2.
- 1.3.3 The Cable Route Corridor is the area within which the export connection cables (hereafter referred to as the ‘Grid Connection Cables’) would be located to connect the Solar PV Sites to the National Grid at the existing Monk Fryston Substation (hereafter referred to as the ‘Existing National Grid Monk Fryston Substation’) and the area within which cables connecting the Solar Development Sites would be located (hereafter referred to as ‘Interconnecting Cables’) (refer to Figure 2.1: Illustrative Site Layout Plan (ES Volume 2) **[EN0110012/APP/LVS/06.02.02.01]**].
- 1.3.4 Further details of the Proposed Development are presented in Chapter 2: The Proposed Development (ES Volume 1) **[EN0110012/APP/LVS/06.01.02]** and the

design envelope for the Proposed Development is set out in the Design Parameters and Commitments Document [EN0110012/APP/LVS/05.06] and the limits of deviation shown on the Works Plans [EN0110012/APP/LVS/02.03].

1.3.5 The principal infrastructure of the Proposed Development will be as follows:

- 1) Solar PV modules and mounting structures;
- 2) Conversion Units;
- 3) Transformers;
- 4) Extra high voltage (EHV) switchgear and control equipment (housed inside a building);
- 5) On-site electrical compounds comprising Substations, control buildings and associated equipment;
- 6) On-site cabling;
- 7) Battery Energy Storage System (BESS) Compound located at Solar Development Site 2;
- 8) On-site and Interconnecting Cables: underground electrical cable routes within the Solar Development Sites, and underground electrical cable routes (located within Cable Route Corridors) to connect the solar infrastructure (located within the Solar Development Sites 1-4 and 6-8) to each other;
- 9) Grid Connection Cables: underground electrical cable routes to connect the Proposed Development to the National Grid at Monk Fryston Substation, routing from Solar Development Site 2 to 4 and Solar Development Site 4 to Monk Fryston Substation;
- 10) A 275 kV cable connection within the existing Monk Fryston Substation and associated works to connect into the substation;
- 11) Spare parts storage buildings or enclosures and back-up generators;
- 12) Fencing and security measures;
- 13) Access tracks;
- 14) Environmental mitigation / biodiversity net gain provision; and
- 15) Temporary works required to facilitate construction, including temporary construction compounds, haul roads and highway alterations.

1.3.1 The solar PV modules will be mounted on either fixed or tracking structures, arranged in rows across the Solar Development Sites. A BESS will be installed to store surplus electricity generated by the solar PV system and/or excess energy from the grid. Supporting infrastructure will include on-site Cabling to connect the PV modules to the Conversion Units, as well as the switch rooms, substations and other electrical equipment necessary for grid export. Electricity will be transmitted via underground cables within the designated Cable Route Corridors to connect to the Existing National Grid Monk Fryston Substation. Works at the Existing National Grid Monk Fryston Substation involve the addition

of new electrical infrastructure and associated civil works to comprise a new 275 kV feeder bay to connect the Grid Connection Cables for the Proposed Development.

- 1.3.2 The Solar Development Sites would have a combined area of approximately 900 hectares (ha) and are located in North Yorkshire. The Solar Development Sites will include the Solar PV modules, BESS (located only within the BESS Compound within Solar Development Site 2), Substations, Conversion Units / Transformers, Access tracks, Fencing and security measures, and Environmental mitigation /biodiversity net gain provision.
- 1.3.3 Figure 1.2: Elements of the Proposed Development (ES Volume 2) **[EN0110012/APP/LVS/06.02.01.02]** shows the Highway Improvement Areas which are sections of the highway network that will contain localised improvements, such as improvements to the road edge where it is deteriorated and provision of temporary passing places within the existing highways boundary, traffic management, and provision of visibility splays, or temporary highway and traffic works required to safely accommodate the Abnormal Indivisible Load (AIL) deliveries. These areas will support the movement of construction vehicles on narrower sections of the local highway network within parts of the construction vehicle routes to the Site (refer to Chapter 14: Traffic and Movement (ES Volume 1) **[EN0110012/APP/LVS/06.01.14]**).

1.4 The Order Limits

- 1.4.1 For the purposes of this HRA, the assessment considers the maximum parameters of the Proposed Development as defined by the 'Order Limits' (see Figure 1.1: Site Location Plan and Order Limits (ES Volume 2) **[EN0110012/APP/LVS/06.02.01.01]**), representing the realistic worst-case footprint within which all elements (construction, operational and decommissioning) of the Proposed Development may occur.
- 1.4.2 The Order Limits cover an area of approximately 1,270 hectares (ha) located within the administrative area of North Yorkshire Council, near Selby. The Proposed Development comprises four broad areas:
- 1) Solar Development Sites (1-4 and 6-8), totalling approximately 900 ha;
 - 2) Cable Route Corridor, containing underground electrical cable routes and access, totally approximately 328.5 ha;
 - 3) Highway Improvement Areas (HIAs); totalling approximately 17.1 ha;
- 1.4.3 Solar Development Site 8 Access, totalling approximately 24.1 ha; The Order Limits comprises as single red line boundary that covers all land required for the Proposed Development, which in total is approximately 1,270 ha. This encompasses the above components.
- 1.4.4 The Order Limits include a designated BMA totalling approximately 65.7 ha, incorporated into the design and is located in the southern part of Solar Development Site 1. The area will be established and managed throughout the

operational life of the Proposed Development, secured through a DCO Application Requirement. All habitat creation within the Order Limits is embedded and has enabled the Proposed Development to achieve biodiversity net gain.

- 1.4.5 The BMA is shown on the Outline Environmental Masterplan **[EN0110012/APP/LVS/02.12]** and the Works Plans **[EN0110012/APP/LVS/02.03]**.
- 1.4.6 The Cable Route Corridor is required on a temporary basis during the construction phase, whereas the Solar Development Sites (1-4 and 6-8) and BESS Development Area will accommodate long-term infrastructure.
- 1.4.7 Throughout the HRA, all assessment of potential effects on European sites is based on the maximum extent of the works within the Order Limits, ensuring that the worst-case scenario approach is taken in accordance with the Habitats Regulations.

1.5 Documents referred to in this report

- 1.5.1 The HRA has taken account of, and should be read in conjunction with, the documents produced as part of the application:
 - 1) Chapter 12: Ornithology (ES Volume 1) **[EN0110012/APP/LVS/06.01.12]**;
 - 2) Appendix 12.2: Non-breeding Bird Survey Report (ES Volume 3) **[EN0110012/APP/LVS/06.03.12.02]**;
 - 3) Chapter 6: Biodiversity (ES Volume 1) **[EN0110012/APP/LVS/06.01.06]**;
 - 4) Chapter 11: Noise and Vibration (ES Volume 1) **[EN0110012/APP/LVS/06.01.11]**;
 - 5) Chapter 14: Traffic and Movement (ES Volume 1) **[EN0110012/APP/LVS/06.01.14]**;
 - 6) Chapter 15: Water Resources and Flood Risk (ES Volume 1) **[EN0110012/APP/LVS/06.01.15]**;
 - 7) Chapter 16: Other Environmental Matters (ES Volume 1) - in particular Appendix 16.1: Construction Dust Assessment (ES Volume 3) **[EN0110012/APP/LVS/06.01.16]**;
 - 8) Outline Construction Environment Management Plan **[EN0110012/APP/LVS/07.02]**;
 - 9) oLEMP **[EN0110012/APP/LVS/07.05]**;
 - 10) Outline Construction Traffic Management Plan (oCTMP) **[EN0110012/APP/LVS/07.12]**;
 - 11) Outline Soil Resources Management Plan (oSRMP) **[EN0110012/APP/LVS/07.14]**;
 - 12) Outline Battery Safety Management Plan (oBSMP) **[EN0110012/APP/LVS/07.06]**;

- 13) Outline Public Rights of Way Management Plan (oPRoWMP) [EN0110012/APP/LVS/07.09];
- 14) Outline Decommissioning Environmental Management Plan (oDEMP) [EN0110012/APP/LVS/07.04]; and
- 15) oBMAMP [EN0110012/APP/LVS/07.19].

1.6 Engagement with Natural England

- 1.6.1 Natural England, as a statutory consultee, was engaged via their Discretionary Advice Service (DAS) due to the proximity of the Proposed Development, particularly Solar Development Site 1, to the Lower Derwent Valley SPA and Ramsar Site on 30 September 2024. All correspondence and documents are provided in Annex A.4.
- 1.6.2 Throughout the consultation process, advice was sought regarding survey methodologies to ensure appropriate levels of data were obtained. These recommendations were implemented during the survey period, which ran from September 2024 to September 2025 for the Solar Development Sites, and up to October 2025 for the Cable Route Corridor.
- 1.6.3 During a meeting held with Natural England on 16 April 2025, it was suggested by the Applicant's consultants that one-year of survey may be appropriate for the purposes of impact assessment, based on the results gathered as part of the one year. A supporting document was subsequently submitted to Natural England on 4 July 2025, providing an analysis of the baseline data and incorporating inter-annual variability using the Lower Derwent Valley SPA Wetland Bird Survey (WeBS) dataset.
- 1.6.4 Natural England responded on 6 August 2025, provisionally agreeing with the analysis provided. However, Natural England requested further clarification and consideration of additional factors relating to Solar Development Site 1. These included cropping data, flood data, and a detailed explanation of the buffer analysis applied to account for inter-annual variation for Bird-Day Calculations (BDCs).
- 1.6.5 A formal response via an informative advice note addressing these points was submitted to Natural England was issued on 27 October 2025.
- 1.6.6 Subsequent to the formal advice provided on 27 October 2025, Natural England issued further written advice on the justification of mitigation area size, mitigation design, survey approach and mitigation area management on 19 December 2025 (Annex A.4). This advice has been reviewed and taken into account in the preparation of this HRA and Appropriate Assessment.
- 1.6.7 The key matters raised by Natural England in their most recent response of 19 December 2025, and the manner in which these have been addressed within this HRA and Appropriate Assessment, are summarised below.
- 1.6.8 Note Natural England acknowledged and confirmed its agreement to the cessation of field surveys on 14 January 2025 and accepted the one-year

baseline provided. All correspondence and documents between the Applicant and Natural England are provided in Annex A.4.

1.6.9 Following the submission of the Shadow Habitats Regulations Assessment in February 2026, a meeting was held with Natural England on 20th May 2026 to discuss the Relevant Representations [RR-1039] in detail. In relation to ornithology, it was agreed and welcomed by Natural England that the sHRA would be updated to incorporate construction activities, alongside further clarification of the noise assessment and the use of $L_{Aeq,T}$ levels, and in relation to non-breeding birds, confirmation that percussive piling is not anticipated to be used within Solar Development Site 1, which will remain largely free from disturbance (paragraph 8.2.64 onwards) during the construction phase. Other updates to the sHRA as per Natural England's Relevant Representations include an update to align with air quality advice as per Annex I and foraging distances of non-breeding bird species recorded within the Order Limits. As noted in Natural England's response, the inclusion of foraging distances was not considered a mandatory update and would not change the outcome of the overall conclusions of the document.

Mitigation Area Size Justification

~~1.6.9~~1.6.10 Natural England acknowledged the justification of BDCs presented in Sections 1.9 to 1.11 and Table 1-8 (Annex A.4; Evaluation of Bird Usage Variability and Justification for One-Year Survey Effort). However, Natural England advised that the approach applied at Cleeve Hill should not be relied upon as a primary justification for the size of the Bird Mitigation Area (BMA). Natural England further advised that, although lapwing and golden plover are known to share habitat, sufficient space and forage resources must be available to ensure their coexistence.

~~1.6.10~~1.6.11 In this context, Natural England acknowledged that the significantly larger mitigation area proposed as part of the DCO Application is unlikely to alter the overall conclusions regarding suitability, and that the Cleeve Hill comparison may be used as one component of a wider evidence base. Natural England further advised that BDCs should be considered alongside ecological understanding of habitat carrying capacity. The HRA responds to this advice by incorporating consideration of habitat type, openness, disturbance reduction and the proposed wet grassland design, which is anticipated to provide a higher carrying capacity than arable land (Table 8-2).

Mitigation design and deliverability

~~1.6.11~~1.6.12 Natural England welcomed the proposed inclusion of scrapes and islands within the mitigation area and advised that water level management of the grassland should be considered within the Proposed Development design. This includes assessment of the existing drainage regime, under-field drainage, and the potential for ditch water levels to be raised through the use of sluices or other control structures.

~~1.6.12~~1.6.13 Natural England advised that, in the absence of completed hydrological studies at this stage, a precautionary approach is required to ensure confidence in the deliverability of mitigation. In response, the HRA includes an assessment of alternative mitigation scenarios, including consideration of the potential implications should scrapes be reduced in extent or prove less effective than anticipated. This includes assessment of whether the absence of scrapes would reduce habitat suitability or carrying capacity for relevant bird species, and whether a larger mitigation area or alternative measures would be required under such circumstances (paragraphs 8.2.27-8.2.29).

~~1.6.13~~1.6.14 The HRA also reflects Natural England's recommendation that scrapes should be created concurrently with ground preparation for sward establishment, and that periodic disturbance should be undertaken to prevent excessive vegetation encroachment around the created scrapes.

Approach to surveys

~~1.6.14~~1.6.15 Natural England acknowledged the overall approach to survey design, but requested further justification for the application of a 2x buffer where examples cited demonstrate greater inter-annual variation. Natural England advised that consideration should be given to frequency of site use and bird numbers, in order to demonstrate that forage resources would be sufficient to support displaced birds (paragraph 8.2.20-8.2.26; Annex A.1 and Annex A.2).

~~1.6.15~~1.6.16 This advice has been addressed within the HRA through the inclusion of information on frequency of use, alongside BDCs and supporting contextual data. Natural England also welcomed the inclusion of flood data and historic cropping information and confirmed that this evidence demonstrates the use of a representative survey year.

Approach to mitigation area design and management

~~1.6.16~~1.6.17 Natural England welcomed the proposed diversion of the existing Public Right of Way (PRoW) to reduce disturbance within the mitigation area, supported by fencing and controlled access. Natural England advised that, at application stage, the type of fencing should be specified to ensure it is effective in preventing dog encroachment.

~~1.6.17~~1.6.18 In principle, Natural England welcomed the overall mitigation area design and management approach.

2 Legislation and planning policy

- 2.1.1 Council Directives 92/43/EEC (Ref 1) on the Conservation of natural habitats and of wild fauna and flora (“the Habitats Directive”) and 2009/147/EC on the conservation of wild birds (“the Birds Directive”) provide for the designation of sites for the protection of certain species and habitats. The sites designated under these Directives are collectively termed “European sites” and form part of a network of protected sites across Europe, known as the Natura 2000 network. In the UK, the Habitats Regulations transpose these Directives into national law.
- 2.1.2 The Conservation of Habitats and Species Regulations 2017 (‘the Habitats Regulations’) is one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive and certain elements of the Wild Birds Directive. Following the changes made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (‘the 2019 Regulations’), SACs and Special Protection Areas (SPAs) in the UK no longer forms part of the EU’s Natura 2000 ecological network. The 2019 Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs and SPAs, new SACs and SPAs designated under these Regulations.
- 2.1.3 Any references to Natura 2000 in the Habitats Regulations and in guidance now refers to the new national site network.
- 2.1.4 The UK Government is also a signatory to the Convention on Wetlands of International Importance 1972 (“the Ramsar Convention”). The Ramsar Convention provides for the listing of wetlands of international importance.
- 2.1.5 The Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 2) states that:
- ‘5.4.5 As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required:*
- potential Special Protection Areas and possible Special Areas of Conservation;*
 - listed or proposed Ramsar sites; and*
 - sites identified, or required, as compensatory measures for adverse effects on Special Protection Areas, Special Areas of Conservation, and any other sites covered by this paragraph.’*
- 2.1.6 For the purposes of this Appendix, in line with the Habitats Regulations and relevant Government policy, the term “European sites” and new national site network includes Special Areas of Conservation (“SAC”), candidate SACs (“cSAC”), possible SACs (“pSAC”), Special Protection Areas (“SPA”), potential SPAs (“pSPA”), Sites of Community Importance (“SCI”), listed and proposed Ramsar Sites and sites identified or required as compensatory measures for adverse effects on any of these sites.

- 2.1.7 Ramsar sites are not, at present, designated as European sites under the Conservation of Habitats and Species Regulations 2017 (as amended). However, they are afforded equal protection as a matter of Government policy. This approach is reflected in the Overarching National Policy Statement for Energy (EN-1), which requires Ramsar sites to be considered within the Habitats Regulations Assessment framework and assessed on the same basis as SPAs and SACs. This policy position ensures that the conservation objectives of Ramsar sites are fully taken into account in decision-making.
- 2.1.8 Amongst other things, the Habitats Regulations define the process for the assessment of the implications of plans or projects on European sites. This process is termed the HRA.
- 2.1.9 In the context of this HRA, qualifying features include terrestrial habitats and species, bird populations, and water-dependent habitats and species associated with European sites and the national site network.

3 Assessment methodology

- 3.1.1 This HRA provides information relevant to HRA screening (Stage 1) and AA (Stage 2) and aims to determine if the Proposed Development is likely to have an LSE or adverse effect on any designated sites. Detailed methodology for each stage is set out below.
- 3.1.2 Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017, where a plan or project is not directly connected with or necessary to the management of a European site and is likely to have a significant effect on such a site (either alone or in combination with other plans or projects), the Competent Authority must undertake an AA of its implications in view of the site's conservation objectives. For this project, the Competent Authority is the Secretary of State, informed by the recommendations of the Planning Inspectorate (PINS) as the appointed Examining Authority. The Competent Authority must consult the Statutory Nature Conservation Body (Natural England) and have regard to its advice. Consent may only be granted where no adverse effect on site integrity can be ascertained; otherwise, the project may only proceed if, the Secretary of State being satisfied that there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) are demonstrated in accordance with Regulation 64 and that necessary compensatory measures are secured to ensure that the overall coherence of Natura 2000 is protected, in accordance with Regulation 68.
- 3.1.3 The methodology adopted for this HRA follows the approach set out in the PINS' advice Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (2024) which provides guidance on the Screening and Appropriate Assessment process for NSIPs. The staged HRA process presented in this Appendix is consistent with the approach described in this guidance.
- 3.1.4 HRA can involve up to four stages, as detailed in Plate 3-1 below.

Plate 3-1 Stages of Habitats Regulations Assessment

Box 1 Stages of Habitats Regulations Assessment

Stage 1 – Screening:

This stage identifies the likely impacts upon a European Site of a project or Plan, either alone or 'in combination' with other projects or plans, and considers whether these impacts are likely to be significant.

Stage 2 – Appropriate Assessment:

Where there are likely significant impacts, this stage considers the impacts of the Plan or project on the integrity of the relevant European Sites, either alone or 'in combination' with other projects or plans, with respect to the sites' structure and function and their conservation objectives. Where there are adverse impacts, it also includes an assessment of the potential mitigation for those impacts.

Stage 3 – Assessment of Alternative Solutions:

Where adverse impacts [on the integrity of the site] are predicted, this stage examines [whether or not there are] alternative ways of achieving the objectives of the project or Plan that avoid adverse impacts on the integrity of European Sites.

Stage 4 – Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain:

This stage assesses compensatory measures where it is deemed that the project or Plan should proceed for imperative reasons of overriding public interest (IROPI).

- 3.1.5 Stages 1 and 2 are covered by Regulation 63 of the Habitat Regulations, and Stages 3 and 4 are covered by Regulations 64, 68 and 84 of the Habitat Regulations.
- 3.1.6 With respect to Stage 2, the integrity of a European Site relates to the site's conservation objectives and has been defined in guidance as "the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated" (Ref 1). An adverse effect on integrity, therefore, is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of designation. The HRA screening process uses the threshold of LSE to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the term LSE. However, in the Waddenzee case (Case C127/02), the European Court of Justice found that an LSE should be presumed, and an AA carried out if it cannot be excluded on the basis of objective information that the plan or project will not have significant effects on the conservation objectives of the site concerned, whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11) further clarifies the position by noting that for a conclusion of an LSE to be made "there is no need to establish such an effect...it is merely necessary to determine that there may be such an effect" (original emphasis).
- 3.1.7 For the reasons highlighted above the assessment process follows the precautionary principle throughout and the word 'likely' is regarded as a

description of a risk (or possibility) rather than in a legal sense an expression of probability.

- 3.1.8 Screening can be used to screen-out European sites and elements of works from further assessment, if it is possible to determine that significant effects are unlikely (e.g., if sites or interest features are clearly not vulnerable (exposed and/or sensitive) to the outcomes of the proposal due to the absence of any reasonable impact pathways).
- 3.1.9 The screening process has two potential conclusions, namely that the Proposed Development, alone or in combination with other developments, could result in:
- 1) No LSE on any of the qualifying features of the site; or
 - 2) LSE identified, or cannot be ruled out, on one or more of the qualifying features of the site.
- 3.1.10 Only the second of these outcomes will trigger an AA. If one or more LSE are identified, or cannot be ruled out, it is then necessary to proceed to Stage 2 and produce an AA.
- 3.1.11 On 12 April 2018, the Court of Justice of the European Union (CJEU) issued a judgment on Case C323/17 (People over Wind, Peter Sweetman v Coillte Teoranta) which stated (at paragraph 41):
- “Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site.”*
- 3.1.12 This means that any mitigation relating to protected sites under the Habitat Regulations 2017 Regulation 63 (1) will no longer be considered at the screening stage but taken forward and considered at the AA stage to inform a decision on whether no adverse effects on site integrity can be demonstrated.
- 3.1.13 The assessment provided within this Information to Inform a Habitats Regulations Assessment report considers the CJEU ruling on ‘People over Wind’ and the precautionary principle has been applied as per the Waddenzee case.

4 Description of construction and phasing

4.1 Construction, phasing and lifecycle

- 4.1.1 Subject to being granted development consent and following a final investment decision, the earliest construction could start is in 2028. Construction work is unlikely to start on the Solar Development Sites in all locations at the same time. Each individual Solar Development Site 1-4 and 6-8 and the Cable Route Corridors would likely require different lengths of construction given their variance in size, and therefore there would be some overlap between them. Construction works within the Cable Route Corridor would commence with multiple teams spread along the route. A section of Cable Route Corridor 1-4 (between Solar Development Site 1 and Solar Development Site 4) will only be worked on during the summer months (April to October) to avoid the wintering bird season (see Chapter 12: Ornithology (ES Volume 1) [EN0110012/APP/LVS/06.01.12] for further details. This is in the Outline Construction Environmental Management Plan [EN0110012/APP/LVS/07.02].
- 4.1.2 It is estimated that the construction period would require approximately 24-36 months in total. Table 4-1 indicates the potential construction durations across the different parts of the Proposed Development, showing a series of overlapping stages. This programme is indicative only and is subject to change. Solar Development Site 3 for example is indicated to be final Solar Development Site to be constructed, and this may not be the case. The construction programme is detailed in Chapter 2: The Proposed Development (ES Volume 1) [EN0110012/APP/LVS/06.01.02].

Table 4-1 Indicative construction program

Aspect	Month																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
BMA																													
Solar Development Site (SDS) 1																													
SDS 2																													
SDS 3																													
SDS 4																													
SDS 6																													
SDS 7																													
SDS 8																													
Point of Connection Works																													
BESS																													
Cable Route Corridor																													

- 4.1.3 The interaction of the Proposed Development and BMA is detailed in Chapter 2: The Proposed Development (ES Volume 1) [EN0110012/APP/LVS/06.01.02].

4.2 Operation and maintenance

- 4.2.1 The operational life of the Proposed Development is anticipated to be up to 60 years. Operational activities with relevance to European sites comprise:
- 1) General operational maintenance activities; and
 - 2) Programme of replacement activities.
- 4.2.2 During the anticipated 60-year operational life of the Proposed Development, it is expected that there will be requirement for periodic replacement of some of the electrical infrastructure. It is not expected that an extensive replacement of all components will be required across the entirety of the Proposed Development during a single period; instead, the programme for replacement of equipment is anticipated to be staged to maintain electrical export to the National Grid.
- 4.2.3 Operational activity is low intensity, with human presence limited to occasional maintenance visits. No routine discharges, emissions or pollutant releases to air or water are anticipated during operation.
- 4.2.4 Maintenance visits are expected to be limited to no more than five visits per month to any of the Solar Development Sites. Limited use of HGVs may be required for the ad-hoc replacement of components.
- 4.2.5 The operational life of the Solar PV panels is expected to be 40 years or more. All panels are anticipated to be replaced once during the operational phase, over a maximum 12–24-month period. The impacts associated with panel replacement are not expected to exceed those identified for the construction phase. Furthermore, the establishment of planting and habitat creation measures across the Order Limits, including the BMA, will lessen these impacts significantly. Operational activities along the Cable Route Corridor, will comprise of routine inspections and any reactive maintenance such as where a cable has been damaged.
- 4.2.6 An Outline Operational Environmental Management Plan (oOEMP) [EN0110012/APP/LVS/07.03] has been prepared to support the DCO Application. The oOEMP sets out the general environmental principles to be followed during the operation of the Proposed Development (including any replacement activities). The oOEMP will be used as the basis for a detailed OEMP to be prepared for approval prior to commencement of operation.

4.3 Decommissioning

- 4.3.1 The Proposed Development is proposed to be operational for up to 60 years, after which the Proposed Development would be decommissioned. Including the likely duration of the construction and decommissioning phases, the land would be required for the Proposed Development for approximately up to 65 years in

total. A requirement to decommission the Proposed Development is secured via a Requirement in the Draft DCO Application **[EN0110012/APP/LVS/03.01]**.

- 4.3.2 Decommissioning may take between 12-24 months. A 24-month decommissioning period has been assumed for the purposes of a worst-case assessment in this document, unless specifically stated otherwise. However, it is possible that decommissioning may take less time, and this will be confirmed in the detailed DEMP.
- 4.3.3 Post-decommissioning, the landowners would choose how the land is to be used and managed, the landowner may return all of the land to arable use, although it is likely that established habitats such as hedgerows and woodland would be retained given their potential benefits to agricultural land and the wider farming estate. Permissive paths would be removed during decommissioning, with the precise timing to be determined by the contractor(s) and Eckrick Park Estate Landowners.
- 4.3.4 The effects of decommissioning are expected to be similar or of a lesser magnitude, than construction effects and are considered in the relevant sections of this ES. The specific method of decommissioning the Proposed Development at the end of its design life is uncertain at present as the engineering approaches to decommissioning would evolve over the design life of the Proposed Development. Assumptions have therefore been made where appropriate.

5 Habitats Regulations screening (Stage 1)

5.1 Introduction

5.1.1 Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the Habitats Regulations, that is:

- 1) Whether a plan or project is directly connected to or necessary for the management of the European site; and
- 2) If not directly connected to or necessary for European site management, whether a plan or project, alone or in-combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

5.1.2 Under the first test, the purpose of the Proposed Development is not directly connected with or necessary to the management of a European site. Therefore, the second test needs to be undertaken to determine whether the Proposed Development has the potential to have LSEs on a European site.

5.2 Consultation

5.2.1 The Applicant has engaged with Natural England through their DAS on the scope and method of surveys to inform the Environmental Impact Assessment (EIA) and the Habitats Regulations over the course of the pre-application period.

5.2.2 Pre-application consultations are described in Chapter 12: Ornithology (ES Volume 1) [EN0110012/APP/LVS/06.01.12] and Chapter 6: Biodiversity (ES Volume 1) [EN0110012/APP/LVS/06.01.06] and presented in the Consultation Report [EN0110012/APP/LSV/05.01]. See Table 5-1 below for all pre-submission relevant consultee responses in relation to the Habitats Regulations Assessment and European sites.

5.2.3 Post-submission, the Applicant will continue to discuss this document and its mitigation proposals with Natural England. This will be recorded within a Statement of Common Ground submitted into the Examination.

Table 5-1 Statutory Consultee engagement

Consultee	Comments	How this has been addressed
Natural England Biodiversity/ Guidance (Discretionary Advice Service)	NE primarily recommends that wintering bird surveys should be undertaken in line with Annex C. Where this methodology is not followed, we recommend that justification on why the surveys undertaken will capture the required information should be	Wintering and passage surveys have been undertaken in line with NE's advice as part of the DAS within the Solar Development Sites and the cable route corridor (only parts of the Cable Route Corridor that fall within the SSSI IRZ). It is important to note that on-going consultation with Natural England remains on-going based on the use of one-year of baseline data.

Consultee	Comments	How this has been addressed
	provided within the subsequent HRA. Where transect surveys are used, NE recommend the routes taken should be mapped and provided within the HRA. NE noted that currently a single year of wintering surveys is proposed. As solar farms have big development footprints, we recommend the use of two years of surveys to provide a robust understanding of the bird species which use the site, specifically in relation to Solar Development Site 1. The proposed methodology also does not currently propose surveys to be undertaken during the spring and autumn passage periods. We advise these should be taken along with the additional year of wintering surveys; however, we would be agreeable to a single year of passage surveys being undertaken. We advise it would also be beneficial to ensure the survey locations allow collection of survey data up to a buffer of 300 m out with the redline boundary, as there is potential for noise disturbance impacts during the construction period. We would also advise that the surveys are supported by use of a desk study in the HRA. This should include; ▪ Consultation with the Council's Ecologist; ▪ Consultation with local bird groups and other organisations that may hold relevant information;	The Applicant submitted a document on the one-year rationale in July 2025, and Natural England responded to this in August 2025 [UDS-A015616/ EN0110012]. Natural England accepted the proposed approach to determining mitigation requirements using one year of surveys in principle for this Application based on the one-year rationale document. Once the full year baseline had been collected, a second document was sent on 27th October 2025, fulfilling Natural England's advice whereby the full one-year baseline was evaluated alongside cropping conditions and flood data. and conditions. Note that all correspondence between the Applicant and Natural England are provided in ES Volume 3 Appendix 12.2 [EN011012/APP/LVS/06.03.12.02]. The full one-year baseline data is assessed within the ES Chapter 12 Ornithology [EN0110012/APP/LVS/06.01.12] (Section 12.8) and HRA [EN0110012/APP/LVS/05.11].

Consultee	Comments	How this has been addressed
Natural England [S42 ID 195]	Humber Estuary SPA and Lower Derwent Valley SPA are classified for rare and vulnerable birds. Many of these sites are designated for mobile species that may also rely on areas outside of the site boundary. These supporting habitats may be used by SPA bird populations or some individuals of the population for some or all of the time. These supporting habitats can play an essential role in maintaining SPA species populations, and proposals affecting them may therefore have the potential to affect the European site.	The full one-year baseline has been provided in the ES and has been assessed against the monthly 5-year counts for each the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.
Natural England [S42 ID 195]	We note that bird survey results will be presented in the Environmental Statement (ES), following the completion of surveys in April to September 2025. Natural England therefore cannot provide detailed advice at this stage. We advise that the wintering/passage bird survey results should be considered in the context of the Lower Derwent Valley SPA and Humber Estuary SPA in the HRA, and we will provide detailed comments on potential impacts on SPA birds once consulted.	The Applicant confirms that both the ES and HRA consider both the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites alongside the field survey results for non-breeding birds.
Natural England [S42 ID 195]	However, we advise that based on the information presented in Chapter 12 – Ornithology, mitigation for loss of functionally linked land will be required. The results should be presented and assessed in the context of percentages of the Humber Estuary SPA and Lower	All results are presented alongside the 1% monthly thresholds for both the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites. The 1% is not solely relied upon throughout the document. Alone and in-combination assessments have also been completed. Vulnerable species such as whooper swan and whimbrel have also been highlighted and considered where necessary.

Consultee	Comments	How this has been addressed
	Derwent Valley SPA populations, according to the most recent WeBS 5-year average count. Natural England has generally advised that if $\geq 1\%$ of a Humber Estuary bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration is required. However, where species are particularly vulnerable due to declines in the Humber population, then it may not be appropriate to rely on the 1% of the designated site population as the critical threshold. Mitigation measures may be required where lower numbers of vulnerable species are using a site that is proposed for development.	Fully addressed in the ES Chapter 12 Ornithology [EN0110012/APP/LVS/06.01.12] in Sections 12.8 which presents the baseline results and 1% monthly mean for each species against the Humber Estuary and Lower Derwent Valley SPA and Ramsar sites.
Natural England [S42 ID 195]	The assessment should consider both direct loss of functionally linked land due to siting of the solar panels, and the potential for loss of suitability of adjacent land for birds due to disruption of open vistas and impacts on connectivity of feeding/roosting areas. Potential for noise and visual disturbance to adjacent functionally linked land during the development construction phase should also be assessed.	Bird species recorded outside of the Order Limits for the Solar Development Sites and the Cable Route Corridor have been included as part of the overall assessment. All maximum peak counts have been included within the overall assessment, which includes species recorded in adjacent fields (outside of the Order Limits).
Natural England [S42 ID 195]	Natural England produced a 2016 review of available literature on the impact of solar farms on birds (NEER012) which may be	Noted this has been considered in the ES and the HRA.

Consultee	Comments	How this has been addressed
	useful when undertaking the HRA.	

5.3 Designated sites

- 5.3.1 A precautionary 20 km Zone of Influence (Zoi) has been applied to identify European designated sites that could be affected directly, indirectly or functionally by the Proposed Development.
- 5.3.2 20 km Zoi is applied as a precautionary search radius to ensure all European designated sites with potential pathways for impact, direct, indirect, or functional are captured. This distance reflects typical guidance for wide-ranging or mobile qualifying species and for hydrological or atmospheric impact pathways that can operate over large distances. For instance, the maximum geese and swan core foraging range is identified between 15 – 20 km (Ref 12).
- 5.3.3 European-designated sites were identified within the 20 km Zoi that could be subject to impact pathways associated with the Proposed Development. These sites are relevant primarily to ornithological, ecological and aquatic receptors.
- 5.3.4 All environmental designations are presented in Figure 6.1 (ES Volume 2. Chapter 6: Biodiversity) [EN0110012/APP/LVS/06.01.06] and the Site of Special Scientific Interest Impact Risk Zone (SSSI IRZ) is presented in Figure 6.3 (ES Volume 2) [EN0110012/APP/LVS/06.02.06.03].
- 5.3.5 These sites are summarised in Table 5-2.

Table 5-2 European sites and qualifying features within 20 km of the Order Limits. For the purposes of SPA and Ramsar citations, terrestrial and aquatic qualifying features are presented together, whereas ornithological interests are presented separately.

Site name (and designation)	Distance and direction	Qualifying features
Skipwith Common Special Area of Conservation (SAC)	115 m south of the Highways Improvement Areas and 710 m south of the Cable Route Corridor	The designated site supports Annex I habitats: Northern Atlantic wet heaths with <i>Erica tetralix</i> and European dry heaths.
Lower Derwent Valley Special Protection Area (SPA) (Ref 13) and Ramsar site (Ref 14)	2.5 km east of Solar Development Site 1	SPA & Ramsar: Bewick's swan Golden plover Ruff Shoveler Teal Wigeon Waterbird assemblage (Annex A.1)

Site name (and designation)	Distance and direction	Qualifying features
		Species listed individually under the assemblage feature on the SPA citation: ▪ Pochard ▪ Ruff ▪ Shoveler ▪ Teal ▪ Whimbrel ▪ Wigeon Species which are not listed on the SPA citation but occur at site levels of more than 1% of the national population: ▪ Gadwall ▪ Greylag goose ▪ Pintail ▪ Whooper swan ▪ Golden plover ▪ Lapwing Individual species listed on the citation qualifying under 4.1 and 4.2 of the Directive: ▪ Bewicks swan; ▪ Shoveler Ramsar: ▪ Alluvial flood meadow ▪ Assemblage of migratory waders - Passage ▪ Teal - Wintering ▪ Waterbird assemblage - Wintering ▪ Wigeon– Wintering ▪ Wetland invertebrate assemblage
Lower Derwent Valley SAC	2.5 km east of Solar Development Site 1	The SAC is designated for Annex I habitats: Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) and Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) as well as Annex II species otter.
Lower Derwent Valley Ramsar	2.5 km east of Solar Development Site 1	The Ramsar is designated for its traditionally managed species-rich alluvial flood meadow habitat and assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates, as well as a leafhopper, <i>Cicadula ornata</i> for which Lower Derwent Valley is the only known site in Great Britain.

Site name (and designation)	Distance and direction	Qualifying features
River Derwent SAC	3 km east of Solar Development Site 1	Designated for the following Annex I Habitat: 3260 Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and Callitriche-Batrachion vegetation Designated for the following Annex II Species: - River lamprey (<i>Lampetra fluviatilis</i>) (Primary reason for site selection). - Sea lamprey (<i>Petromyzon marinus</i>) - Bullhead (<i>Cottus gobio</i>) - Otter (<i>Lutra lutra</i>)
Humber Estuary SAC	13.7 km south-east of the Highways Improvements Areas and 15.1 km south-east of the Cable Route Corridor 1-4. 24 km downstream of Cable Route Crossing on the River Ouse.	Designated for the following Annex I Habitat: - Estuaries (Primary reason for site selection); - Mudflats and sandflats not covered by seawater at low tide; - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); <i>Salicornia</i> and other annuals colonising mud and sand; - Coastal lagoons; - Sandbanks slightly covered by sea water all the time; - Embryonic shifting dunes; - Shifting dunes with <i>Ammophila arenaria</i> ("white dunes"); - Fixed dunes with herbaceous vegetation ("grey dunes"); and - Dunes with <i>Hippophae rhamnoides</i>; Designated for the following Annex II Species: - Sea lamprey; - River lamprey; and - Grey seal (<i>Halichoerus grypus</i>).
Humber Estuary Ramsar	13.7 km south-east of the Highways Improvements Areas and 15.1 km south-east of the Cable Route Corridor 1-4. 24 km downstream of Cable Route Crossing on the River Ouse.	The Ramsar site is designated for its 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, the dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar also

Site name (and designation)	Distance and direction	Qualifying features
		support breeding natterjack toad <i>Bufo calamita</i> .
Humber Estuary Special Protection Area (SPA) and Ramsar site	13.7 km south-east of the Highways Improvements Areas and 15.1 km south-east of the Cable Route Corridor 1-4.	SPA & Ramsar (including A.1 (Ref 15)) Species listed individually under the assemblage feature on the SPA citation: ▪ Avocet (non-breeding) ▪ Bar-tailed godwit (non-breeding) ▪ Bittern (non-breeding) ▪ Black-tailed godwit (non-breeding) ▪ Brent goose (non-breeding) ▪ Curlew (non-breeding) ▪ Dunlin (non-breeding) ▪ Golden plover (non-breeding)¹ ▪ Goldeneye (non-breeding) ▪ Greenshank (non-breeding) ▪ Grey plover (non-breeding) ▪ Knot (non-breeding) ▪ Lapwing (non-breeding) ▪ Mallard (non-breeding) ▪ Oystercatcher (non-breeding) ▪ Pochard (non-breeding) ▪ Redshank (non-breeding) ▪ Ringed plover (non-breeding) ▪ Ruff (non-breeding) ▪ Sanderling (non-breeding) ▪ Scaup (non-breeding) ▪ Shelduck (non-breeding) ▪ Teal (non-breeding) ▪ Turnstone (non-breeding) ▪ Whimbrel (non-breeding) ▪ Wigeon (non-breeding) Species which are not listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary WeBS 5-year average count: ▪ Green sandpiper (non-breeding) ▪ Greylag goose (non-breeding) ▪ Little egret (non-breeding) ▪ Pink-footed goose (non-breeding) ▪ Shoveler (non-breeding) ▪ White-fronted goose (non-breeding) Other species qualifying under Article 4.1 and 4.2 of the Directive: ▪ Hen harrier (non-breeding) ▪ Marsh harrier (breeding) ▪ Little tern (breeding) ▪ Avocet (breeding)

Site name (and designation)	Distance and direction	Qualifying features
		Bittern (breeding)
Thorne and Hatfield SPA	18.5 km south-east of Solar Development Site 4	Nightjar (breeding)

Functionally Linked Land definition and assessment

- 5.3.6 In the context of the Proposed Development not directly affecting any European sites, the primary focus of the HRA is on potential impacts to land that meets the criteria of Functionally Linked Land (FLL) associated with the nearest relevant European sites, as listed in Table 5-2. The HRA screening assessment identifies and describes areas within and surrounding the Order Limits that could potentially meet the criteria of FLL, which will be based on a combination of desk-based analysis and field survey data.
- 5.3.7 For ornithology, the broad Natural England definition of FLL as “*areas of land occurring within 20 km of an SPA, that are regularly used by significant numbers of qualifying bird species*” (Ref 16) is applied in the criteria assessment. Furthermore, as per the responses from Natural England (Annex A.3) during a meeting as part of the DAS, FLL is typically defined as supporting 1% of the European site current population, though slightly lower levels may still indicate regular levels. Natural England stated that the results should be presented and assessed in the context of percentages of the Humber Estuary SPA and Lower Derwent Valley SPA populations, according to the most recent WeBS 5-year average count. Natural England has generally advised that if $\geq 1\%$ of a Humber Estuary bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration is required [S42 ID 195]. This approach has been applied to the Proposed Development; whereby 5-year WeBS (Lower Derwent Valley and the Humber Estuary SPA sits) monthly peak and average totals are applied and assessed against the field data (i.e. maximum monthly peak counts).
- 5.3.8 Using the SPAs maximum monthly peak totals is considered beneficial, as it avoids underestimating the importance of the SPA and field counts (peak counts within and outside of the Order Limits are merged). In contrast, relying solely on the overall 5-year mean average as a blanket threshold is less informative because it does not reflect seasonal presence or absence and may obscure peaks due to its aggregation across the year. When comparing the overall 5-year average to monthly averages, the 5-year overall average was greater (meaning higher 1% thresholds) and therefore, the monthly averages and maximums across 5 years are applied as a precautionary measure. This is considered sufficient to inform the Appropriate Assessment under Regulation 63.

Table 5-3 Species unique and shared between the Lower Derwent Valley and the Humber Estuary SPA and Ramsar sites

Category	Number of species	Species as individually listed and part of the wider waterbird assemblage (A.1 and A.2)
Shared between sites	12	gadwall, golden plover, greylag goose, lapwing, mallard, pochard, ruff, shelduck, shoveler, teal, whimbrel and wigeon.
Unique to Lower Derwent Valley SPA and Ramsar	4	Bewick's swan, whooper swan, pintail, water rail.
Unique to Humber Estuary SPA and Ramsar	24	avocet; bar-tailed godwit; bittern; black-tailed godwit; brent goose; curlew; dunlin; goldeneye; greenshank; grey plover; hen harrier; knot; little egret; little tern; marsh harrier; oystercatcher; pink-footed goose; redshank; ringed plover; sanderling; scaup; turnstone; crane; green sandpiper.

European Site Conservation objectives

- 5.3.9 Natural England has established generic Conservation Objectives that apply to each European site's designated interest features. These objectives are further supported by Supplementary Advice on Conservation Objectives (SACOs), which provide site-specific guidance to clarify what may constitute an adverse effect on a European site's features. SACOs are periodically updated and may not yet be available for all European sites.
- 5.3.10 For SPAs, the primary objective is to prevent habitat deterioration and significant disturbance to qualifying bird species, ensuring the site's integrity is maintained. This enables the site to contribute fully to the aims of the Habitats Regulations, which is achieved by maintaining and restoring bird populations, subject to natural change.
- 5.3.11 In cases where supplementary advice is not available, Natural England recommends that HRAs rely on the generic objectives, adapting them to the specific conditions of the European sites. Conservation Objectives for the European sites are set out below in Table 5-4.

Table 5-4 European protected site's, SPA and Ramsar conservation objectives

Site name	Conservation objectives
Skipwith Common SAC	Maintaining or restoring: - The extent and distribution of the qualifying natural habitats - The structure and function (including typical species) of the qualifying natural habitats and,

Site name	Conservation objectives
	The supporting processes on which the qualifying natural habitats rely.
Lower Derwent Valley SAC	Maintaining or restoring: - The extent and distribution of qualifying natural habitats and habitats of qualifying species - The structure and function (including typical species) of qualifying natural habitats - The structure and function of the habitats of qualifying species - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely - The populations of qualifying species, and, - The distribution of qualifying species within the site.
River Derwent SAC	Maintaining or restoring: - The extent and distribution of qualifying natural habitats and habitats of qualifying species - The structure and function (including typical species) of qualifying natural habitats - The structure and function of the habitats of qualifying species - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely - The populations of qualifying species, and, - The distribution of qualifying species within the site.
Humber Estuary SAC	Maintaining or restoring: - The extent and distribution of qualifying natural habitats and habitats of qualifying species - The structure and function (including typical species) of qualifying natural habitats - The structure and function of the habitats of qualifying species - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely - The populations of qualifying species, and, - The distribution of qualifying species within the site.
Thone and Hatfield SPA and Ramsar site	Ensure that the integrity of the sites is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
Lower Derwent Valley SPA and Ramsar	
Humber Estuary SPA and Ramsar site	
	- The extent and distribution of the habitats of the qualifying features; - The structure and function of the habitats of the qualifying features; - The supporting processes on which the habitats of the qualifying features rely; - The population of each of the qualifying features; and - The distribution of the qualifying features within the site.

5.3.12 The SACOs relevant to this HRA Report, as published by Natural England and the Joint Nature Conservation Committee (JNCC), are referenced where relevant in Section 8 (Appropriate Assessment) of this HRA.

5.3.13 It is noted that as the provisions on the Habitats Regulations relating to HRAs extend to Ramsar sites, Natural England generally considers the conservation

advice packages for the overlapping SPA designations to be, in most cases, sufficient to support the management of the Ramsar interests (Ref 17).

5.4 Identification of potential impacts

- 5.4.1 This section sets out the identified potential impacts on the qualifying features associated with the European sites from the Proposed Development. These include consideration of the construction, operational and decommissioning phases. Decommissioning impacts are considered likely to be similar to, or less than, those identified for the construction phase.
- 5.4.2 It is acknowledged that environmental conditions and technological approaches may evolve over the operational life of both the Solar Development Sites and the BMA, introducing some uncertainty around future decommissioning impacts.
- 5.4.3 Impact pathways are grouped by ecological discipline terrestrial ecology, ornithology and aquatic ecology reflecting the structure of the baseline and ES chapters that inform this HRA.
- 5.4.4 Only impact pathways with a plausible mechanism to affect qualifying features or their supporting habitats/processes are included. Where no credible pathway exists, this is stated clearly in the Stage 1 screening.

Ornithology – potential impact pathways

- 5.4.5 The following potential impact pathways relating to SPA / Ramsar bird features and FLL have been identified:

Construction

- 1) Loss or degradation of FLL utilised by qualifying bird species (foraging, roosting or loafing);
- 2) Disturbance or displacement of qualifying bird species due to noise, visual disturbance, increased human activity, plant movement and lighting; and
- 3) Disruption to bird flight paths due to glint and glare effects.

Operational

- 4) Loss of FLL on a long-term basis due to permanent infrastructure and associated land-use change;
- 5) Operational disturbance from maintenance visits (including replacement activities), lighting and site activity;
- 6) Recreational disturbance; and
- 7) Disruption to flight paths due to glint and glare, where modelling identifies potential routes through or over the site.

Decommissioning

- 5.4.6 Similar to construction impacts, including risk of sediment mobilisation and disturbance during removal of infrastructure.
- 5.4.7 The potential impacts from each are discussed in turn. Note that the potential pathways are considered for all phases, construction, operational and decommissioning phases. The pathways per phase are confirmed in the screening assessment table (Table 7-1).

Biodiversity – potential impact pathways

Construction

- 1) Harm, disturbance or displacement of qualifying fauna due to noise, visual disturbance, increased human activity, plant movement and lighting; and
- 2) Degradation of habitats within the designated site due to accidental pollution events and/or increases in air/water pollution.

Operational

- 1) Operational disturbance from maintenance visits (including replacement activities), lighting and site activity on qualifying fauna.

Decommissioning

- 5.4.8 Similar to construction impacts, including risk of sediment mobilisation and disturbance during removal of infrastructure.

Fish – potential impact pathways

- 5.4.9 The following potential impact pathways relating to SAC aquatic features have been identified:

Construction

- 1) Harm, disturbance or displacement of qualifying fish species due to noise and vibration in FLL; and
- 2) Changes in water quality in FLL due to accidental pollution events and/or poor construction site management including silt management.

Operational

- 1) Harm, disturbance or displacement of qualifying species through Electromagnetic Fields (EMF) effects in FLL.

Decommissioning

- 5.4.10 Similar to construction impacts, including risk of sediment mobilisation and disturbance during removal of infrastructure.

- 5.4.11 The potential impacts from each are discussed in turn. Note that the potential pathways are considered for all phases, construction, operational and decommissioning phases. The pathways per phase are confirmed in the screening assessment table (Table 7-1).

6 Existing baseline conditions

- 6.1.1 This section describes the existing baseline conditions relevant to the HRA, with particular focus on land within and surrounding the Order Limits.
- 6.1.2 The baseline conditions presented here provide the foundation and evidential baseline for subsequent assessment in relation to European site integrity.

6.2 Ornithology

- 6.2.1 Non-Breeding Bird Surveys for Solar Development Sites 1-4 and 6-8 presented in Appendix 12.2: Non-breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02], were undertaken between September 2024 and September 2025 (one full year), up to 300 m outside of the Order Limits and Autumn passage (August-October, inclusive) and spring passage (April to May, inclusive) surveys within the Cable Route Corridor, up to 300 m outside of the Order Limits limited to areas within the SSSI Impact Risk Zone (Solar Development Site 1 to Thorpe Willoughby). See Figure 6.3: SSSI Impact Risk Zones [EN0110012/APS/LVS/06.02.06.03]
- 6.2.2 All surveys undertaken were in line with information detailed from Natural England which align with methodologies outlined in the 'Annex C' (Annex A.3) referred to in Natural England's scoping response (which has been clarified with Natural England to mean Annex C to its scoping response to NGET's Grimsby to Walpole project; Annex A.3) (Ref 18) (a combination of walk-overs during day and night time and vantage point surveys) as per the NE DAS meeting held on 17 October 2024 (Table 5-1). All survey methodologies, details and limitations are fully presented within Appendix 12.2: Non-Breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02].
- 6.2.3 Surveys included which align with Annex C:
 - 1) Vantage Point (VP) Flight Activity surveys – once per month within the Solar Development Sites 1-4 and 6/7-8;
 - 2) Diurnal surveys – once per month during the core winter period (November to February) and twice per month during the passage period (April to May); and
 - 3) Nocturnal surveys- once per month during the core winter period and passage period.
- 6.2.4 The Solar Development Site numbering used for Ornithology differs slightly from that used in other disciplines and are shown on Figure 12.1: Proposed Development Overview (ES Volume 2) [EN0110012/APP/LVS/06.02.12.01]. Although the Proposed Development originally identified Sites 1–4 and 6-8, overlapping ornithological survey buffers between Sites 6 and 7 resulted in these being combined for ornithological survey purposes, as results would otherwise be unclear. These Solar Development Sites will be referred to as a collective (a single unit) "Solar Development Site 6/7" hereafter.

- 6.2.5 The full DAS correspondence is provided in Annex A.3. This includes extensive engagement over the use of a single year of field survey data collection, combined with desk-study data, for impact assessment purposes (see also below).
- 6.2.6 Overall peak counts across the Order Limits (Table 6-1) (Solar Development Sites only) are presented below, with the Cable Route Corridor presented separately. All results are presented and illustrated in Appendix 12.2: Non-Breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02]. Note that all results presented on figures include all records recorded across all visits per month for completeness. It is also important to note that peak counts recorded outside of the Order Limits have also been brought into the assessment where appropriate i.e. adjacent fields/open areas where the Order Limits intersects.

Justification for single year of baseline surveys

- 6.2.7 A single full non-breeding season of field data was collected for assessment purposes, supported by additional analyses (as agreed with Natural England during April 2025) which enables inter-annual variation in bird numbers and usage to be considered. Information on cropping patterns, hydrological context, and long-term WeBS datasets for the Lower Derwent Valley and Humber Estuary SPA/Ramsar sites has been obtained and is considered as part of the baseline evaluation process. This approach was developed through consultation with Natural England under the DAS, with full correspondence and analysis provided in Annex A.4.
- 6.2.8 The review of the cropping data is shown in Plate 8-1, which demonstrates that the crop pattern in the landscape remains broadly consistent between the 5 years evaluated, and therefore the habitats available to birds and the species and numbers recorded during the field surveys are likely to be representative of usual conditions. This forms part of the justification for relying on a single year of baseline survey data.
- 6.2.9 The hydrological analysis indicated that the numbers of birds recorded during the baseline surveys and in the Lower Derwent Valley WeBS data vary in response to changing hydrological conditions. As illustrated in Plate 8-1, several species show higher site counts in months with greater proportions of flooding. This supports the view that inter-annual variation in water levels influences patterns of habitat availability and species presence, and the variability applied in the assessment appropriately reflects the natural range of conditions likely to occur across years.
- 6.2.10 The methodology used to assess inter-annual variability is not reproduced within this document. Full details and associated analysis are provided in Appendix 12.2: Non-Breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02].
- 6.2.11 The overall dataset and accompanying analyses are considered sufficient to inform the Appropriate Assessment under Regulation 63, applying a precautionary approach. This conclusion is supported by the data collected within

the Order Limits as well as relevant information from outside the boundary presented in Appendix 12.2: Non-Breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02], together with the analysis detailed and signposted above. In addition, the BDCs used in the assessment are not treated as definitive totals. Instead, they provide a foundation and (or) broad guidance to be interpreted and applied appropriately, particularly for species where this metric cannot be applied (i.e. dabbling ducks) due to no established supporting literature and are therefore considered through qualitative evaluation.

Field surveys

- 6.2.12 Lapwing, greylag goose and mallard consistently exceeded the Lower Derwent Valley (LDV) SPA 1% threshold (paragraphs 5.3.6-5.3.8) throughout the non-breeding period. Golden plover exceeded the 1% threshold primarily during the core wintering months.
- 6.2.13 All other qualifying species, including those forming part of the wider waterbird assemblage for the LDV and the Humber Estuary SPA/Ramsar sites (Annex A.1 and A.2) (Ref 19), did not exceed the LDV 1% threshold on a continual basis, or what is considered ornithologically meaningful i.e. 1% threshold is equal to one individual.
- 6.2.14 For instance, species such as gadwall, little egret, mute swan, shelduck, curlew, redshank and oystercatcher exceeded the 1% threshold in only a single month and/or the LDV 1% threshold was not considered ornithologically meaningful (i.e., one individual equal 1%).
- 6.2.15 Solar Development Site 1 and the surrounding landscape appeared to be a key area for lapwing, with consistent exceedance of the LDV 1% threshold across the non-breeding period. Solar Development Site 4 also recorded exceedances but only intermittently (November, January and April).
- 6.2.16 Outside of the Solar Development Site 1 Order Limits in adjacent fields, counts of lapwing (peak count 212), pink-footed goose (1), golden plover (5) were recorded.
- 6.2.17 Higher densities of golden plover were recorded in Solar Development Site 1, with a peak of 112 birds in January 2025. Solar Development Site 8 and the surrounding landscape also recorded LDV 1% threshold exceedances but at substantially lower numbers.
- 6.2.18 Solar Development Site 4 and the surrounding landscape appeared to be the stronghold area for greylag goose, with exceedances of the LDV 1% threshold for both the LDV and Humber Estuary SPA/Ramsar sites throughout the non-breeding period. Solar Development Site 8 showed similar patterns but with lower densities, as observed for golden plover.
- 6.2.19 Outside of the Solar Development Site 4 Order Limits, large aggregates of wigeon (100), greylag goose (400), teal (100), shoveler (10), whooper swan (9) and smaller counts of mallard, lapwing and golden plover were recorded in the land surrounding the River Aire. This area was included at EIA Scoping Report and

PEIR stage but is now excluded from the Order Limits, refer to Figure 3.2 (ES Volume 2) **[EN0110012/APP/LVS/06.02.03.02]**.

- 6.2.20 Outside of the Solar Development Site 8 Order Limits, one peak count of greylag geese were recorded (45), and lapwing (3) on one occasion.
- 6.2.21 Solar Development Sites 2, 3 and 6/7 did not show any trends of LDV 1% threshold exceedances and these Solar Development Sites were not considered to meet the FLL criteria. It is also important to highlight that these areas comprise smaller parcels of land, intersected by copses, lines of trees and bounded by roads and trainlines which are likely key factors for the overall lack of presence of qualifying species due to the habitat being sub-optimal. Comparable results were also recorded outside of Solar Development Sites 2, 3 and 6/7 Order Limits.
- 6.2.22 Table 6-1 presents the maximum peak counts recoded in the field against Lower Derwent Valley 1% monthly threshold. Tables 6-2 to 6-7 present the maximum monthly peak counts for each species within each Solar Development Site alongside the Lower Derwent Valley and Humber Estuary SPA and Ramsar site. Annex A1 and A2 present species frequencies across the Solar Development sites as a whole and Solar Development Site 1 in isolation.

Table 6-1 Overall peak counts recorded across the Solar Development Sites 1-4/ 6/7 and 8 are presented below alongside their associated monthly peak counts for each of the European sites. Numbers in bold denote 1% threshold exceedance.

Species	Sep 2024	Oct-24	Nov-24	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr-25	May-25	Aug-25	Sep-25
Monthly maximum peak count	-	1221	4480	4130	3838	7417	851	208	-	-	-
Monthly peak count Average	-	1221	2449	3036	2913	7702	636	153	-	-	-
Lapwing field peak counts	106	243	126	32	212	128	19	6	9	35	0
LDV Monthly Maximum peak count	-	1417	3244	3026	2271	827	476	234	-	-	-
Monthly peak count Average	-	1417	2378	1883	1452	613	251	216	-	-	-
Greylag goose field peak counts	17	0	157	27	32	227	14	25	8	4	0
Monthly Maximum peak count	-	280	1437	1365	2247	976	866	377	-	-	-
Monthly peak count Average	-	280	837	1035	1746	769	609	333	-	-	-
Mallard field peak counts	7	11	9	11	6	24	16	14	10	0	2
LDV Monthly Maximum peak count	-	44	161	165	398	611	247	231	-	-	-
Monthly peak count Average	-	44	70	76	186	314	165	212	-	-	-
Gadwall field peak counts	5	0	0	0	2	0	0	2	1	0	0
LDV Monthly Maximum peak count	-	201	2130	4200	1760	4030	109	0	-	-	-
Monthly peak count Average	-	201	1465	1293	1006	2586	29	0	-	-	-
Golden plover field peak counts	5	2	9	30	112	47	1	9	0	0	0
LDV Monthly Maximum peak count	-	0	1	3	9	13	13	31	-	-	-

Species	Sep 2024	Oct-24	Nov-24	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr-25	May-25	Aug-25	Sep-25
Monthly peak count Average	-	0	1	2	6	5	9	28	-	-	-
Little egret field peak counts	1	1	2	2	1	1	1	0	1	0	0
LDV Monthly Maximum peak count	-	2478	3858	6458	9242	7717	8234	1004	-	-	-
Monthly peak count Average	-	2478	2879	4377	6902	5336	4742	846	-	-	-
Teal field peak counts	0	11	12	14	9	13	40	0	0	0	0
LDV Monthly Maximum peak count	-	61	1735	557	928	301	436	0	-	-	-
Monthly peak count Average	-	61	525	313	705	96	108	0	-	-	-
Pink-footed Goose field peak counts	0	0	2	0	0	0	0	0	0	0	0
LDV Monthly Maximum peak count	-	61	87	91	129	107	101	108	-	-	-
Monthly peak count Average	-	61	61	85	95	84	93	92	-	-	-
Mute swan field peak counts	0	0	1	0	0	0	0	0	0	0	0
LDV Monthly Maximum peak count	-	0	57	131	132	154	173	136	-	-	-
Monthly peak count Average	-	0	37	104	112	90	115	124	-	-	-
Shelduck field peak counts	0	0	0	0	2	0	0	0	0	0	0
LDV Monthly Maximum peak count	-	2	9	21	34	70	178	127	-	-	-
Monthly peak count Average	-	2	5	17	26	60	124	82	-	-	-
Curlew field peak counts	0	0	0	0	0	4	1	1	0	0	0
LDV Monthly Maximum peak count	-	1866	7300	9268	12127	9152	13154	866	-	-	-

Species	Sep 2024	Oct-24	Nov-24	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr-25	May-25	Aug-25	Sep-25
Monthly peak count Average	-	1868	5320	8406	10857	6993	9373	586	-	-	-
Wigeon field peak counts	0	0	0	0	0	16	0	0	0	0	0
LDV Monthly Maximum peak count	-	0	9	51	32	56	24	21	-	-	-
Monthly peak count Average field peak counts	-	0	4	21	18	25	13	15	-	-	-
Redshank field peak counts	0	0	0	0	0	0	2	0	0	0	0
LDV Monthly Maximum peak count	-	0	0	0	0	13	34	21	-	-	-
Monthly peak count Average	0	0	0	0	0	8	26	18	-	-	-
Oystercatcher field peak counts	0	0	0	0	0	0	11	1	2	0	0

Table 6-2 **Solar Development Site 1, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites. NC = no count/absence.**

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept
Gadwall	5				2						
Lower Derwent Valley SPA (LDV) / Humber Estuary (HE) 5-year monthly peak count 1%	NC / 4.46				3.98 / 3.28						
Golden Plover		2	9		112	42	1				
LDV/HE 1% (monthly peak count)		2.01 / 78.31	21.3 / 139.04		17.6 / 98.58	40.3 / 132.49	1.09 / 35				
Greylag Goose								12	4		
LDV/HE 1% (monthly peak count)								2.34 / 4.12	NC / 4.12		
Lapwing	106	234	126	32	212	128	12	6	6		
LDV/HE (1% monthly peak count)	NC / 4.97	12.21 / 28.69	44.8 / 101.61	41.3 / 128.77	38.38 / 147.28	74.17 / 75.55	8.51 / 4.26	2.08 / 0.94	NC / 0.87		
Little Egret*				1		1					
LDV/HE 1% (1% monthly peak count)				0.03 / 0.71		0.13 / 1.18					
Mallard		11	9		6	6	16	6	10		
LDV/HE 1% (1% monthly peak count)		2.8 / 10.96	14.37 / 11.5		22.47 / 12.68	9.76 / 10.5	8.66 / 8.78	3.77 / 4.64	NC / 4.67		
Oystercatcher*							4	2	2		
LDV/HE 1% (1% monthly peak count)							0.34 / 46.88	0.21 / 32.19	NC / 18.28		
Teal			12	2	9	13	4				
LDV/HE 1% (1% monthly peak count)			38.58 / 48.86	64.58 / 49.13	92.42 / 67.92	77.13 / 57.48	82.34 / 26.98				

Table 6-3 Solar Development Site 2, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug	Sept
Curlew*				2							
LDV/HE 1% (1% monthly peak count)				0.21 / 21.04							
Golden Plover	5		1		15			9			
LDV/HE 1% (1% monthly peak count)	NC / 42.5		21.3 / 139.04		17.6 / 98.58			0 / 4.49			
Lapwing				2	2	18	19	2	2		
LDV/HE 1% (1% monthly peak count)				41.3 / 128.77	38.38 / 147.28	74.17 / 75.55	8.51 / 4.26	2.08 / 0.94	NC / 0.87		
Little Egret*	1	1		1		1					
LDV/HE 1% (1% monthly peak count)	NC / 3.09	2.01 / 2.41		0.03 / 0.71		0.13 / 1.18					
Mallard	5		2	3	2		2	2	1		
LDV/HE 1% (1% monthly peak count)	NC / 14.59		14.37 / 11.5	13.65 / 13.27	22.47 / 12.68		8.66 / 8.78	3.77 / 4.64			

Table 6-4 Solar Development Site 3, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
Little Egret* (1% monthly peak count)			2			1					

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
LDV/HE 1%(1% monthly peak count)			0.01 / 1.14			0.13 / 1.18					
Mallard					2			6	5		
LDV/HE 1% (1% monthly peak count)					22.47 / 12.68			3.77 / 4.64	NC / 4.67		
Teal					2						
LDV/HE 1% (1% monthly peak count)					92.42 / 67.92						

Table 6-5 Solar Development Site 4, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
Curlew*							1	1			
LDV/HE 1% (monthly peak count)							1.78 / 20.11	1.27 / 8.97			
Gadwall								2	1		
LDV/HE 1% (monthly peak count)								2.31 / 1.28	NC / 1.64		
Golden Plover	1	1									
LDV/HE 1% (monthly peak count)	NC / 45.2	2.01/78.31									

Species	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
Greylag Goose	17		157		32	227	2	25	8	4	
LDV/HE 1% (monthly peak count)	0 / 16.7		32.44 / 16.18		22.71 / 11.92	8.17 / 8.14	4.76 / 5.22	2.34 / 4.12	NC / 7.69	NC / 22.24	
Lapwing (monthly peak count)		2	74	19	50	5	4	6	9	35	
LDV/HE 1% (monthly peak count)		12.21 / 28.69	44.8 / 101.61	41.3 / 128.77	38.38 / 147.28	74.17 / 75.55	8.51 / 4.26	2.08 / 0.94	NC / 0.87	NC / 6.05	
Little Egret*	1		1	2	1	1			1		
LDV/HE 1% (monthly peak count)	NC / 3.09		0.01 / 1.14	0.03 / 0.71	0.09 / 0.99	0.13 / 1.18			NC / 0.93		
Mallard	7			7		9	5	14	3		
LDV/HE 1% (monthly peak count)	NC / 14.59			13.65 / 13.27		9.76 / 10.5	8.66 / 8.78	3.77 / 4.64	NC / 4.67		
Oystercatcher*								4	1		
LDV/HE 1% (monthly peak count)								0.21 / 32.19	NC / 18.28		
Pink-footed Goose*			2								
LDV/HE 1% (monthly peak count)			17.35 / 113.62								
Shelduck					2						
LDV/HE 1% (monthly peak count)					1.32 /						
Teal		11		14		8	40				
LDV/HE 1%(monthly peak count)		24.78 / 99.94		64.58 / 49.13		77.17 / 57.48	82.34 / 26.98				
Wigeon						10					
LDV/HE 1% (monthly peak count)						91.52 / 59.6					

Table 6-6 Solar Development Site 6/7, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

Species	Sep -24	Oct 202 4	Nov 202 4	Dec 202 4	Jan 202 5	Feb 202 5	Mar 202 5	Apr 202 5	May 202 5	Aug 202 5	Sep tem ber 202 5
Greylag Goose								10			
LDV/HE 1% (monthly peak count)								2.34 / 4.12			
Lapwing					2			2			
LDV/HE 1% (monthly peak count)					38.38 / 147.28			2.08 / 0.94			
Little Egret*			1		1		1				
LDV/HE 1%(monthly peak count)			0.01 / 1.14		0.09 / 0.99		0.13 / 0.75				
Mallard					4	4	2	6	3		2
LDV/HE 1% (monthly peak count)					22.47 / 12.68	9.76 / 10.5	8.66 / 8.78	3.77 / 4.64	NC / 4.67		NC / 14.59
Teal						1	3				
LDV/HE 1% (monthly peak count)						77.17 / 57.48	8.66 / 8.78				

Table 6-7 Solar Development Site 8, maximum peak counts and monthly 1% threshold for the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.

Row Labels	Sep- 24	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
Curlew*						4	1	1			
LDV/HE 1% (monthly peak count)						0.7 / 24.37	1.78 / 20.11	1.27 / 8.97			
Golden Plover				30	45	47					
LDV/HE 1% (monthly peak count)				42 / 216.23	17.6 / 98.58	40.3 / 132.49					

Row Labels	Sep-24	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Aug 2025	Sept 2025
Greylag Goose				27		40	14	16			
LDV/HE 1% (monthly peak count)				30.26 / 15.13		8.17 / 8.14	4.76 / 8.14	2.34 / 4.12			
Lapwing							9	2			
LDV/HE 1% (monthly peak count)							8.51 / 4.26	2.08 / 0.94			
Mallard				11		24	8	2			
LDV/HE 1% (monthly peak count)				13.65 / 13.27		9.76 / 10.5	8.66 / 8.78	3.77 / 4.64			
Oystercatcher*							11	1			
LDV/HE 1% (monthly peak count)							0.34 / 46.88	0.21 / 32.19			
Redshank*							2				
LDV/HE 1% (monthly peak count)											
Teal				4		1	2				
LDV/HE 1% (monthly peak count)				64.58 / 49.13		77.17 / 57.48	82.34 / 26.98				
Wigeon						16					
LDV/HE 1% (monthly peak count)						91.52 / 59.6					

Baseline summary – Cable Route Corridor (passage periods)

- 6.2.23 Spring passage activity was generally low, with limited bird use across the corridor. In April, only lapwing exceeded the LDV and Humber Estuary SPA 1% thresholds; however, this exceedance is not considered ornithologically meaningful (1% equal to 0.94 birds and 2 birds for the Humber Estuary and LDV) due to natural turnover during the transitional period between non-breeding and breeding seasons as this species was also recorded as breeding during the breeding bird surveys (Chapter 12: Ornithology (ES Volume 1) [EN0110012/APP/LVS06.01.12] / Appendix 12.2: Non-Breeding Birds Report (ES Volume 3) [EN0110012/APP/LVS/06.03.12.02]). No other qualifying species exceeded LDV SPA thresholds in April. In May, greylag goose and little egret exceeded their respective Humber Estuary SPA 1% thresholds (0 records of greylag goose for Lower Derwent Valley SPA and Ramsar BTO WeBS data), although only in very small numbers. For other spring months, meaningful comparison with WeBS thresholds was not possible due to the absence of corresponding baseline counts from the Lower Derwent Valley SPA.
- 6.2.24 The late summer to autumn passage period showed moderately higher activity, particularly for lapwing and golden plover, which were the most numerous qualifying species recorded along the Cable Route Corridor (between 1–68 individuals) during August and September. These species occurred across several isolated fields (particularly surrounding watercourses) that supported locally higher numbers considering the scale of the Cable Route Corridor. However, these values represent isolated peak counts. This is supported by the minimum and average data, with golden plover averages of 26.0 in August, 25.6 in September and 12.1 in October (range 1–68), and lapwing averages of 10.1 in August, 4.1 in September and 1.7 in October (range 1–60 individuals). These figures indicate high variability and short-term use rather than sustained aggregation (Table 6-8).
- 6.2.25 Areas of relevance included Selby Dam (field number CR479), east of Ling Wood (CR216), south of Garmin Carr Lane (CR169), north of Moor Lane (CR91, CR87 and CR85), Skipwith Holmes (CR61). All field numbers are presented in Figure 2.3: Field numbering plan (ES Volume 2) [EN0110012/APP/LVS/06.02.02.03].
- 6.2.26 Other qualifying or assemblage species occurred only in low numbers, with gadwall exceeding the Humber Estuary SPA 1% threshold in August (four individuals), though the levels recorded do not indicate site dependence. Numbers recorded during October were lower. Mallard were also present in low to moderate numbers (maximum peak count 21), however this species is considered common and widespread (estimated 675,000 wintering individuals (Ref 20)) and is likely under recorded within the WeBS data.
- 6.2.27 Lower numbers of SPA qualifying species were recorded within the Cable Route Corridor despite its larger area, reflecting a diffuse and variable habitat present along the route.

Table 6-8 Cable Route Corridor results within SSSI IRZ. Table presents minimum, maximum and average counts across all records captured during the field surveys (averages exclude zeros)

Species	April			May			August			September			October		
	Maximum peak count	Minimum count	Average	Maximum peak count	Minimum count	Average	Maximum peak count	Minimum count	Average	Maximum peak count	Minimum count	Average	Maximum peak count	Minimum count	Average
Gadwall	1	1	1				4	4	4						
Golden Plover							50	2	26	68	1	25.5	44	1	12.1
Green Sandpiper													2	1	1.3
Greylag Goose				19	1	10									
Lapwing	12	1	3.4	20	1	3	60	1	10.1	8	1	4.1	3	1	1.7
Little Egret	2	1	1.5	1	1	1							3	3	3
Mallard	2	1	1.5	2	1	1.25	21	1	5.3	5	2	3	25	1	9.6
Mute Swan	2	2	2	1	1	1	1	1	1	4	1	2	1	1	1
Oystercatcher	1	1	1												
Ruff										1	1	1			
Teal										9	9	9	60	2	22.7
Wigeon													10	3	6.5

Flight activity surveys

- 6.2.28 Flight activity across the Solar Development Sites was generally low to moderate and dominated by winter movements of common waders and wildfowl. Activity was highest at Solar Development Site 1, where wintering lapwing and golden plover formed the main component of recorded flights, with occasional movements of geese and other waterbirds. Low numbers of Schedule 1 raptors were also present but only in brief transitory over-flights.
- 6.2.29 Solar Development Sites 2 and 3 recorded very low flight activity, limited to occasional short-duration flights by small numbers of common farmland and wetland species, with only sporadic raptor over-flights and no evidence of sustained or directional movement.
- 6.2.30 Solar Development Site 4 supported the greatest diversity of species, with moderate levels of autumn and early-winter flights involving greylag goose, wigeon, teal, mallard, and lapwing, alongside infrequent gulls, egrets, herons, and occasional raptors.
- 6.2.31 At Solar Development Site 6/7, activity remained low overall, with isolated flights of pink-footed goose, mallard, greylag goose, and occasional raptors. Movements were brief, non-directional and characteristic of birds transiting between nearby feeding areas.
- 6.2.32 Solar Development Site 8 showed low to moderate winter activity, mostly involving intermittent movements of greylag goose, mallard, teal, whooper swan and occasional waders such as curlew and oystercatcher. Flight records were infrequent outside the winter period.
- 6.2.33 Across all sites, the overall pattern indicates localised, low-intensity movements typical of farmland and wetland bird assemblages, with the majority of flights occurring in winter and no evidence of regular commuting routes or reliance on any Solar Development Site for sustained flight activity.

Conclusion

- 6.2.34 Survey results show that Solar Development Sites 1, 4 and 8 supported the highest densities of qualifying SPA/Ramsar species and are considered to meet the FLL criteria. While Solar Development Sites 2, 3 and 6/7 were used less intensively and do not individually meet FLL criteria, the Order Limits as a whole are treated as FLL as precautionary for the HRA.
- 6.2.35 The Cable Route Corridor requires only temporary land use; however, any exceedances observed were spread out across the area due to its large scale and densities of qualifying features and those part of the waterbird assemblage were much lower than those recorded within the Solar Development Sites.

6.3 Terrestrial ecology

Otter-Solar Development Site 1

- 6.3.1 Comprehensive details of the ecological baseline for otter are presented in Appendix 6.2: Otter Report (ES Volume 3) [EN0110012/APP/LVS/06.03.06.02], where desk study information and survey results for the entirety of the Order Limits are described in full. For this assessment, only the otter survey results for Solar Development Site 1 are relevant. This is because otter only comprise a designated feature of Lower Derwent Valley SAC and River Derwent SAC, located approximately 2.5 km and 3 km east of Solar Development Site 1 respectively. The closest of the remaining Solar Development Sites is located approximately 12.7 km west of either SAC at the closest point, and therefore the remaining Solar Development Sites are outside of the zone of influence for the otter population present at the SACs.
- 6.3.2 The habitat connecting Solar Development Site 1 to Lower Derwent Valley SAC and River Derwent SAC are similar to those provided at Solar Development Site 1, comprising cropland bound by agricultural drainage ditches, hedgerows and smaller areas of woodland.
- 6.3.3 During the 2025 otter surveys, Solar Development Site 1 was assessed as being of low value for otter, with the majority of watercourses comprising heavily modified drainage ditches, with limited foraging opportunities and only occasional suitable cover for resting. From aerial and OS mapping, none of the on-site ditches form part of the SACs, and there is no direct hydrological connection from Solar Development Site 1 to the SACs. However, Pallion Dyke, that forms part of the eastern boundary of Solar Development Site 1, leads eastwards forming part of the ditch network in the connecting land between Solar Development Site 1 and the SACs. As such, the watercourses and surrounding habitat within Site 1 may be utilised by commuting otter (further discussed below (Section 7.8 and 7.9). However, no otter field signs were identified during the otter surveys completed within Solar Development Site 1.

No further terrestrial ecology baseline surveys were completed with regards to any of the other qualifying features of Lower Derwent Valley SAC, River Derwent SAC, or any other designated site as the habitats within the Order Limits do not provide important habitat for the remaining qualifying features.

Fish

- 6.3.4 Comprehensive details of the ecological baseline for fish are presented in Appendix 6.5: Fish Habitat Assessment and eDNA Survey (Aquatics Report) (ES Volume 3) [EN0110012/APP/LVS/06.03.06.05], where survey data, desk study information and the results for fish habitat relating specifically to qualifying interest species of River Derwent SAC and Humber Estuary SAC (sea lamprey and river lamprey) are described in full.

- 6.3.5 Based on the findings of the fish habitat assessment, the majority of watercourses within the Solar Development Sites and along the Cable Route Corridor were assessed as unlikely to support lamprey species. Two notable exceptions were the River Ouse and Selby Dam. Both of these watercourses will undergo HDD to facilitate the Cable Route Corridor.
- 6.3.6 For the purposes of baseline definition, the River Ouse in the vicinity of the Proposed Development is a known migration route for river lamprey and sea lamprey. This includes both adult lamprey returning from the marine environment to spawn in the upper catchment, and seaward migrating lamprey transformers.
- 6.3.7 It should be noted that the River Ouse in the vicinity of the Cable Route Corridor is tidally influenced with significant water level variation in response to the tide. The Cable Route Corridor is upstream of the saline intrusion zone, which is understood to occur near the M62 crossing, situated c. 24 km downstream. Notwithstanding the proximity to the estuary and daily fluctuation in river levels, deep marginal fine sediments along the Cable Route Corridor in the River Ouse could support larval (ammocoete) stage lamprey.
- 6.3.8 Suitable habitat features for lamprey were identified within Selby Dam; however, Environment Agency (EA) fish monitoring undertaken in 2016, 2022 and 2024 at sites located 3.6 km upstream and 1.5 km downstream of the Cable Route Corridor recorded no lamprey species. The Cable Route Corridor intersects Selby Dam, which drains into the River Ouse downstream of the corridor and is hydrologically linked to the Humber Estuary SAC. However, a pumping station situated at the confluence with the River Ouse (NGR: SE 61478 32599), downstream of the Cable Route Corridor has the potential to entrain, injure or kill fish and may act as a barrier to lamprey migration. As a result, lamprey movement into Selby Dam is likely inhibited, and functional connectivity between Selby Dam and the Humber Estuary SAC is considered limited.
- 6.3.9 It should also be noted that the catchment upstream of Selby Dam is small, of low gradient, and heavily modified in nature and flow regime. It is therefore considered highly unlikely that suitable spawning habitat for lamprey species is present in the wider catchment. As such, juvenile lamprey would not be expected in Selby Dam.
- 6.3.10 In summary, based on the results of this study which entailed desk study, habitat assessment and eDNA monitoring, the River Ouse in the vicinity of the Proposed Development is a known migration route for river lamprey and sea lamprey. Marginal silts in the River Ouse may also support larval (ammocoete) stage lamprey.
- 6.3.11 Selby Dam is considered suboptimal for lamprey species and based on desk study data, they are considered absent. All other watercourses surveyed are considered unsuitable for qualifying interest lamprey species of River Derwent SAC and Humber Estuary SAC.

7 Screening assessment

7.1 Air Quality (Construction dust, traffic emissions and NO_x/PM; all phases)

- 7.1.1 There is no credible impact pathway linking the Proposed Development to the qualifying features or supporting habitats of Skipwith Common SAC, Lower Derwent Valley SPA/Ramsar/SAC, River Derwent SAC, the Humber Estuary SAC/SPA/Ramsar and (or) Thorne Hatfield SPA.
- 7.1.2 Construction dust can only result in ecologically relevant deposition within 50 m of dust-generating activities (IAQM, 2024 version 2.2 (Ref 21)). The nearest European site lies 115 m south of the Order Limits (comprising part of the Highways Improvement Areas at Little Skipwith), which is an already existing road. This distance is beyond recognised dust-screening thresholds and no pathway exists for construction dust, either alone or in-combination with other developments to affect European site habitats (see Appendix 16.1: Construction Dust Assessment (ES Volume 3) [EN0110012/APP/LVS/06.03.16.01]).
- 7.1.3 FLL (ornithology) within and beyond the Order Limits largely comprises arable and improved grassland, which are not considered dust-sensitive ecological receptors under IAQM criteria. These habitats do not support dust-sensitive plant communities and dust deposition at typical construction levels would not alter habitat condition or their foraging value for qualifying SPA bird species (Ref 22). which is also supported by Air Pollution Information System (APIS (135). Consequently, there is no pathway by which in combination dust effects could affect qualifying features.)). It is however, important to note that the APIS identifies neutral grassland as potentially sensitive. However, within the screening area, neutral grassland is scarce, fragmented, and limited to narrow roadside verges already subject to disturbance and edge effects (as illustrated in AS-018). The field surveys found no evidence that SPA qualifying species rely on these areas as functionally important supporting habitat, and their proximity to trafficked roads further limits suitability for regular use. Consequently, there is no pathway by which in-combination dust effects could directly and (or) indirectly affect qualifying features of the SPA and Ramsar sites
- 7.1.4 Construction traffic flows fall substantially below the EPUK/IAQM screening thresholds of >500 Light Duty Vehicles Annual Average Daily Traffic (AADT) or >100 Heavy Duty Traffic AADT that trigger the need for detailed assessment, as detailed in Appendix 14.1: Transport Assessment (ES Volume 3) [EN0110012/APP/LVS/06.03.14.01].
- 7.1.5 Natural England's NEA001[‡] guidance applies less stringent thresholds (>1000 AADT or >200 HDV AADT). As construction traffic is already well below the IAQM thresholds, it is by definition below the NEA001 thresholds.

[‡]Annual Average Daily Traffic

- 7.1.6 There are no roads used by construction and (or) decommissioning traffic as part of the Proposed Development within 200 m of any SPA and Ramsar boundary (i.e. Lower Derwent Valley and Humber Estuary SPA/SAC and Ramsar site) as presented in Figure 12.1 Proposed Development Overview [EN0110012/APP/LVS/06.03.12.01]. The 200 m threshold reflects established guidance for assessing vegetation exposure to traffic-derived NO_x and nitrogen deposition.
- 7.1.7 There is however a HIA located approximately 115 m north-west of Skipwith Common SAC. The SAC is designated for Northern Atlantic wet heaths with *Erica tetralix*, and European dry heaths. Within the 75 m of the SAC that overlaps the 200 m threshold for NO_x deposition, only woodland is located, with no heath habitats present. As such, there are no qualifying features of the SAC present within 200 m of the Highways Improvements Area, and therefore there are no credible impact pathways present.
- 7.1.8 From a cumulative point, the only key overlap of significant traffic change is within the western extent of Order Limits (the A162 and A63), which is forecasted to add over 1000 trips, however this is located approximately 18 km west of the closest European site boundary (Appendix 14.1: Traffic Assessment (ES Volume 3) [EN0110012/APP/LVS/06.03.14.01]). Consequently, the primary air quality pathway to qualifying habitats are absent, and so such impacts are able to be screened out.

7.2 Water quality and pollution pathways (all phases)

Skipwith Common SAC, Thorne and Hatfield Moors SPA, Lower Derwent Valley SPA/Ramsar/SAC, Humber Estuary SPA/Ramsar/SAC and River Derwent SAC

- 7.2.1 There is no credible hydrological pathway linking the Proposed Development to the qualifying features or supporting habitats of Skipwith Common SAC, Lower Derwent Valley SAC/Ramsar/SPA, Humber Estuary SPA/Ramsar/SAC, Thorne and Hatfield SPA (closest 3.5 km) and the River Derwent SAC.
- 7.2.2 Chapter 15: Water Resources and Flood Risk (ES Volume 1) [EN0110012/APP/LVS/06.01.15] identified the majority of hydrological receptors at risk of pollution during construction are local features, including Burr Closes Site of Special Scientific Interest (SSSI), Skipwith Common SSSI, and nearby Sites of Importance for Nature Conservation (SINCs) and Water Dependent Terrestrial Ecosystems (WDTEs).
- 7.2.3 Skipwith Common SAC is the only European site assessed individually within Chapter 15: Water Resources and Flood Risk (ES Volume 1) [EN0110012/APP/LVS/06.01.15]. It is noted that as the designated site is upgradient of the Cable Route Corridor, there will be no surface water or groundwater pathway for water contamination of the designated site as a result of the Proposed Development due to the distance between the Cable Route Corridor and the SAC (approximately 710 m) and the direction of water flow. It is

noted however that the Highways Improvement Areas at Little Skipwith, which form part of the Order Limits, are located closer to the SAC, approximately 115 m north of the designated site. However, works within the Highways Improvement Areas will only comprise minor, temporary modifications at junctions and include the removal of street furniture, widening of junctions, and vegetation removal. As such, this would cause no additional effects with regards to water feeding into the SAC.

- 7.2.4 There are no surface water or groundwater pathways identified in the ES that link any part of the Order Limits to Thorne and Hatfield Moors SPA, Lower Derwent Valley SPA/Ramsar/SAC, Humber Estuary SPA/Ramsar and River Derwent SAC.
- 7.2.5 Potential pollution risks (sediment mobilisation, run-off, accidental spills, excavation, Horizontal Directional Drilling (HDD), trenching) are all limited to localised areas.
- 7.2.6 During decommissioning, potential effects on water quality are expected to be comparable to, or less than, those during construction. It is assumed that most in-ground infrastructure would remain in situ, with any required cable removal undertaken using low-disturbance methods and avoiding designated avoidance areas. Decommissioning would be managed through the oDEMP [EN0110012/APP/LVS/07.04], applying measures similar to those used during construction and agreed with the relevant authorities. Any effects on water quality are therefore expected to be localised, temporary and not significant.
- 7.2.7 Water quality effects on the Skipwith Common SAC, Lower Derwent Valley SAC/SPA/Ramsar, River Derwent SAC, Humber Estuary SPA/Ramsar, Thorne & Hatfield Moors SPA and River Derwent SAC are screened out, as there is no LSEs on qualifying features or habitats.

Changes to water quality within FLL for fish species (construction)

Humber Estuary SAC

- 7.2.8 The River Ouse within the Cable Route Corridor is considered FLL to the Humber Estuary SAC and is a recognised migration route for sea-going lamprey species, including river lamprey and sea lamprey. The Humber Estuary SAC boundary lies approximately 24 km downstream of the Proposed Development.
- 7.2.9 There is an increased risk of pollution entering the River Ouse during construction, particularly from surface runoff, or mobilisation of sediments. Such pollution could degrade water quality, smother suitable lamprey ammocoete habitats, or interfere with olfactory cues essential for lamprey navigation. In the absence of mitigation, indirect effects such as silt liberation, sediment transfer, and pollution could result in injury or mortality to lamprey species through gill clogging, behavioural disruption, or spawning failure.

- 7.2.10 Furthermore, HDD (in the absence of mitigation) could result in frac-out of bentonite drilling fluid into the watercourses. A frac-out is an unintentional release of drilling fluids to the surface that may occur when the pressure of the drilling fluid exceeds surrounding ground pressure, causing escape through cracks or weak points in the ground. Such releases could lead to sedimentation, chemical contamination, and physical disruption, with potential to affect migration or prey availability for lamprey species.
- 7.2.11 Given that the HDD locations associated with the Proposed Development are situated outside the Humber Estuary SAC boundary, it is considered unlikely that any bentonite frac-out, surface runoff, or mobilisation of sediments would directly impact qualifying fish species within the boundaries of the Humber Estuary SAC. The Humber Estuary SAC is situated 24 km downstream of the Proposed Development (specifically the Cable Route Corridor that spans the River Ouse). The separation distance of more than 2 km ensures that any pollution would dissipate and disperse before reaching the Humber Estuary SAC. However, FLL freshwater areas upstream of the SAC, including the River Ouse, provide important migratory routes and juvenile habitat for lamprey species. In the event of a pollution incident, lamprey may be impacted in areas of FLL. Given the risks associated with potential changes in water quality, and in the absence of mitigation, LSEs on lamprey populations, as a result of changes to water quality within FLL cannot be excluded.

7.3 Loss of functionally linked land for qualifying bird species and waterbird assemblage species

Thorne and Hatfield Moors SPA

- 7.3.1 Thorne and Hatfield Moors SPA is located approximately 18 km from the Order Limits and is designated for breeding nightjar alone, a ground-nesting species dependent on lowland heath, raised bog and regenerating peat habitats, which are not present throughout the Order Limits. Nightjar is a short-distance migrant with highly localised breeding territories; there is no functional linkage between the Order Limits and the SPA.
- 7.3.2 Nightjar has not been recorded within or near the Proposed Development. Only six historical records (1981–2009) exist across the wider area and current county monitoring confirms no confirmed local breeding (Chapter 12: Ornithology (ES Volume 1) [EN0110012/APP/LVS/06.01.12]).
- 7.3.3 Furthermore, during the PEIR consultation phase, outlined in the Consultation Report [EN0110012/APP/LVS/05.01] Natural England were satisfied that the Proposed Development does not require assessment of Thorne and Hatfield Moors SPA.
- 7.3.4 Given the absence of any plausible impact pathway (direct, indirect, or functional linkage) and agreement with Natural England, LSEs can be precluded. Thorne & Hatfield Moors SPA is screened out and therefore not considered further in this HRA.

Lower Derwent Valley and the Humber Estuary SPA and Ramsar sites (construction and operational)

- 7.3.5 The construction and operational phase of the Proposed Development will not have any direct impacts on the European sites.
- 7.3.6 Baseline ornithological surveys confirm that several qualifying species of the Lower Derwent Valley (LDV) SPA/Ramsar and Humber Estuary SPA/Ramsar regularly utilise land within the Order Limits during the non-breeding season (qualifying features of the Ramsar site not related to ornithology are discussed in Section 7.1, 7.2, 7.8, and 7.9). These include species that exceed or meet the 1% threshold for their respective SPA/Ramsar populations (e.g. lapwing, golden plover, greylag goose, teal and wigeon).
- 7.3.7 In accordance with Natural England guidance, land outside designated site boundaries that is used by qualifying species is treated as FLL where it provides foraging, loafing or roosting opportunities that support the ecological requirements of those features. Parts of Solar Development Sites 1, 4 and 8 meet this definition. However, as a precautionary approach the entire Order Limits will be considered as meeting the FLL criteria.
- 7.3.8 The Proposed Development has the potential to cause:
- 1) Temporary loss or degradation of FLL during the construction phase of the Cable Route Corridor and the construction of the Solar Development Sites (e.g. ground disturbance, restricted access to fields); and
 - 2) Long-term loss of FLL where land is converted to solar infrastructure during operation.
- 7.3.9 Loss of FLL in the BMA will also occur; however, this will be for the short-term only.
- 7.3.10 Accordingly, a LSEs cannot be ruled out for the Lower Derwent Valley SPA/Ramsar and the Humber Estuary SPA/Ramsar and this pathway is screened in for further assessment.

7.4 Disturbance or displacement of qualifying bird species (all phases)

- 7.4.1 As detailed in Section 6, the baseline ornithological surveys confirm that several qualifying species which exceeded the 1% threshold within the Solar Development Sites Order Limits.
- 7.4.2 Construction activities (including vehicle movements, plant operation, earthworks, human presence, noise, vibration and temporary lighting) have the potential to cause behavioural disturbance or short-term and long-term displacement of qualifying species using FLL. Such effects may alter foraging behaviour, roosting patterns or distribution at times of peak usage.
- 7.4.3 Operational disturbance may also occur, although at a much lower magnitude, through:

- 1) Infrequent maintenance visits;
- 2) Replacement activities (approximately every two years);
- 3) Limited vehicle access;
- 4) Task-specific lighting; and
- 5) Increased Recreational disturbance through the Applicant's permissive path proposals and changes to the public rights of way network.

7.4.4 Existing baseline conditions include regular farming activity, traffic on local roads, and public access, but despite this, qualifying SPA species continue to utilise the Order Limits.

7.4.5 Furthermore, PRoWs and permissive paths currently pass through or adjacent to areas of confirmed FLL within the Order Limits. In their existing alignment, these routes enable regular public access including walkers and dog-walkers through fields used by qualifying SPA/Ramsar species for foraging, loafing and roosting. Such baseline access has the potential to cause behavioural disturbance or displacement, particularly during the non-breeding season.

7.4.6 During the operational phase, although overall activity will be low, periodic maintenance works will continue to occur across the Solar Development Sites. These include vehicle movements, presence of maintenance personnel, vegetation management and occasional equipment inspections. In the absence of mitigation, these activities may cause temporary disturbance or displacement of qualifying SPA/Ramsar species using FLL within the Order Limits.

7.4.7 The Proposed Development includes the diversion of PRoW and permissive paths being located away from sensitive areas. However, these measures constitute mitigation and cannot be taken into account at the screening stage (People over Wind, 2018). Screening must therefore consider the baseline situation in which PRoW remain in their current alignment and operational maintenance occurs without restriction.

7.4.8 Decommissioning activities are expected to be similar in nature to construction and could generate temporary disturbance and displacement in the absence of controls.

7.4.9 Based on the above, LSEs cannot be ruled out for the Lower Derwent Valley and Humber Estuary SPA/Ramsar and is screened in for further assessment.

7.5 Disruption of flight paths of qualifying bird species due to glint and glare (operational)

7.5.1 During the operational phase, solar PV panels could introduce glint and glare, potentially disrupting flight paths of qualifying bird species associated with the European sites.

7.5.2 Solar PV panels can create solar reflections ("glint") that may be visible to overflying birds.

- 7.5.3 Alongside the confirmed baseline of qualifying species utilisation within the Order Limits, anticipated loss or alteration of habitat function, the potential for LSEs on the Lower Derwent Valley and Humber Estuary SPA/Ramsar sites cannot be excluded. This pathway is therefore screened in for further assessment.

7.6 Harm, disturbance or displacement of qualifying fish species in FLL (construction)

Humber Estuary SAC

- 7.6.1 The River Ouse within the Cable Route Corridor is considered FLL to the Humber Estuary SAC and is a recognised migration route for sea-going lamprey species, including river lamprey and sea lamprey. The Humber Estuary SAC lies approximately 24 km downstream of the Proposed Development, and therefore, disturbance or displacement of lamprey within the Humber Estuary SAC boundary will not occur.
- 7.6.2 However, sea and river lamprey utilising habitats within the River Ouse, including during migratory passage, may be subject to temporary disturbance during construction. HDD beneath the River Ouse is specifically designed to avoid direct in-channel works, substantially reducing the risk of physical habitat disruption. However, the procedure may still generate localised noise and vibration, particularly around entry and exit pits, which could affect lamprey species during critical life stages such as larval development and migration. Additionally, lamprey present in the river above the HDD (within the footprint of the Cable Route Corridor) at the time of drilling may be disturbed, resulting in short-term displacement upstream or downstream.
- 7.6.3 Although disturbance within designated sites will not occur, the above factors have potential to delay or disrupt spawning migration, reducing recruitment and adversely affecting populations within FLL. In the absence of further assessment and/or avoidance / mitigation measures, LSEs on lamprey through harm, disturbance or displacement of qualifying fish species in FLL cannot be excluded.

River Derwent SAC

- 7.6.4 There is no hydrological connection between the Proposed Development and the River Derwent SAC via any watercourses that could be affected during construction. As outlined in Appendix 6.5: Fish Habitat Assessment and eDNA Survey (ES Volume 3) [EN0110012/APP/LVS/06.03.06.05], Common Drain flows into Solar Development Site 1 and functions as an inflow to the Solar Development Site rather than a discharge route in the direction of the River Derwent. Consequently, Common Drain does not provide a hydrological impact pathway from the site to the River Derwent SAC.
- 7.6.5 There are no impact pathways arising from the Proposed Development that could result in LSEs on the qualifying fish species of the River Derwent SAC. River lamprey and sea lamprey are known to migrate from the Humber Estuary through the River Ouse to access spawning habitats in the River Derwent. However, the

Proposed Development is located hydrologically upstream of this branching point (confluence at NGR: SE 68057 28561). While lamprey found within the River Ouse may be part of the same meta-population as those found in the River Derwent, lamprey migrating towards the River Derwent SAC would not pass through, nor be influenced by, the stretch of the River Ouse affected by the Proposed Development. Consequently, there is no direct hydrological or ecological pathway by which lamprey populations utilising the River Derwent SAC could be affected, and no LSEs are anticipated.

- 7.6.6 Habitats supporting bullhead is located in the upper River Derwent and there is no credible pathway for this habitat to be affected during construction or operation of the Proposed Development. Bullhead are non-migratory species and as a result the River Ouse adjacent to the Proposed Development is not considered FLL for the population of bullhead designated as a qualifying interest of the River Derwent SAC. In summary, LSEs on the River Derwent SAC, as a result of harm, disturbance or displacement of qualifying fish species, can be ruled out.

7.7 Harm, disturbance or displacement of qualifying species in FLL through Electromagnetic Fields (EMF) effects (operational)

Humber Estuary SAC

- 7.7.1 Underground electricity cabling under rivers and watercourses can have a detrimental impact on fish, as electric cables create magnetic fields. Many migratory fish, such as salmon and eels, use the Earth's magnetic field for navigation. EMFs from electric cables can interfere with fish in numerous ways, such as magnetoreception disruption (EMFs interfering with migration routes), behavioural changes and physiological stress. Whilst evidence in the scientific literature is limited, there is potential for EMFs to affect the development of fish eggs and juvenile fish.
- 7.7.2 In the absence of further assessment and/or avoidance/mitigation measure, LSEs as a result of harm, disturbance or displacement of qualifying species through EMF in FLL watercourses, cannot be ruled out.

7.8 Harm, disturbance or displacement of qualifying fauna species (construction)

Lower Derwent Valley SAC and Ramsar

- 7.8.1 The SAC is designated for otter, and while unlikely, the population of otter within the SAC may commute from the SAC overland and using the ditch network to Solar Development Site 1. However, no field signs of otter were identified within Solar Development Site 1 during the 2025 survey, and it was found to comprise low value habitat for otter, with the majority of on-site watercourses comprising heavily modified drainage ditches, with limited foraging opportunities and only

occasional suitable cover for resting (all other Solar Development Sites are located too greater distance from the SAC/Ramsar to be utilised by the population of otter present within the designated site). As such, it is likely the population of otter within the SAC will favour habitats within the SAC and will not be dependent on Solar Development Site 1 to maintain their populations.

- 7.8.2 Nevertheless, as per Design Parameters and Commitments Document [EN0110012/APP/LVS/05.06], the features of importance for otter (ditches, woodland, hedgerows etc.) will be retained and buffered, where practicable, and protected from development via the oCEMP [EN0110012/APP/LVS/07.02]. The oCEMP will also detail embedded Precautionary Working Methods to protect otter and a variety of other terrestrial species during the construction phase, such as installation of mammal ladders into excavations, as well as the implementation of an environmentally sensitive lighting scheme to maintain dark areas within the Proposed Development during construction.
- 7.8.3 Additional habitat enhancement/creation, which includes grassland and woodland to connect with retained commuting features such as ditches and hedgerows, will aim to enhance green corridors through the Solar Development Site, with the southern half of Solar Development 1 also proposed for habitat enhancement/creation rather than solar infrastructure. This will act to improve the Solar Development Site for otter post development. Therefore, it is considered that the Proposed Development will not result in any LSEs on the otter population present at the designated site.
- 7.8.4 The Ramsar is designated for its assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates, as well as a leafhopper, *Cicadula ornata* for which Lower Derwent Valley is the only known site in Great Britain. As outlined above, air and water pollution affecting the designated site as a result of the Proposed Development has been screened out, and as such, there will be no degradation of habitats that support the assemblage of wetland invertebrates present at the designated site. In addition, the Order Limits do not present important habitat for such an assemblage of wetland invertebrates, and they are therefore not anticipated to be reliant of habitats within the Order Limits. Therefore, it is considered that the Proposed Development will not result in any LSEs on the wetland invertebrate assemblage present at the designated site.
- 7.8.5 In light of the above, this impact pathway is screened out of further assessment.

River Derwent SAC

- 7.8.6 The SAC is designated for otter, and while unlikely, the population of otter within the SAC may commute from the SAC overland and using the ditch network to Solar Development Site 1. However, no field signs of otter were identified within Solar Development Site 1 during the 2025 survey, and it was found to comprise low value habitat for otter, with the majority of on-site watercourses comprising heavily modified drainage ditches, with limited foraging opportunities and only occasional suitable cover for resting (all other Solar Development Sites are

located too greater distance from the SAC to be utilised by the population of otter present within the designated site). As such, it is likely the population of otter within the SAC will favour habitats within the SAC and will not be dependent on Solar Development Site 1 to maintain their populations.

- 7.8.7 Nevertheless, as per the Design Parameters and Commitments Document [EN0110012/APP/LVS/05.06], the features of importance for otter (ditches, woodland, hedgerows etc.) will be retained and buffered, where practicable, and protected through development via the oCEMP [EN0110012/APP/LVS/07.02]. As part of the measures that are being applied for the Proposed Development as a whole and for a variety of species,, the oCEMP will also detail embedded Precautionary Working Methods to protect otter and a variety of other terrestrial species during the construction phase, such as installation of mammal ladders into excavations, as well as the implementation of an environmentally sensitive lighting scheme to maintain dark areas within the Proposed Development during construction.
- 7.8.8 Additional habitat enhancement/creation, which will include grassland and woodland to connect with retained commuting features, such as ditches and hedgerows, will aim to enhance green corridors through the Solar Development Site, with the southern half of Solar Development 1 also proposed for habitat enhancement/creation rather than solar infrastructure, as detailed in the oLEMP [EN0110012/APP/LVS/07.05]. This will act to improve the Solar Development Site for otter post development. Therefore, it is considered that the Proposed Development will not result in any LSEs on the otter population present at the designated site. As such, this impact pathway is screened out of further assessment.

Humber Estuary SAC and Ramsar

- 7.8.9 The dune slacks at Saltfleetby-Theddlethorpe at the southern extremity of the Humber Estuary Ramsar is designated for breeding natterjack toad. There are no habitats present within or immediately adjacent to the Order Limits that would support natterjack toad, and as outlined above, air and water pollution affecting the designated site as a result of the Proposed Development has been screened out. As such, there will be no degradation of habitats that support the population of natterjack toad present at the designated site, and the population of natterjack toad will not be present within the Order Limits.
- 7.8.10 The Ramsar and SAC is also designated for grey seal, specifically where grey seal come ashore at the designated site in autumn to form breeding colonies on the sandy shores of the south bank at Donna Nook. This area is located approximately 85 km south-east of the Order Limits, with the designated site in general located approximately 13 km south-east of the Order Limits at its closest point. Furthermore, and as outlined above, air and water pollution affecting the designated site as a result of the Proposed Development has been screened out, and the Order Limits do not provide any suitable breeding habitat for grey seal. As such, there will be no degradation of habitats that support the breeding

population of grey seal present at the designated site as a result of development and breeding grey seal will not be present within the Order Limits.

- 7.8.11 Grey seal will largely remain in coastal areas, as outlined above at Donna Nook, which is far removed from the Order Limits. However, the species may very occasionally use the River Ouse to commute, with the Cable Route Corridor crossing the River Ouse at one point. This crossing point is located approximately 24 km upstream of the westerly extent of the Humber Estuary SAC and Ramsar. At this location the River Ouse will be crossed via trenchless techniques (to be controlled via embedded mitigation included in the oCEMP), which will leave the river and surrounding habitat unaffected by the Proposed Development. More importantly however, as grey seal will largely remain at the coast, it is unlikely the species will be present at the cable crossing point (24 km upstream of Humber Estuary SAC and Ramsar and 110 m upstream of Donna Nook), and the feature designated at the SAC and Ramsar (breeding colony) will remain unaffected. As such, this impact pathway is screened out of further assessment.

7.9 Harm, disturbance or displacement of qualifying fauna (operation)

Lower Derwent Valley SAC and Ramsar, River Derwent SAC, and Humber Estuary SAC and Ramsar

- 7.9.1 Impacts during the operation of the Proposed Development are anticipated to be restricted to maintenance activities, which will be of low frequency and require a low number of people/vehicles entering the Solar Development Sites. The only time maintenance activity would increase within the Solar Development Sites would be during the replacement of panels, batteries/Conversion Units, transformers and switchgear, which would occur approximately every 40 years, 10 to 15 years, 20+ years and 20+ years respectively. The effects during this replacement on qualifying features of the designated sites, pursuant to measures included in the oOEMP [EN0110012/APP/LVS/07.03], are not anticipated to be any worse, or would be less than during construction, during which negligible impacts on qualifying species were concluded (Section 7.8).
- 7.9.2 As per the oOEMP [EN0110012/APP/LVS/07.02], during operation only demand responsive motion sense lights will be used to reduce the lighting impacts resulting from the Proposed Development. A sensitive lighting strategy will also be implemented during replacement campaigns. The provision of a detailed OEMP to be prepared substantially in accordance with the oOEMP is secured via DCO Application Requirement.
- 7.9.3 As the cable within the Cable Route Corridor will be laid underground, there are no anticipated operational phase impacts as any required maintenance, while very unlikely, will only be on a small and temporary scale.
- 7.9.4 In light of the above, as well as the distance between a number of the designated sites and the Proposed Development, and as there will be no increased visitor pressure at the designated sites due to the type of development (non-residential),

no LSEs on the qualifying habitats and species (otter, natterjack toad, wetland invertebrates, and grey seal) of the designated sites during the operational phase of the Proposed Development are anticipated, and this pathway is therefore screened out of further assessment.

7.10 In-Combination assessment (screening)

- 7.10.1 Impact pathways that have been screened out at Stage 1 of the sHRA due to the absence of credible pathway for the Proposed Development alone are set out in Table 7-1 and are not considered to give rise to in-combination effects with other developments and are therefore excluded from further consideration hereafter.
- 7.10.2 In-combination pathways relating to loss of FLL, disturbance/displacement, potential glint and glare effects for ornithological and fish species, EMF effects on fish and changes in water quality within FLL for fish species are therefore taken forwards to AA (Stage 2).

7.11 Screening conclusion

- 7.11.1 The Proposed Development is not directly connected with or necessary to the management of any European site. A screening assessment has therefore been undertaken to determine the potential for LSEs on European sites alone.
- 7.11.2 Based on the evidence of qualifying species presence and the potential for indirect impacts, it has been concluded that the potential for LSEs exists upon qualifying features at four European sites. These sites and qualifying interests have been scoped in for AA (Section 8) are listed below:
 - 1) Humber Estuary SAC
 - 2) Humber Estuary SPA/Ramsar; and
 - 3) Lower Derwent Valley SPA
- 7.11.3 LSE cannot be ruled out for the following pathways:
 - 1) Habitat Loss (Loss of FLL; bird species), both short (construction- 24 to 36 months) and long-term (operational- 60 years);
 - 2) Disturbance and Displacement of qualifying species and those that form part of the waterbird assemblage;
 - 3) Potential disruption of bird flight paths due to glint and glare (precautionary approach);
 - 4) Changes in water quality within FLL(construction);
 - 5) Harm, disturbance or displacement of qualifying fish species in FLL through Electromagnetic Fields (EMF) effects (operational); and
 - 6) Harm, disturbance or displacement of qualifying fish species in FLL(Construction);
- 7.11.4 The above potential impacts are therefore carried through to Appropriate Assessment.

Table 7-1 Conclusion of Screening Stage

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
Skipwith Common SAC	Air Quality (Construction Dust & Traffic Emissions)	Northern Atlantic wet heaths with <i>Erica tetralix</i> and European dry heaths	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); European site approximately 115 m north of Highways Improvement Area at closest point. Construction traffic is below IAQM and NEA001 thresholds.
	Water Quality / Pollution Pathways	Northern Atlantic wet heaths with <i>Erica tetralix</i> and European dry heaths	No	Screened Out	As the SAC is upgradient of the Order Limits there will not be any surface water or groundwater pathway for water contamination of the designated site as a result the direction of water flow.
Lower Derwent Valley SPA/Ramsar	Air Quality (Construction Dust & Traffic Emissions)	All qualifying bird features & supporting habitats	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); nearest European site >3 km away. FLL is not dust-sensitive habitat. Construction traffic is below IAQM and NEA001 thresholds.
	Water Quality / Pollution Pathways	Hydrology-dependent qualifying features	No	Screened Out	No surface water or groundwater pathway to European sites. Pollution risks are local only.
	Loss or Degradation of Functionally Linked Land (FLL)	Qualifying & assemblage species including lapwing, golden plover, greylag goose, teal, wigeon etc.	Yes	Screened In	Entire Order Limits is considered functionally linked, particularly within Solar Sites 1, 4 & 8. Birds exceed 1% thresholds. Construction & operational phases create temporary and long-term FLL loss. Effects cannot be excluded at screening.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
	Disturbance / Displacement (noise, visual, people, lighting)	All FLL-using SPA species	Yes	Screened In	Construction activity may disturb foraging/roosting birds. Operational disturbance (maintenance and recreational) low but cannot be ruled out. Decommissioning similar to construction, although is not fully defined based on the 60-year operational lifespan.
	Recreational Disturbance (PRoW changes)	Non-breeding qualifying species using FLL	Yes	Screened In	PRoW/Permissive path diversions and potential increases in access could alter disturbance patterns.
	Glint & Glare (flightpath disruption)	Qualifying species using airspace over or near FLL	Yes	Screened In	Although evidence of bird effects is limited, precautionary principle applies. Potential changes to flight behaviour cannot be excluded at this stage.
Lower Derwent Valley SAC/Ramsar	Air Quality (Construction Dust & Traffic Emissions)	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) and Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) and traditionally managed species-rich alluvial flood meadow habitat	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); European site approximately 2.5 km east of Solar Development Site 1 at closest point. Construction traffic is below IAQM and NEA001 thresholds.
	Water Quality / Pollution Pathways	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>) and Alluvial forests with <i>Alnus</i>	No	Screened Out	No surface water or groundwater pathway to European sites. Pollution risks are local only.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
		glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) and traditionally managed species-rich alluvial flood meadow habitat			
	Harm, disturbance or displacement	Otter, and wetland invertebrate assemblage			The otter population within the SAC will favour habitats within the SAC, with no otter field signs recorded within Solar Development Site 1 during surveys. The features of importance will be retained and buffered, where practicable, and habitat creation will improve Solar Development Site 1 for otter. The oCEMP will protect otter and other terrestrial mammals during the construction phase of the Proposed Development pursuant to the measures that have been developed for the Proposed Development as a whole. There will be no degradation of habitats that support the assemblage of wetland invertebrates present at the designated site. Order Limits do not present important habitat for such an assemblage of wetland invertebrates.
Humber Estuary SPA/Ramsar	Air Quality (Construction Dust & Traffic Emissions)	All qualifying bird features & supporting habitats	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); nearest European site >3 km away. FLL is not dust-sensitive habitat (sub

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
					optimal arable). Construction traffic is below IAQM and NEA001 thresholds.
	Water Quality / Pollution Pathways	Hydrology-dependent qualifying features	No	Screened Out	No surface water or groundwater pathway to European sites. Pollution risks are local only.
	Loss or Degradation of Functionally Linked Land (FLL)	Qualifying & assemblage species including lapwing, golden plover, greylag goose, teal, wigeon etc.	Yes	Screened In	Entire Order Limits is considered functionally linked, particularly within Solar Sites 1, 4 & 8. Birds exceed 1% thresholds. Construction & operational phases create temporary and long-term FLL loss. Effects cannot be excluded at screening.
	Disturbance / Displacement (noise, visual, people, lighting)	All FLL-using SPA species	Yes	Screened In	Construction activity may disturb foraging/roosting birds. Operational disturbance (maintenance and recreational) low but cannot be ruled out. Decommissioning similar to construction, although is not fully defined based on the 60-year operational lifespan. Operational disturbance including maintenance and recreational pressure.
	Recreational Disturbance (PRoW changes)	Non-breeding qualifying species using FLL	Yes	Screened In	PRoW/Permissive path diversions and potential increases in access could alter disturbance patterns.
	Glint & Glare (flightpath disruption)	Qualifying species using airspace over or near FLL	Yes	Screened In	Although evidence of bird effects is limited, precautionary principle applies. Potential changes to flight behaviour cannot be excluded at this stage.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
Thorne & Hatfield Moors SPA	Loss or Degradation of Functionally Linked Land (FLL)	Nightjar	No	Screened Out	18 km separation, no nightjar records for over 10 years, no suitable habitat within the Order Limits and no FLL. NE agreed site can be scoped out. This screening applies to all impact pathways.
River Derwent SAC	Changes to water quality within FLL	Sea and river lamprey, bullhead	No	Screened Out	There is no FLL between the Proposed Development and the River Derwent SAC. Lamprey migrating towards the River Derwent SAC would not pass through or be influenced by the stretch of the River Ouse adjacent to the Proposed Development, and bullhead habitat is confined to the upper River Derwent with no functional linkage to the Cable Route Corridor. Consequently, there are no credible impact pathways and no LSEs on the qualifying features of the River Derwent SAC.
	Harm, disturbance or displacement of qualifying fish species in FLL	Sea and river lamprey, bullhead	No	Screened Out	
	Harm, disturbance or displacement of qualifying fish species in FLL through EMF effects	Sea and river lamprey, bullhead	No	Screened Out	
	Air Quality (Construction Dust & Traffic Emissions)	Water courses of plain to montane levels with the Ranunculus fluitans and Callitriche-Batrachium vegetation	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); European site approximately 3 km east of the Order Limits at closest point. Construction traffic is below IAQM and NEA001 thresholds.
	Water Quality / Pollution Pathways	Water courses of plain to montane levels with the Ranunculus fluitans and Callitriche-Batrachium vegetation	No	Screened Out	No surface water or groundwater pathway to European sites. Pollution risks are local only.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
	Harm, disturbance or displacement	Otter	No	Screened Out	The otter population within the SAC will favour habitats within the SAC with no otter field signs recorded within Solar Development Site 1 during 2025 surveys. The features of importance will be retained and buffered, where practicable through development, and habitat creation will improve Solar Development Site 1 for otter. The oCEMP will protect otter and other terrestrial mammals during the contrition phase of the Proposed Development pursuant to the measures that have been developed for the Proposed Development as a whole.
Humber Estuary SAC	Changes to water quality within FLL	Sea and river lamprey	Yes	Screened In	The River Ouse within the Cable Route Corridor is considered as FLL to the Humber Estuary SAC and supports migration of river and sea lamprey. Construction activities, particularly HDD, present risks of pollution, sediment mobilisation, or bentonite frac-out that could degrade water quality, disrupt navigation cues, or affect lamprey habitats. Although HDD locations lie outside the SAC boundary and separation distance reduces the likelihood of direct impacts within the SAC, FLL upstream provide important migratory routes and juvenile habitat. Effects cannot be excluded at screening

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
	Harm, disturbance or displacement of qualifying fish species within FLL	Sea and river lamprey	Yes	Screened In	The River Ouse within the Cable Route Corridor is within FLL to the Humber Estuary SAC and serves as a recognised migration route for sea and river lamprey. While HDD beneath the River Ouse avoids direct in-channel works, construction may still generate localised noise and vibration, with potential to disturb lamprey during critical life stages and cause short-term displacement. Although no disturbance will occur within designated sites, these factors could delay or disrupt spawning migration and recruitment. Effects cannot be excluded at screening
	Harm, disturbance or displacement of qualifying species within FLL through EMF effects	Sea and river lamprey	Yes	Screened In	The River Ouse within the Cable Route Corridor is within FLL to the Humber Estuary SAC and serves as a recognised migration route for sea and river lamprey. Underground electricity cabling under rivers and watercourses can have a detrimental impact on fish, as electric cables create magnetic fields. Many migratory fish, such as salmon and eels, use the Earth's magnetic field for navigation. EMFs from electric cables can interfere with fish in numerous ways, such as magnetoreception disruption (EMFs interfering with migration routes), behavioural changes and physiological stress. Whilst evidence in the scientific literature is limited, there is potential for EMFs to affect the development of

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
					fish eggs and juvenile fish. Effects cannot be excluded at screening
	Air Quality (Construction Dust & Traffic Emissions)	▪ Estuaries (Primary reason for site selection); ▪ Mudflats and sandflats not covered by seawater at low tide; ▪ Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>); ▪ <i>Salicornia</i> and other annuals colonising mud and sand; ▪ Coastal lagoons; ▪ Sandbanks slightly covered by sea water all the time; ▪ Embryonic shifting dunes; ▪ Shifting dunes with <i>Ammophila arenaria</i> ("white dunes"); ▪ Fixed dunes with herbaceous vegetation ("grey dunes"); and ▪ Dunes with <i>Hippophae rhamnoides</i>;	No	Screened Out	Dust deposition only relevant within 50 m (IAQM 2016); European site approximately 13.7 km south-east of Order Limits at closest point. Construction traffic is below IAQM and NEA001 thresholds.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
		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.			
	Water Quality / Pollution Pathways	- Estuaries (Primary reason for site selection); - Mudflats and sandflats not covered by seawater at low tide; - Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>); <i>Salicornia</i> and other annuals colonising mud and sand; - Coastal lagoons; - Sandbanks slightly covered by sea water all the time; - Embryonic shifting dunes;	No	Screened Out	No surface water or groundwater pathway to European sites. Pollution risks are local only.

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
		- Shifting dunes with <i>Ammophila arenaria</i> ("white dunes"); - Fixed dunes with herbaceous vegetation ("grey dunes"); and - Dunes with <i>Hippophae rhamnoides</i>; - 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.			
	Harm, disturbance or displacement of fauna	Grey seal, natterjack toad	No	Screened Out	There are no habitats present within or immediately adjacent to the Order Limits that would support natterjack toad, and there will be no degradation of habitats within the SAC that support the population of natterjack toad as a result of the Proposed Development. There are no habitats present within or immediately adjacent to the Order Limits that would support breeding grey seal, and there will be no degradation of habitats within the

European cite(s)	Impact pathway	Qualifying features / components	Potential for impact?	Stage 1 Screening outcome	Justification
					SAC that support the population of breeding grey seal as a result of the Proposed Development. Grey seal may occasionally use the River Ouse within the Cable Route Corridor to commute. However, this feature will be crossed via trenchless techniques, which will leave the river and surrounding habitat unaffected by the Proposed Development. Any disturbance on grey seal as a result of the trenchless techniques used including possible frac-out of bentonite, is also deemed to be negligible due to the restricted area and temporary nature of impact, mobile nature of the species and distance to the SAC/Ramsar boundary.

8 Appropriate assessment (Stage 2)

Introduction

- 8.1.1 This section provides the AA of the potential effects of the Proposed Development on the qualifying features of the Lower Derwent Valley (LDV) SPA/Ramsar, the Humber Estuary (HE) SPA/Ramsar/SAC, following the identification of LSEs at Stage 1 in relation to:
- 1) Loss or degradation of FLL (ornithology);
 - 2) Disturbance and displacement of qualifying features and those part of the wider bird assemblage;
 - 3) Potential disruption of bird flightpaths (glint and glare);
 - 4) Changes to water quality within FLL for fish species (construction);
 - 5) Harm, disturbance or displacement of qualifying fish species within FLL (Construction); and
 - 6) Harm, disturbance or displacement of qualifying fish species within FLL through EMF effects (Operational)
- 8.1.2 The AA considers whether, with the implementation of secured mitigation, the Proposed Development will lead to an adverse effect on site integrity (AEOI) in view of the conservation objectives of the corresponding European sites.

8.2 Appropriate Assessment - Ornithology

Baseline Utilisation of the Order Limits by SPA/Ramsar Qualifying Features and those part of the wider waterbird assemblage

- 8.2.1 Baseline ornithological surveys undertaken between September 2024 and September 2025 confirm regular use of land within Solar Development Sites 1, 4 and 8 by non-breeding qualifying species, with several species exceeding the 1% population threshold for the LDV and Humber Estuary SPA/Ramsar designations, which fulfil the broad Natural England criteria of FLL.
- 8.2.2 Solar Development Sites 2, 3 and 6/7 did not meet the NE criteria of FLL.
- 8.2.3 In addition, qualifying species were recorded utilising land across the wider Order Limits throughout the non-breeding period for foraging and loafing purposes. As a precautionary approach, the Order Limits for the Solar Development Sites collectively is considered to meet Natural England's broad criteria of FLL as part of this sHRA. Habitat mitigation has therefore been developed at a whole-site scale where long-term land loss is anticipated (i.e. all Solar Development Sites) to provide functional replacement for areas subject to long-term loss.
- 8.2.4 Species exceeding or meeting 1% population thresholds include:

- 1) Lapwing (Assemblage Species (AS)) – LVD and HE)
- 2) Golden plover (Qualifying Species (QF)) – LDV and HE)
- 3) Greylag goose (AS -LDV and HE)
- 4) Teal (AS – LDV and HE)
- 5) Wigeon (QF-LDV)
- 6) Mallard (AS- LDV and HE)
- 7) Gadwall (QF/AS- LDV)
- 8) Shelduck (QF- HE)
- 9) Curlew (AS- HE)
- 10) Little egret (AS- HE)
- 11) Oystercatcher (AS-HE)

8.2.5 No designated SPA or Ramsar land falls within the Order Limits. However, land within the Order Limits (Solar Development Sites) meets the Natural England's broad criteria of FLL as it supports foraging, roosting and loafing [habitat used by qualifying features/species](#) and ~~birds that form part of the wider waterbird assemblage of assemblages associated with the~~ Lower Derwent Valley and the Humber Estuary SPA and Ramsar site ~~(equal sites. .~~ [These species are known to travel considerable distances during the non-breeding period. The non-breeding ranges vary significantly, for instance greylag goose core foraging range varies between 15-20km \(Ref 30\), golden plover and lapwing vary between 5-12km \(Ref 31\), dabbling ducks including teal, wigeon and mallard typically move within 1-2km, however have been recorded moving up to 48 km \(Ref 32 or greater than\). These variations in range largely reflect differences in the resource requirements of each species, as well as habitat availability. Furthermore, accurately defining movement patterns for the majority of species can be challenging. For instance, during the non-breeding season, curlew are predominantly coastal birds but are known to move inland to arable land, typically within 3.5 km \(Ref 33\) 1% 5-year monthly threshold for either European site\). However, there are also records from within the Order Limits which indicate that movements can occur well beyond that distance.](#)

8.2.6 In the absence of mitigation and due to the spatial separation of qualifying species, the construction, operation and decommissioning phases of the Proposed Development would result in short-term (construction phase); and long-term impacts (i.e. up to 65 years; operational phase) through the loss of FLL utilised by qualifying features and birds' part of the wider waterbird assemblage. However, long-term impacts are limited to the Solar Development Sites only. The construction of the Cable Route Corridor is classed as short-term and reversible.

8.2.7 The Proposed Development will also give rise to disturbance through light, noise, vibration and visual intrusion during the construction, operational and decommissioning periods and through the continuation of unmanaged public access through PRoW and permissive paths.

- 8.2.8 In the absence of the embedded mitigation, the Proposed Development could result in a net loss of functional foraging habitat and would therefore lead to an Adverse Effect on Integrity (AEOI).
- 8.2.9 The following section sets out the mitigation measures included within the design of the Proposed Development (embedded measures) An assessment of the effects on site integrity, in view of the conservation objectives of the European sites and taking these secured measures into account, is then undertaken.

Mitigation assessment

- 8.2.10 This section evaluates whether the mitigation measures secured through the DCO Application including the creation, enhancement and long-term management of the BMA are sufficient to avoid an adverse effect on the integrity of the Lower Derwent Valley SPA/Ramsar and the Humber Estuary SPA/Ramsar, in view of their Conservation Objectives.
- 8.2.11 Potential measures for the impacts identified, include:
- 1) Replacement and habitat betterment of FLL;
 - 2) Measures to prevent disturbance and displacement; and
 - 3) Measures to avoid disruption of flightpaths.
- 8.2.12 All mitigation measures referred to below are secured through the Outline Bird Mitigation Management Plan [EN0110012/APP/LVS/07.19], oCEMP [EN0110012/APP/LVS/07.02] and associated DCO Application Requirements.

Mitigation of FLL loss and FFL replacement (ornithology)

Location of the Bird Mitigation Area

- 8.2.13 The BMA has been strategically placed within the southern extent of Solar Development Site 1 due to its close proximity to the Lower Derwent Valley SPA and provides approximately 65.7 ha of secured land to be managed for the benefit of non-breeding SPA/Ramsar qualifying species and the wider waterbird assemblage, and which is embedded in the Proposed Development design.
- 8.2.14 The majority of waterbird species (dabbling ducks, waders, geese and little egret) were recorded as present within Solar Development Site 1, which further evidences its suitability, particularly in distance to the Lower Derwent Valley SPA and Ramsar site. In particular lapwing and golden plover were most abundant, whereas goose and duck species were higher in density within Solar Development Site which is considered to be largely driven by the River Aire and floodplain which is located outside of the Order Limits (also considered in the overall assessment). Given the documented movements and broad travelling ranges of these species associated with the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites (paragraph 8.2.5), the BMA is considered to be functionally accessible by all species recorded.

Size and Justification of the Bird Mitigation Area

~~8.2.14~~8.2.15 BDCs have been undertaken to assist in determining the extent of the Bird Mitigation Area (BMA) required to ensure the integrity of the European sites are maintained. The BDCs account for all species (where literature to support exists; greylag goose, lapwing and golden plover) recorded within all of the Solar Development Sites Order Limits, including maximum peak counts recorded in adjacent fields outside of the Solar Development Site boundaries.

~~8.2.15~~8.2.16 The full BDCs are presented in Annex A.4. The results of BDCs should be read as a broad indicator of scale only, because:

- 1) They do not consider habitat quality (it assumes like for like without habitat betterment);
- 2) They do not consider the effects of habitat uplift and (or) adaptive management and monitoring; and
- 3) published carrying-capacity metrics are available for only a limited subset of species (lapwing, golden plover and greylag goose).

~~8.2.16~~8.2.17 Further to this, there is no literature which supports a metric to calculate the carrying capacity of hydrological inputs such as the implementation of scrapes and backwater creation. However, the BMA is intended to provide higher quality habitat through pasture management and hydrological inputs and is to be of benefit to all species under the SPA/Ramsar citations, as well as those considered as part of the wider waterbird assemblage (not limited to).

~~8.2.17~~8.2.18 BDCs were derived from one year of field surveys using a precautionary approach (Annex A.4 and should be read in conjunction) and include the application of quantitative buffer multipliers to account for inter-annual variability. Buffer tiers (x1.25, x1.5 and x2.0) were informed by coefficients of variation derived from five years of WeBS counts (2019–2024) for the Lower Derwent Valley SPA (Annex A.4). Use of SPA WeBS coefficients is intentionally precautionary, as the SPA supports substantially higher and more variable numbers than the Order Limits; applying these CVs therefore represents a worst-case scenario rather than a site-specific estimate. Where WeBS data were unavailable or insufficient for a given month, a default precautionary buffer was applied and to enable a further precautionary uplift. The buffers applied are not to inflate but are applied to account for uncertainty and were scaled according to monthly coefficients of variation on long-term (5 years) SPA WeBS data, ensuring that higher uplifts were applied where data indicate substantial fluctuation and a default uplift is given on months there are absences. The tiered approach provides a precautionary yet proportionate adjustment, particularly given that the land lies well outside the SPA boundary and comprises sub-optimal habitat. The coefficient variance-based buffer addresses uncertainty and peak-miss risk and it does not attempt to model a longer-term upward shift in the baseline.

~~8.2.18~~8.2.19 The buffered BDC outputs indicate a minimum requirement of 30.5 ha when combining lapwing and golden plover as “plover-days” (reflecting overlapping habitat use) and adding greylag goose days (Table 8-1). The proposed BMA

delivers approximately 61 ha of mitigation habitat available to birds (and approximately 65.7 ha when the 50 m offset strip is excluded from the habitat area calculation), thereby providing substantial headroom above the buffered requirement. The unbuffered BDC outputs indicate a smaller requirement (e.g. c. 19.9 ha for all species considered prior to variability adjustment), demonstrating that the application of buffers materially increases precaution, and that the BMA remains well in excess of both unbuffered and buffered estimates. It can therefore be reasonably concluded that the scale of the BMA is more than adequate to support at least the established levels of use by SPA qualifying species.

Table 8-1 Bird Day calculations based on supporting literature for golden plover, lapwing and greylag goose

Species	Bird-days	Bird days supported by literature	Ha (with applied buffers based on WeBS data)
Lapwing	37397	1000	37.397
Golden plover	12573	1560	8.059
Lapwing and golden plover combined "plover days"	49970	2560	19.519
Greylag goose	22033.5	2000	11.016
Total ha required (Lapwing and Golden plover combined and Greylag)			<u>30.5</u>

Frequency and persistence to inform BDCs

8.2.198.2.20 To supplement the BDCs and address Natural England's requests for evidence on frequency of use (see Annex A.4; UDS-A015616), a review of monthly survey data was undertaken for lapwing, golden plover and greylag goose (where literature to support exists) across the non-breeding period (October–April; Annex A.1 and A.2). This analysis draws on all survey visits undertaken within each month and presents minimum, maximum and mean counts per visit, alongside the proportion of visits during which each species was recorded. Zero counts represent confirmed absence, as all sites were visited on each survey occasion.

8.2.208.2.21 Across the Solar Development (long-term land take) Order Limits and each month, the results demonstrate a clear pattern of episodic use, characterised by occasional high counts with frequent low counts and absences. For instance, both lapwing and golden plover reach maximum counts in specific months, particularly October, November and January, but were recorded 33-56% across the Order Limits visits across the six discrete Solar Development Sites.

8.2.218.2.22 The trends of species presence and abundance confirm that the Order Limits as a whole does not sustain large and continuous numbers of prolonged daily use, reinforcing the precautionary nature of the BDCs, which conservatively assume peak abundance throughout each month, including applied buffers across the entire months, which are suited for the Lower Derwent Valley SPA

which is known as an established site that supports very high counts of species daily. This assumption over-represents actual recorded use.

~~8.2.22~~8.2.23 The same exercise was repeated for Solar Development Site 1 in isolation (Appendix A.2), where the BMA will be located to ensure localised patterns of activity do not indicate sustained, consistent high level of use and to assess the resource availability.

~~8.2.23~~8.2.24 For lapwing, although peak counts at Solar Development Site 1 reached up to 234 individuals in October and 212 individuals in January, mean counts per visit at Solar Development Site 1 were substantially lower (12-63 birds), or there was just one sizeable, concentrated flock during the survey programme. In several months, Solar Development Site 1 recorded low single-digit counts on successive visits, indicating that large flocks were short-lived and transitory rather than occupying the site continuously. Golden plover followed a similar trend, where mean counts were substantially lower than maximum peak counts (mean counts largely less than 5 birds, with one peak mean of 28.7). These numbers are well below the magnitudes associated in the cited examples (Appendix A.4; Evaluation of Bird Usage Variability and Justification for One-Year Survey Effort) with wide-ranging behaviour that led to 10 to 30X buffers, namely through higher and regular use by many hundreds of birds (i.e. East Yorkshire Solar Farm contained peak mean counts of 264 pink-footed goose and 218.5 golden plover (Ref 23) and (or) substantial goose assemblages present. It is acknowledged that one season cannot fully define full inter-annual variability. This uncertainty is addressed through, cropping and hydrological data, alongside the WeBS-derived buffer multipliers applied to the BDCs and habitat quality that is to be secured within the BMA (8.2.33 onwards).

~~8.2.24~~8.2.25 The pattern of utilisation across Solar Development Site 1 are characteristic of non-breeding waders exploiting foraging opportunities driven by weather, hydrology and cropping conditions within the locale, rather than sustained reliance on a defined area with optimal conditions (like Lower Derwent Valley SPA), which also explains the broad utilisation and non-uniform nature of the species distribution recorded within Solar Development Site 1. Importantly, the frequency of use evidence confirms that extended daily use by large numbers of birds did not occur at Solar Development Site 1, despite the presence of occasional peak flocks, this was not prolonged. Further to this, greylag goose records were also extremely low, which suggests that the area is not part of a wider core network of FLL which supports geese.

~~8.2.25~~8.2.26 This additional analysis confirms that the BMA in its current condition does not support sustained high abundances of bird species (but it does support them) over extended periods of time and the BDCs and applied buffers represent a precautionary measure upper estimate of demand without any habitat enhancement. When combined with empirically derived inter-annual variability buffers reflecting SPA conditions and the provision of higher-quality wet features and botanically diverse and managed pasture which will be monitored and managed, the BMA is considered sufficient to maintain functional foraging resources for qualifying species without risk of resource limitation.

Alternative mitigation scenario: Managed Grassland only

~~8.2.26~~8.2.27 In the absence of shallow scrapes and enhanced wet features, the BMA would comprise approximately 60 ha (65.7 ha without the 50m buffer) of managed grassland to maintain a short, open sward suitable for non-breeding golden plover, lapwing and greylag goose (but also not limited to). Managed grassland of this type represents the primary foraging resource used by these species during the non-breeding period.

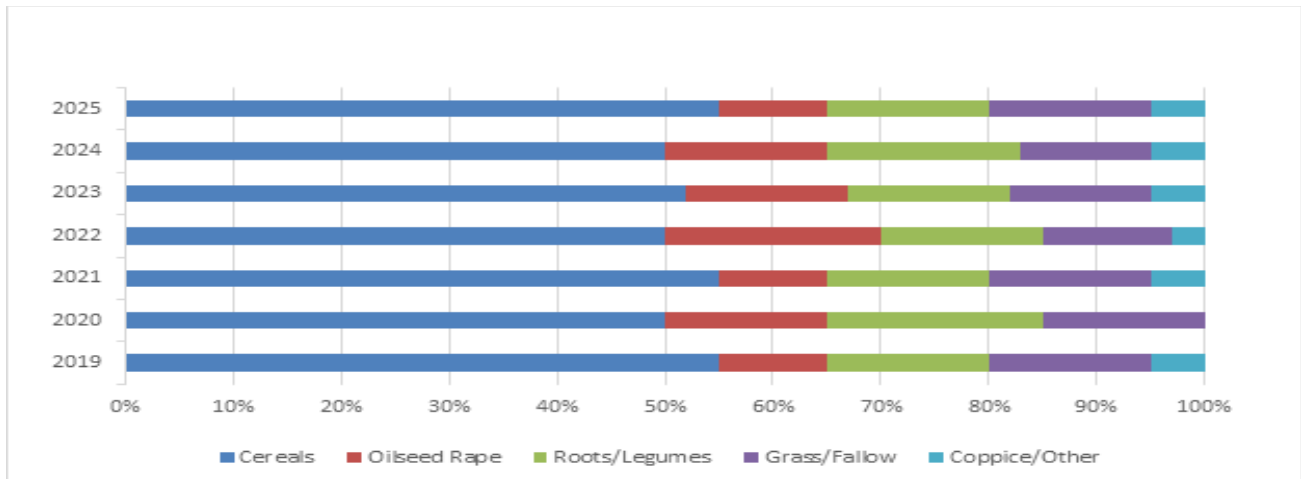
~~8.2.27~~8.2.28 The BDCs are based on a like-for-like comparison with the existing low-grade arable land and do not account for any habitat quality enhancement. In addition, the calculations adopt a precautionary approach by assuming that peak daily counts are sustained throughout each assessed month and by applying additional buffers. The frequency-of-use analysis demonstrates that these peak counts are not recorded on a daily basis, with use characterised by episodic peaks interspersed with low counts and absences.

~~8.2.28~~8.2.29 Accordingly, the combined application of sustained peak count assumptions and precautionary buffers provides substantial headroom within the BDCs. Although hydrological conditions are recognised as a key driver influencing the distribution and abundance of non-breeding waterbirds (8.2.32), the calculations do not rely on the presence of hydrological enhancements. On this basis, the provision of approximately 65.7 ha exceeds the precautionary requirement of 30.5 ha even under a conservative scenario where no habitat quality uplift is assumed. The inclusion of shallow scrapes, seasonal wet features and enhanced ditch margins therefore represents an additional precautionary measure, increasing habitat diversity, resilience and carrying capacity per unit area, rather than being required to achieve baseline functional equivalence. The mitigation strategy therefore avoids reliance on a single habitat mechanism and provides confidence that functional foraging resources will be maintained under a range of environmental and management conditions.

Representativeness of One Year Baseline

~~8.2.29~~8.2.30 In parallel to the BDCs, the crop composition within the survey area has been reviewed to confirm that the habitat types present during the baseline surveys were representative of typical conditions (Plate 8-1). This demonstrates that the crop pattern in the landscape remains broadly consistent between years, and therefore the habitats available to birds and the species and numbers recorded during the field surveys are representative of usual conditions across the past five to six years (2019-2025).

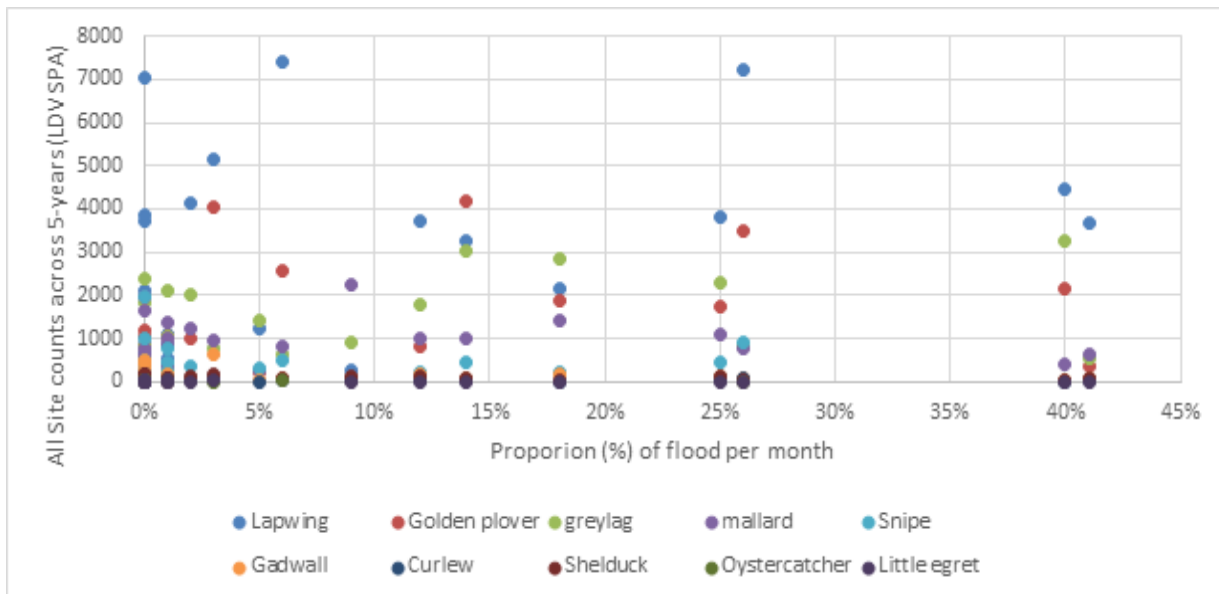
Plate 8-1 Cropping composition at Solar Development Site 1 (2019-2025)



8.2.308.2.31 Hydrological conditions are a key driver of habitat availability for many non-breeding waterbird species, influencing the extent of wet grassland, shallow water and feeding opportunities across the floodplain. To confirm that the baseline survey year was representative of typical conditions, hydrological and flood data for the Lower Derwent Valley SPA (2019–2024) were examined alongside bird count patterns using the field and WeBS Lower Derwent Valley 5-year data.

8.2.318.2.32 This analysis shows that periods with greater floodplain inundation are associated with higher counts of SPA/Ramsar species, including lapwing, golden plover and greylag goose. The BMA has been located with this hydrological context in mind and is designed to increase the availability and reliability of suitable wet features such as retained and enhanced ditches (creation of backwaters), shallow scrapes and areas of seasonal surface water which support these species during wetter periods (Plate 8-2).

Plate 8-2 WeBS bird raw counts per month and year (2019-2025) compared to the proportion (%) flood days per month within the Lower Derwent Valley area



Mitigation measures and the functional outcomes

8.2.328.2.33 The BMA incorporates the following mitigation measures as well as a built-in offset of 50 m. The offset acts as a precautionary buffer designed to reduce the risk of close-range visual and noise disturbance to non-breeding wetland birds and to maintain the open lines of sight and unobstructed flight paths that these species require.

8.2.338.2.34 The entire area equates to approximately 65.7 ha (including 50 m buffer = 61 ha) within Solar Development Site 1. It is also important to note when the BMA will be considered as functional; also note that the following has been accepted by Natural England for a bird mitigation area for another solar scheme. Functional is defined as:

- 1) All operating plant removed out of the BMA;
- 2) The entire BMA is available to support SPA designated bird species of both of the European sites; and
- 3) The BMA is free from disturbance during the non-breeding period.

8.2.348.2.35 The BMA is illustrated in Figure 2.1: Illustrative Site Layout Plans (ES Volume 2) [EN110012/APP/LVS/06.02.02.01] and in the Outline Environmental Masterplan [EN110012/APP/LVS/02.12] and is designed to ensure the delivery of:

- 1) Retention and substantial enhancement of wet features, including ditch realignment, backwaters and seasonal inundation areas, which will increase of muddy edges and providing accessible feeding habitat;

- 2) Creation of a series of shallow scrapes and islands, increasing foraging opportunities and mirror conditions elsewhere in the LDV during flood events as presented in Plate 8-2;
- 3) Grassland with increased botanical diversity and pasture management, improving soil biota and providing consistent, high-value foraging habitat for lapwing, golden plover, waterfowl and associated species;
- 4) Selective internal hedgerow removal and visibility improvements, maintaining open sightlines required by flocking wader and wildfowl species;
- 5) Exclusion of public access, preventing ongoing disturbance from an existing public footpath which intersects the area, securing functional resource availability;
- 6) Installation of agricultural wire stock fencing to align the PRoW to prevent public and dog encroachment into the BMA; and
- 7) Dynamic adaptive management, allowing refinement of hydrology, vegetation, and grazing/ cutting regimes based on monitoring results to ensure Aims and Objectives are met.

~~8.2.35~~8.2.36 The enhanced wetland features, species-rich grassland and open foraging areas provide a higher quality functional replacement of the habitat types used by qualifying features in the baseline i.e. arable land, through hydrology, soil structure and invertebrate productivity betterment within the BMA.

~~8.2.36~~8.2.37 The ecological processes supporting qualifying features (foraging efficiency, flock cohesion, energy input/output) will be maintained or improved by:

- 1) The extent and distribution of habitats supporting the features, through land retention and habitat betterment tailored towards qualifying features and waterbird species, particularly those identified during the baseline, but not limited to;
- 2) The structure and function of those habitats and the supporting processes on which the features rely, through dynamic management; and
- 3) The distribution and abundance of the features outside the designated site, as the BMA will support displaced species such as greylag goose in Solar Development Site 4, which will relocate to the substantially improved habitats within the BMA, thereby maintaining and potentially enhancing overall functional use.

~~8.2.37~~8.2.38 The functional comparison is extended to include monitoring thresholds and adaptive management actions as set out in the oBMAMP [EN0110012/APP/LVS/07.19], ensuring that habitat continues to function and serve as FLL throughout the lifetime of the Proposed Development and providing certainty of outcome for Regulation 63 purposes.

~~8.2.38~~8.2.39 The Natural England NEER012 (2017) evidence review of the impact of solar farms does not provide species-specific information for non-breeding SPA/Ramsar waders and wildfowl, however it concludes that well-designed solar

PV developments present low ecological and ornithological risk, with bird responses typically localised, temporary and reversible. The review highlights that post-construction land management, particularly low-intensity grazing, pesticide-free regimes, increased sward structural diversity and the incorporation of wet features can deliver ecological enhancement relative to arable baselines, and in some circumstances create refuge habitat within intensively farmed landscapes. These findings support the establishment and management proposals for the BMA, which incorporates wetter grassland areas, increased muddy fringes, scrapes, open sightlines and controlled disturbance levels consistent with the habitat requirements of the qualifying assemblage (Table 8-2). While NEER012 is not relied upon as species-specific evidence for SPA/Ramsar populations, it reinforces that the embedded habitat creation and management measures represent established best practice and are expected to maintain or increase functional habitat availability, contributing to the conclusion that the Proposed Development will not adversely affect the integrity of the LDV or Humber Estuary SPA/Ramsar sites.

Table 8-2 Baseline conditions compared to post development conditions

Feature	Current baseline conditions (Within Solar Development Site 1)	BMA (post-mitigation)	Functional outcome for SPA/Ramsar species
Hydrology	Seasonal and rainfall dependant, opportunistic flooding; limited surface water retention.	Managed seasonal inundation, scrapes, controlled ditch realignment and backwaters to exploit seasonal flooding. This will also include 2-year vegetation removal surrounding wet features.	Maintains reliable wet feeding and loafing conditions required to support qualifying features, preventing loss of functional habitat during the non-breeding period for lapwing, golden plover, dabbling ducks: (teal, wigeon, mallard) and will likely increase species diversity.
Habitat Type	Cereals, oilseed rape, silage, chemical use, and crop rotation drive variability	A mosaic of wet and dry grassland, shallow scrapes, botanically diverse pasture which is managed through grazing and cutting (season dependant) and no chemicals	Maintains habitat structure and composition supporting prey availability and foraging access, ensuring continuity of supporting habitat. Beneficial for all species.
Invertebrate Productivity	Likely to be low/differ per annum, due to intensive cultivation/chemical use and unfavourable ditches and the scattered	Increased due to increased wet margins & soil improvement (Ref 24)	Ensures continued foraging efficiency and energy intake, avoiding reductions in carrying capacity. Benefits for: insectivorous species

Feature	Current baseline conditions (Within Solar Development Site 1)	BMA (post-mitigation)	Functional outcome for SPA/Ramsar species
	distribution of species recorded during the baseline.		
Disturbance Levels	PRoW bisects high-use fields and daily farming operations disturbance	Public access excluded, and is diverted to the boundary of the area, and screening in place. Farming practices are also ceased. agricultural wire stock fencing to align the PRoW to prevent public and dog encroachment into the BMA	Maintains low-disturbance conditions, preventing displacement and associated energetic costs Beneficial for: all species
Sightlines / Openness	Interrupted by hedgerows & cropping	Internal hedgerow removal & open, uninterrupted vistas	Maintains and supports flock cohesion & predator visibility Beneficial for: all species
Availability all year round	Unreliable- Dependent on crop rotation per season.	Permanent winter habitat provision	Long-term functional reliability Beneficial for: all flocking species
Adaptive Management	Does not exist	Dynamic refinement of hydrology, vegetation & grazing regimes. Bird surveys	Secures long-term delivery of required ecological function and enables corrective action where necessary Beneficial for: all species

[8.2.398.2.40](#) Furthermore, it is also noted that the habitat enhancement and creation undertaken throughout the Order Limits, as set out in the oLEMP [EN0110012/APP/LVS/07.05], is likely to be beneficial to dabbling ducks and other species including redshank, which will also increase habitat connectivity.

[8.2.408.2.41](#) With the BMA established prior to construction during the non-breeding period and secured for long-term management, the loss of FLL will not result in an Adverse Effect on Integrity (AEoI) of the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites. There is no reasonable scientific doubt that supporting habitat extent, distribution and function will be maintained.

[8.2.418.2.42](#) All measures, mitigation and monitoring will be secured through the final version of the oBMAMP [EN0110012/APP/LVS/07.19].

Hydrological and topographical feasibility

8.2.428.2.43 The following section provides evidence of the feasibility of delivering the wet features described above, noting that these features are not relied upon to achieve baseline functional equivalence

8.2.438.2.44 The BMA is located within the southern portion of Solar Development Site 1. LiDAR and Ordnance surveys mapping indicate that this area is situated within a local topographic low, with elevations of approximately 5 m Above Ordnance Datum (AOD), in contrast of this, the northern area reaches approximately 16 m AOD. Therefore, the topographic contexts indicate that there is a natural gradient and tendency for water to flow towards the southern section. Full details can be found in Appendix 5.1: Agricultural Land Classification [EN110012/APP/LVS/06.03.05.01]

8.2.448.2.45 As stated in Chapter 15: Water Resources and Flood Risk [EN0110012/APP/LVS/06.01.15], the BMA also lies within a network of Internal Drainage Board (IDB), with a number of watercourses and land drains, which indicate that existing managements of drains exist and therefore, provides opportunities for water level management and drainage measures, subject to detailed design.

8.2.458.2.46 Susceptibility to groundwater flooding varies spatially, with the southern part of the Solar Development Site 1 and is identified as having potential for groundwater emergence at the surface. This is consistent with the presence of lower-lying land and supports the conclusion that seasonal water availability is likely within the mitigation area.

8.2.468.2.47 Taken together, the low-lying topography, proximity to managed watercourses, and evidence of groundwater interaction in the BMA provide reasonable scientific confidence that shallow wet features, including scrapes, can be delivered and maintained within the BMA, albeit subject to climatic conditions. While detailed water level management design would be undertaken at a later stage, the available baseline information demonstrates that the location of the BMA is not hydrologically constrained in a way that would preclude the delivery of functional wet grassland habitat, scrapes and enhancement to current ditches.

Conclusion

8.2.478.2.48 With the BMA established prior to construction and secured for long-term management as compliance through lifetime of the Proposed Development will be secured by DCO Application through the oBMAMP [EN0110012/APP/LVS/07.19], the oLEMP and the oOEMP. The loss of FLL will not result in an adverse effect on the integrity of the Lower Derwent Valley or Humber Estuary SPA/Ramsar sites. Based on the precautionary approach adopted using two habitat inputs of pasture management and hydrological enhancement, there is no reasonable scientific doubt that supporting habitat extent, distribution and function will be maintained.

Decommissioning (ornithology)

~~8.2.48~~8.2.49 At the end of the 60-year operational lifespan, all solar infrastructure will be removed, and the land will be returned to the landowner. All habitat management obligations secured through the DCO Application will cease once decommissioning is complete and the land has been restored.

~~8.2.49~~8.2.50 Therefore, reversion to baseline agricultural management does not constitute a project-related loss of habitat, because habitat quality after decommissioning is equivalent to (or better than) the pre-project state.

~~8.2.50~~8.2.51 Under the Habitats Regulations, the AA is only required to consider effects arising from the Proposed Development itself. Effects that occur after the project ceases and the land returns to the landowner's baseline management regime are not project impacts. The decommissioning outcomes include:

- 1) No permanent land take; and
- 2) There will be no permanent reduction in extent, distribution or function of FLL as land is to be restored as was.

~~8.2.51~~8.2.52 The cessation of mitigation after decommissioning simply returns the Order Limits to the original baseline condition.

~~8.2.52~~8.2.53 With restoration of the land to baseline agricultural use and cessation of all project-related activities, the decommissioning phase does not give rise to any permanent or long-term loss of FLL. All potential effects during decommissioning are temporary, mitigated, and cease once land is handed back to the landowner.

~~8.2.53~~8.2.54 There is no reasonable scientific doubt that decommissioning will not result in an AEol of the LDV or Humber Estuary SPA/Ramsar sites.

Mitigation of disturbance and displacement for bird species

~~8.2.54~~8.2.55 Construction, operational and decommissioning activities have the potential to generate noise, vibration and visual disturbance that could temporarily affect qualifying features using FLL within the Order Limits during the construction, operational and decommissioning phases.

Phasing and sequencing (construction, operational and decommissioning)

~~8.2.55~~8.2.56 The BMA will be constructed first and will be constructed outside of the sensitive period, with works undertaken during the breeding season (i.e. during April–August inclusive). Works to the BMA are expected to take approximately 6 months and will be completed prior to the non-breeding period, at which point it will be considered functional. The functionality of the BMA is defined in paragraph 8.2.34.

~~8.2.56~~8.2.57 Construction works within the southern portion of Solar Development Site 1 (up to 250m section; Figure ~~12.4: Predicted Construction Noise (ES Volume 2)~~ [EN0110012/APP/LVS/06.02.12.04]¹: that adjoin the BMA will be limited to

construction activities that do not give rise to noise levels equal to or above 50dB during the non-breeding period. Construction works that are likely to generate noise levels above 50dB will be undertaken during the breeding season only (specifically April–August, inclusive) when qualifying species presence is considered low and not ornithologically meaningful. For instance, the monthly 1% threshold for species such as greylag and lapwing which were recorded as present within Solar Development Site 1 is between 0 to 2.1 for lapwing and 2.3 to 4.1 for greylag goose.

~~8.2.57~~8.2.58 The construction of the southern portion of Solar Development Site 1 being completed during April to August is proposed as a strategic measure to maintain functionality of the BMA during the non-breeding season and to ensure that it is free of any potential disturbance prior to any FLL loss (see paragraph 8.2.74).

~~8.2.58~~8.2.59 The construction of the Cable Route Corridor located within the SSSI Impact Risk Zone (Solar Development Site 1 to Thorpe Willoughby) will be limited to the breeding and passage season only (April–October, inclusive), to enable avoidance of the sensitive non-breeding period. Construction of the Cable Route Corridor located outside of this zone is not limited seasonally due to its temporary impacts and the BMA being functional.

~~8.2.59~~8.2.60 Once the BMA is established and functioning as a higher-capacity refuge of improved habitat quality, construction throughout the Order Limits will not be subject to further seasonal restriction, with the exception of the Cable Route Corridor which lies within the SSSI IRZ (limited to April to October, inclusive) and the southern portion of Solar Development Site 1 (limited to April to August, inclusive), as set out above.

~~8.2.60~~8.2.61 During the operational phase, all maintenance visits requiring solar PV replacement activities within Solar Development Site 1 will be limited to the breeding period (April to August, inclusive) within the southern proportion of the solar array area only. The size of this area is defined in paragraph 8.2.75.

~~8.2.61~~8.2.62 This timing is secured through DCO Application Requirements pursuant to the oCEMP, oOEMP and the oLEMP **[EN0110012/APP/LVS/07.05]**.

~~8.2.62~~8.2.63 The decommissioning phase is likely to follow a similar sequencing approach to that adopted during construction, with the exception of the construction of the BMA, which would not be required, as this will be handed back to the relevant landowner. Seasonal restrictions will be applied, where necessary, to avoid sensitive non-breeding periods for qualifying species which utilise the BMA, with decommissioning activities programmed to minimise disturbance and displacement effects.

~~8.2.63~~8.2.64 Decommissioning activities would be temporary in nature and managed through the oDEMP **[EN0110012/APP/LVS/07.04]**, which commits to appropriate measures to control timing, routing and working methods. On this basis and given that the construction phase represents a reasonable worst-case scenario for disturbance effects, no additional adverse effects on the functionality of the BMA or on qualifying bird species are anticipated during decommissioning.

Noise, vibration and visual disturbance (construction and decommissioning)

~~8.2.64~~8.2.65 The assessment of disturbance effects draws upon noise modelling presented in Chapter 11: Noise and Vibration (ES Volume 1) [EN0110012/APP/LVS/06.01.11] and broadly follows thresholds previously agreed between DCO Application promoters and Natural England on comparable solar NSIP projects (e.g. East Yorkshire Solar Farm HRA, AECOM 2024 (Ref 25)). The construction noise levels (LAeq with no time correction) include temporary construction noise barriers (hoarding) assumed within the noise modelling in accordance with BS 5228. The assessment here also includes the interpretation of bird species distribution within and surrounding the Order Limits. As set out in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [EN0110012/APP/LVS/06.03.11.02], the predicted construction noise levels for the ecological assessment have been derived using the methodologies presented in Chapter 11. To represent a robust worst-case scenario, predicted LAeq,T levels have been calculated without the application of time corrections, thereby representing a realistic maximum construction level.

~~8.2.65~~8.2.66 Noise receptors are located at or immediately adjacent to the Order Limits and therefore represent conservative worst-case locations closest to construction activity, with no time corrections applied- as noted above and discussed with Natural England (20th May 2026). On this basis, the construction noise assessment also provides a reasonable worst-case scenario for the decommissioning phase, which is expected to give rise to similar types of activity but over a temporary, staggered and managed period. Noise levels experienced within agricultural parcels used by qualifying bird species would be equal to or lower than those predicted at these boundary receptors due to distance attenuation, topography, and the absence of fixed activity locations for mobile bird species.

~~8.2.66~~8.2.67 Indicative disturbance screening ranges applied in this AA are:

- 1) Changes of c. 3 dB from baseline are perceptible and warrant consideration;
- 2) Noise levels <55 dB LAeq are generally unlikely to disturb SPA/Ramsar features;
- 3) Low-60s dB: can be associated with reduced foraging / walking away in sporadic contexts
- 4) 55–70 dB LAeq may cause disturbance depending on duration, context and baseline exposure; and
- 5) >70 dB LAeq are likely to be disturbing unless such levels are typical in the baseline environment.

~~8.2.67~~8.2.68 The above values and thresholds are applied as precautionary triggers of further assessment rather than as absolute thresholds. They are also interpreted in the context of site-specific factors including hedgerow and treeline screening,

topography, existing agricultural noise and the distribution, diffuse, transient pattern of qualifying bird usage within the Order Limits that were recorded during the baseline field surveys, together with the embedded noise control measures described within Chapter 11: Noise and Vibration [EN0110012/APP/LVS/06.01.11] and oCEMP [EN0110012/APP/LVS/07.02].

~~8.2.68~~8.2.69 These precautionary disturbance ranges were also interpreted alongside ornithological context including:

- 1) Bird species utilisation and distribution of affected parcels, with most areas supporting diffuse, low-density, and transient assemblages rather than high value, concentrate, focal foraging or roosting areas; and
- 2) Availability of adjacent undisturbed and undeveloped habitat of equivalent quality within short distances, reducing the likelihood of displacement having fitness consequences. Including the BMA and retained areas which were excluded during the design evolution, where a full baseline was collected.

~~8.2.69~~8.2.70 Across the majority of the Order Limits, predicted construction noise increases are averaged ≤ 4 dB compared to the current baseline noise recordings, indicating negligible potential for disturbance. However, localised areas in the Solar Development Sites are predicted to experience changes of +4 to +14 dB based on representative receptor modelling, which may give rise to temporary localised disturbance effects in areas immediately adjacent to construction works (Section 11 of Appendix 11.2 Construction noise and vibration assumptions and results (ES Volume 3) [EN0110012/APP/LVS/06.03.11.02]). Typically, these higher changes occur at locations closest to the construction activity in the Solar Development Sites. Importantly, despite these increases, absolute noise levels remain between 45–63 dB LAeq (largely below 55dB, with limited localised receptors up to 63dB), at which published studies more consistently report marked behavioural responses, noting that some sporadic construction studies report avoidance or reduced foraging above the low-60s dBA, while higher levels (around or above ~70 dB and above) are more commonly associated with displacement/flight responses. It is likely that immediate adjacent parcels to the Order Limits will experience some level of noise impacts, however noise will be continuous and bird species have been considered which lie outside of the Order Limits and have been included in the assessment to form the BMA to account for noisier activities closest to the Order Limits boundaries.

~~8.2.70~~8.2.71 Baseline usage of the Order Limits was interpreted as diffuse and opportunistic. No areas of particularly high value and (or) repeatedly used core foraging or roosting areas were readily defined within the Solar Development Sites (no patterns or consistent repeat use of land parcels), and substantial areas of equivalent habitat remain undeveloped and undisturbed immediately adjacent (e.g. northern extent of Solar Development Site 1, southern extent of Solar Development Site 4, north of the River Aire; outside of the Order Limits) (Figure 3.2 (ES Volume 2) EN0110012/APP/LVS/06.02.03.02]). The uneven utilisation

of the area may be due to the cropping regimes and PRow which currently exist in the area as presented in Plate 8-1.

8.2.718.2.72 Birds temporarily avoiding working areas are therefore able to utilise these undisturbed alternatives (including the BMA) without interruption to supporting ecological processes required to maintain site integrity. However, this is not solely relied upon for this assessment.

8.2.728.2.73 Within Solar Development Site 1 (baseline noise is between 44-54dB), the BMA will be fully established will be completed prior to the non-breeding period, and construction within the southern portion of Solar Development Site 1 (adjacent to and adjoining to the BMA will also be undertaken outside of the non-breeding period. This phasing has been designed strategically to ensure that construction activities generating higher noise levels closest to SPA/Ramsar qualifying bird species occur before non-breeding birds return, thereby preventing noise and visual-related disturbance when birds are present at functionally linked densities i.e. above the 1% threshold.

8.2.738.2.74 Noise modelling indicates that under peak construction conditions, the majority of the BMA will remain below 50 dB LAeq (current baseline of noise pressure is between 44-52 dB). Modelling the worst-case scenario indicates that noise will exceed 60 dB within a narrow zone extending approximately ~~250~~150 m north of the BMA, where construction activities would be closest (Figure 12.4 (ES Volume 2) [EN0110012/APP/LVS/06.02.12.04]). This area, corresponding to the southern portion of Solar Development Site 1, is to be designated as an exclusion zone subject to seasonal working restrictions for any works which generate noise levels equal to or above 50 dB.

8.2.748.2.75 To avoid potential noise exceedances within the BMA, no construction works that generate 50 dB or above will occur within 250 m of the BMA where the solar development adjoins, which forms the southern portion of Solar Development Site 1 during the sensitive period (Figure 12.4 (ES Volume 2) [EN0110012/APP/LVS/06.02.12.04]). 1; A.7) 1). It is important to note that the 250 m buffer is precautionary and extends beyond the modelled noise contours shown in Figure 1, as these contours reach up to 150m for the solar array construction and up to 183m for works within the Cable Route Corridor (located south of Solar Development Site 1).

8.2.76 Details of the construction plant assumed within the noise and vibration assessment are provided in Appendix 11.2: Construction Noise and Vibration Assumptions and Results (ES Volume 3) [EN0110012/APP/LVS/06.03.11.02]. Cconstruction activities within Solar Development Site 1 include the installation of solar photovoltaic (PV) panels, construction of electrical infrastructure, installation of electrical cables, and establishment of construction compounds. Table 1-1 of Appendix 11.2 presents the assumed plant associated with these activities, which would give rise to typical construction noise rather than discrete impulsive events.

8.2.77 Figure 1 (A.7) presents the predicted noise levels associated with key activities, including the installation of solar PV panels (Activity Reference A1), located to the south of Solar Development Site 1, and the construction of electrical cables

and joint bays (Activity Reference A3) within the cable route corridor closest to Solar Development Site 1. The modelled plant associated with solar PV installation includes articulated dump trucks, cranes, generators, mini-piling rigs, cement mixer trucks, dumpers, tracked excavators and hand tools. For electrical cable installation, plant includes tracked and wheeled backhoe loaders, dumpers, telescopic handlers, vibratory rollers, cement mixer lorries and hand tools. As a worst-case scenario, Figure 1 (A.7) shows construction activities occurring at the same time, though this is not necessarily the case in practice. Temporary barriers are assumed which would provide an attenuation of about 5 dB(A) in line with BS5228.

8.2.78 With regard to Horizontal Directional Drilling (HDD), this is a drilling (boring) activity rather than a percussive process, percussive piling is not anticipated to be used within Solar Development Site 1, but if found to be needed it would not be used during the non-breeding bird period and will be constrained to the breeding bird period only (April to August inclusive) as stated in Table 3-10 of the oCEMP [updated alongside this submission]. The associated noise is comparable to other construction activities and is represented as such within the project noise modelling. HDD is not expected to generate impulsive noise events, such as "loud bangs"; accordingly, a worst-case assessment has been undertaken using the LAeq,T metric, rather than LAmix or LApeak. This approach appropriately characterises continuous construction noise without additional time-based corrections (see Figure 1; A.7).

8.2.758.2.79 The above working methods and phasing is aare committed elementelements of the project design and will beare secured throughvia the oCEMP [EN0110012/APP/LVS/07.02] to ensure that construction activities generating elevated noise levels occur before non-breeding birds return at high densities (i.e. above 1% threshold) from September onwards. and the BMA remains free of any disturbance.

8.2.80 Once the BMA and works to the southern portion of Solar Development Site 1 are completed, the southern portion of Solar Development Site 1 will provide additional physical separation, noise attenuation and visual screening during the non-breeding period when works are occurring within the central and northern proportion (area beyond 250 m of the BMA) of Solar Development Site 1. Together, these factors ensure that a low-disturbance refuge is maintained throughout the construction phase, preserving the availability and functionality of supporting habitat for qualifying features within and surrounding Solar Development Site 1 during the non-breeding period. (see Figure 1; A.7). Note that this also extends to areas east, outside of the BMA where peak counts of lapwing (212; Figure 5 of AS-029) were recorded in January which is also visually screened by natural barriers i.e. wooded areas.

8.2.768.2.81 Further to this, maximum peak counts of birds, including those stated above, located outside of the Order Limits were included in the overall BMA BDCs (paragraph 6.2.11) and design and therefore, species potentially impacted from disturbance in the immediate adjacent fields have been captured ensuring the

BMA provides sufficient capacity for birds temporarily displaced from nearby fields.

~~8.2.77~~8.2.82 Within Solar Development Sites 2 (fringed by the A63), 3 (enclosed, small parcels of land, intersected by woodlands and tree lines) and 6/7 (fringed by trainline and roads, and made up of closed small parcels of land), predicted noise changes are averaged ≤ 4.3 dB (current baseline ranges between 47-63 dB). However, noise changes to the closest receptor can range up to 14 dB from the existing baseline, however absolute levels remain below 63 dB.

~~8.2.78~~8.2.83 Solar Development Sites 2, 3 and 6/7 recorded very few species (including qualifying species and those part of the wider waterbird assemblage) within and outside of the Order Limits largely below the 1% threshold which were not considered ornithologically meaningful and did not meet the criteria of FLL, this also includes parcels immediately outside of the boundaries. It is therefore summarised that noise disturbance within this area will not impact the integrity of the Lower Derwent Valley SPA and Ramsar. Baseline noise levels recorded in these areas appear range between 47 dB and 63 dB.

~~8.2.79~~8.2.84 Solar Development Site 4 (baseline noise is between 45-48 dB), noise changes are predicted between 4-14 dB during the construction phase at its closest receptors, it is important to note that areas north and south of the River Aire at Birkin Holme (outside of the Order Limits) supported qualifying species above the 1% threshold (predominantly greylag goose) which were greater than the numbers recorded inside of the Order Limits (up to 400 individuals). This is likely due to the floodplain surrounding the river i.e. higher quality habitat.

~~8.2.80~~8.2.85 This area will remain unaffected by the Proposed Development due to:

- 1) Spatial separation from construction areas, beyond disturbance distances cited in supported literature (Ref 26);
- 2) The existing intervening public highway;
- 3) An existing topographical bund providing natural noise attenuation and visual screening; and
- 4) The established and functioning BMA.

~~8.2.81~~8.2.86 These factors ensure that functionally linked habitat adjacent to the River Aire remains undeveloped and free of disturbance throughout the construction period. Absolute threshold of predicted noise for Solar Development Site 4 does not extend beyond 58 dB.

~~8.2.82~~8.2.87 For Solar Development Site 8 (baseline is between 50-51 dB), the change in noise baseline is between 0-6 dB and species located in adjacent fields will not be impacted from construction disturbance. Absolute predicted noise levels remain below 57 dB.

~~8.2.83~~8.2.88 Given the absence of repeatedly used core foraging or roosting areas within affected parcels, and the availability of adjacent undisturbed habitat of equivalent quality both within and outside of the Order Limits, any short-term displacement associated with construction noise is unlikely to materially interrupt essential

ecological functions such as energy acquisition, roost availability, or movement between functionally linked habitats. On this basis, population-level effects relevant to site integrity can be excluded.

~~8.2.84~~8.2.89 Taken together, the above demonstrates that although some localised increases of up to 14 dB occur at closest receptors, absolute noise levels remain largely below recognised disturbance thresholds (60 dB), higher-value non-breeding habitat (River Aire) remains unaffected, and the BMA provides a secured, enhanced refuge resource which accounts for species recorded within adjacent fields outside of the Order Limits. Sufficient undisturbed and functionally linked habitat would remain available in the absence of the BMA; however, the BMA provides additional resilience and contingency, further reducing any risk of disturbance-related effects. Accordingly, construction noise will not disrupt the supporting ecological processes required to maintain the integrity of the relevant European sites.

~~8.2.85~~8.2.90 Predicted maximum noise levels along the Cable Route Corridor are ≤ 61 dB LAeq during both day and evening/night-time works, primarily associated with HDD works. The majority of peak noise pressure is below 55 dB precautionary trigger and works will be constrained to April–October in the SSSI Impact Risk Zone (Solar Development Site 1 to Thorpe Willoughby), avoiding the highly sensitive non-breeding period (November to March). Where the Cable Route Corridor adjoins the BMA, qualifying species particularly those which exceed the 1% threshold were absent as evidence in Figure 13 in Appendix 12.2 of the Non-Breeding Bird Report (ES Volume 3) **[EN0110012/APP/LVS/06.03.12.02]**.

~~8.2.86~~8.2.91 Pre-construction and dynamic checks by an ECoW during autumn and spring passage periods will be in place during works within the SSSI Impact Risk Zone only and will ensure timing avoids any peak aggregations, preventing disturbance. As the noise modelling underpinning this AA assumes the presence of temporary construction noise barriers, the installation of hoarding in relevant locations is a committed element of the construction methodology. These measures will be secured through the oCEMP **[EN0110012/APP/LVS/07.02]** and oDEMP **[EN0110012/APP/LVS/07.04]** and implemented prior to works commencing in proximity to sensitive ecological receptors, providing both acoustic attenuation and visual screening.

~~8.2.87~~8.2.92 Visual disturbance during construction throughout the Order Limits will also be minimised through retention of existing vegetation, roads and, where appropriate, limited working footprints. Temporary hoarding and screening along construction-facing boundaries will be installed where works occur in proximity to functionally linked habitat, which will be ECoW led and reflecting the assumptions applied within the construction noise modelling. These measures will reduce line-of-sight to construction activity, maintaining low-disturbance conditions for qualifying features, particularly those utilising the BMA and adjacent retained habitat.

~~8.2.88~~8.2.93 These measures are secured through the oCEMP and implemented prior to commencement of works but will also be dynamically adaptable through the oversight of an experienced ECoW.

~~8.2.89~~8.2.94 The decommissioning phase is expected to comprise activities of a similar nature to construction (e.g. plant movement, dismantling and removal of infrastructure) but over a shorter duration, with works undertaken in a phased, temporary and controlled manner. As set out in paragraph 8.2.66, the construction noise assessment therefore represents a reasonable worst-case for decommissioning.

~~8.2.90~~8.2.95 Noise and visual disturbance controls during decommissioning will be secured through the oDEMP [EN0110012/APP/LVS/07.04], which will adopt equivalent principles to the oCEMP.

Traffic noise and movements (construction phase and decommissioning phase)

~~8.2.91~~8.2.96 Information on traffic routes, flows, average speeds and HGV movements for both the baseline year and the construction peak is provided in Chapter 14: Traffic and Movement (ES Volume 1) [EN0110012/APP/LVS/06.01.14]. Predicted noise changes attributable to construction traffic are ≤ 1.5 dB, which is not sufficient to give rise to disturbance effects on qualifying species or the wider waterbird assemblage. There is one isolated Common Lane (Hambleton) which is anticipated to have an increase of 4.5 dB, however this is within an established and well used link road and is located outside of SSSI IRZ, and therefore impacts are de minimus.

~~8.2.92~~8.2.97 Construction access does not cross or pass adjacent to the BMA; therefore, visual disturbance arising from traffic or workforce movements is not anticipated based on the distance and natural barriers which already exist (Figure 14.4: Construction Routing (ES Volume 2) [EN0110012/APP/LVS/06.02.14.04]).

~~8.2.93~~8.2.98 The Cable Route Corridor which adjoins to Solar Development Site 1, is located in the furthest south-western corner. This area is enclosed by hedgerows and a moderate sized copse, and construction of the Cable Route Corridor which falls within the SSSI IRZ will be during passage and the breeding season, however the closest point will be completed during the breeding season to avoid disturbance, as secured through the oCEMP.

~~8.2.94~~8.2.99 Construction and decommissioning traffic associated with the Proposed Development and committed developments has also been considered cumulatively within the Transport Assessment in ES Chapter 14: Traffic and Movement [EN0110012/APP/LVS/06.01.14] and would be confined to existing highway corridors and managed through the oCTMP [EN0110012/APP/LVS/07.12]. On this basis, no additional disturbance or displacement pathway arises for ornithological qualifying features beyond those assessed for the Proposed Development alone and in-combination with other developments. Furthermore, as the Lower Derwent Valley lies more than 1 km from the site and beyond recognised threshold distances for construction dust (50 m) and traffic-related air-quality effects (200 m), there is no credible pathway for air-quality impacts, alone or in-combination, to affect SPA qualifying features

associated with FLL. The FLL habitats are not sensitive to dust deposition and do not support air-quality-sensitive plant communities.

~~8.2.95~~8.2.100 Displacement and disturbance from increased traffic is also considered de minimis, as the affected routes comprise existing roads and waders and waterbirds do not typically roost or forage close to road edges. These species are already habituated to recurring vehicle movements.

~~8.2.96~~8.2.101 Decommissioning traffic could give rise to a similar order of magnitude of vehicle movements as the construction phase. However, the construction traffic assessment represents a reasonable worst-case scenario for potential traffic-related disturbance effects. Given the long-term nature of decommissioning and the uncertainty associated with future baseline transport conditions, no separate transport assessment has been undertaken. An oDEMP [EN0110012/APP/LVS/07.04] has been prepared, which commits to the development of a Decommissioning Traffic Management Plan (DTMP) to manage traffic effects and avoid adverse effects on qualifying features at the time of decommissioning.

Noise and disturbance (operational)

~~8.2.97~~8.2.102 During operation, disturbance levels will be minimal due to the fixed and tracking (slow-moving) systems (e.g. Soltec Tracker) nature of solar infrastructure, low on-site activity, and cessation of routine agricultural operations. The existing PRoW that currently bisects the central BMA will be diverted to the northern boundary, with screening vegetation planted to minimise visibility and discourage access into sensitive areas, therefore ensuring the BMA continues to function as low disturbance supporting habitat.

~~8.2.98~~8.2.103 The BMA dimensions measures approximately 900 m in length and 1.3 km in width at its widest points. This substantial size ensures that, even in the event of an unpredictable disturbance throughout the non-breeding period, ample undisturbed habitat will remain available for sensitive species. For example, curlew is considered a highly sensitive species of all that were recorded within the Order Limits and has a maximum disturbance range of 650 m during the non-breeding season and in this context, the scale and configuration of the BMA provide sufficient spatial buffering to minimise potential effects (Ref 27). However, these events are likely to be rare as the PRoW which currently intersects the BMA will be stopped up to prevent any disturbance occurring. It is also important to highlight that Solar Development Site 1 is currently disturbed throughout the year due to cropping rotations and public access and therefore, it can be assumed that there is some level of habituation to disturbance in this area, which could explain the diffuse location of species across the Solar Development Site 1 Order Limits.

~~8.2.99~~8.2.104 Once the Solar Development Sites are fully operational, the solar infrastructure will not generate noise above 35 dB; with the exception of Solar Development Site 2 discussed below) and no vibration is predicted within the BMA. The solar panels produce negligible sound, thereby eliminating noise as a

potential source of disturbance. Post-construction noise levels will be lower than current agricultural baselines due to cessation of mechanical operations and reduced access, supporting continued low-disturbance conditions within adjacent supporting habitat (Figure 11.3: Operational Noise Modelling Results (ES Volume 2) [EN0110012/APP/LVS/06.02.11.03]).

~~8.2.100~~8.2.105 The greatest change in operational noise levels occurs within Solar Development Site 2, BESS location (up to >45 dB LAeq; current baseline 47-63dB). However, this area did not record significant aggregations of SPA/Ramsar qualifying species (i.e. above the 1% threshold). Operational noise changes in this location therefore present no credible pathway to affect European site features.

~~8.2.101~~8.2.106 During the operation and maintenance phase, each Solar Development Site is expected to receive approximately five maintenance visits per month, typically by LGVs.

~~8.2.102~~8.2.107 Operational maintenance traffic will use existing access routes and internal tracks, avoiding new land take or habitat fragmentation. Vehicle movements (with the exception of replacement activities) will be infrequent and of short duration, typically associated with panel inspection, vegetation management or ecological monitoring. Noise generated from these activities is expected to remain well within the current baseline and largely within the solar arrays only. There are no access route within the proximity of the BMA.

~~8.2.103~~8.2.108 Infrastructure replacement activities would be considerably less intensive than disturbance impacts assessed during the construction and decommissioning phase, particularly given the absence of works to the Cable Route Corridor. Replacement activities would also be staggered over time, rather than occurring simultaneously across all sites as assumed for construction. As a result, noise and visual levels associated with replacement activities are not comparable to those assessed for the construction phase. Replacement activities are expected to occur intermittently over a period of approximately 12–24 months. Within the southern portion of Solar Development Site 1, which adjoins the BMA, replacement activities will be managed through seasonal controls to avoid periods of greatest sensitivity for non-breeding bird species (September to March). All other Solar Development Sites would not require such restrictions due to the availability of alternative suitable habitat within the BMA. These measures are secured in the oOEMP.

~~8.2.104~~8.2.109 The design of the solar infrastructure, including perimeter fencing and internal planting, will also contribute to reducing visual and acoustic disturbance and creating sheltered conditions for birds using adjacent habitats. As vegetation in both BMA and retained areas becomes fully established, the operational environment will be more stable, predictable, and lower risk for disturbance compared to the construction phase. Further to this, the BMA is spatially and functionally separated from routine operational activities associated with the Proposed Development, there are no permissive pathways and (or) PRowS

intersecting the BMA, and therefore, general disturbance events are highly unlikely throughout the operational period.

~~8.2.105~~8.2.110 Cable connections within the cable route corridor will be located underground and will not generate operational traffic. Occasional maintenance access may be required, but this is expected to occur only once or twice per year and will result in negligible disturbance.

~~8.2.106~~8.2.111 As detailed in Chapter 14: Traffic and Movement (ES Volume 1) [EN0110012/APP/LVS/06.01.14] the predicted increase in daily traffic associated with operational maintenance is well below the 10% threshold identified in the IEMA (now known as ISEP) Guidelines for the Environmental Assessment of Road Traffic and is therefore categorised as negligible. As these infrequent trips fall substantially below levels that could give rise to noise or visual disturbance for qualifying species or the wider waterbird assemblage, no additional mitigation is required, and residual effects remain as reported.

~~8.2.107~~8.2.112 Replacement activities would be intermittent, short-term and localised, occurring on a site-by-site basis over the operational lifetime of the Proposed Development rather than simultaneously across all Solar Development Sites. As set out in Appendix 14.1: Transport Assessment (ES Volume 3) [EN0110012/APP/LVS/06.03.14.01], replacement traffic volumes would be substantially lower than those experienced during the construction phase and comparable with, or only marginally above, routine maintenance activity. Replacement works would typically involve limited numbers of vehicle movements over short durations, using established access routes and internal tracks, and would not result in sustained increases in traffic flows or associated noise and visual disturbance.

Lighting (construction, operational and decommissioning)

~~8.2.108~~8.2.113 A sensitive lighting strategy will be implemented during the construction, operational and decommissioning phase to minimise ecological impacts. Any temporary lighting required will be:

- 1) Directed away from the BMA, adjacent land outside the Order Limits, and areas known to be used by SPA birds;
- 2) Shielded using lighting hoods to prevent light spillage beyond its intended source; and
- 3) Positioned away from ditches, watercourses, ponds, and associated terrestrial habitats.

~~8.2.109~~8.2.114 During construction, operational and decommissioning lighting will be restricted to low-level, task-specific use, such as motion-sensor lights during maintenance visits, ensuring minimal disturbance to wildlife such as nocturnal foraging species, dabbling ducks and golden plover.

~~8.2.110~~8.2.115 The above measures, including temporary hoarding (ECoW oversight), construction phasing, screening vegetation, low noise working methods, and the availability of the BMA are secured through the oCEMP

[EN0110012/APP/LVS/07.02], oOEMP [EN0110012/APP/LVS/07.03], oDEMP [EN0110012/APP/LVS/07.04] (as relevant).

Conclusion

~~8.2.111~~8.2.116 With the implementation of embedded and secured mitigation measures including noise barriers, seasonal timing restrictions, use of HDD, retention of natural screening, ECoW oversight and the availability of the fully functional BMA, any disturbance pressures arising during the construction, operational and decommissioning will be localised, temporary and insufficient to interrupt the supporting ecological processes relied upon by qualifying features.

~~8.2.112~~8.2.117 Accordingly, disturbance and displacement (noise, vibration, visual intrusion, lighting and recreational disturbance) will not result in an AEoI of the Lower Derwent Valley SPA/Ramsar or Humber Estuary SPA/Ramsar.

Glint and glare (operational)

~~8.2.113~~8.2.118 PV panels can generate solar reflections (“glint”) that may be visible to overflying birds under certain atmospheric and sun-angle conditions. For such reflections to be considered to result in an effect pathway, a viable pathway would require regular, directional flightlines within the Solar Development Sites.

~~8.2.114~~8.2.119 The baseline Flight Activity surveys indicates no consistent or directional patterns of regular movement across the Proposed Development. While occasional and isolated records of large flocks, such as up to 100 whooper swans were recorded during a single observation were observed flying overhead, these flights appeared opportunistic and dispersed rather than following a defined back and forth route.

~~8.2.115~~8.2.120 Reflections generated by PV panels, where present, occur at shallow angles relative to the panel surface and are generally confined close to the ground due to the light-absorptive design of solar modules. As such, the vertical extent of potential reflections is unlikely to overlap meaningfully with the flight heights recorded for waterbirds in the baseline surveys and reported in the literature, and far below altitudes associated with migratory passage movements.

~~8.2.116~~8.2.121 There is limited published evidence indicating adverse effects of glint and glare on birds. *Evidence review of the impact of solar farms on birds, bats and general ecology* (Ref 28), Natural England notes no documented cases of waterbirds colliding with solar panels or exhibiting behavioural avoidance because of reflected light.

~~8.2.117~~8.2.122 Given the absence of regular directional flightlines, the low-elevation nature of reflections, and the lack of evidence demonstrating biologically meaningful behavioural impacts on waterbirds, no credible pathway exists by which glint or glare could affect the integrity of either designated site through disturbance, displacement, collision risk or altered movement patterns. Accordingly, no specific mitigation is required.

~~8.2.118~~**8.2.123** On this basis, and applying a precautionary approach, there is no reasonable scientific doubt that operational glint and glare will not result in an AEol for the Lower Derwent Valley SPA/Ramsar or the Humber Estuary SPA/Ramsar.

8.3 Fish species

Changes to water quality within FLL (construction and decommissioning)

8.3.1 The potential for LSE from water pollution arising from accidental pollution incidents or poor construction site practices, including inadequate silt control and the risk of frac out, has been identified for qualifying species (sea and river lamprey) of the Humber Estuary SAC. In the absence of appropriate mitigation and effective site management, construction activities could adversely affect FLL, with consequent impacts on both resident and migrating lamprey through deterioration in water quality.

8.3.2 Frac-out is the unintentional release of drilling fluids to the surface during HDD. This occurs when the pressure of the drilling fluid exceeds the surrounding ground pressure, causing the fluid to escape through cracks or weak points in the ground. Drilling fluids are freshwater suspensions of inert clay particles (bentonite). While this is considered to be non-toxic, the potential for this to enter the water column or cover the bed of the watercourse in the event that frac-out occurs. This in turn could affect migration, spawning areas or prey availability for the identified qualifying species. Frac-out is most likely during the drilling of the pilot hole entry and exit curves, when the depth of cover, formation consolidation and confining strength are at a minimum. Frac-out can also relate to drilling fluid travelling to the surface via existing pathways, e.g. previously installed utilities, foundation piles and existing boreholes.

Mitigation

8.3.3 Embedded mitigation includes standard environmental pollution measures (as set out in the oCEMP [EN0110012/APP/LVS/07.02]) and a Design Commitment to provide a 10 m buffer from bank top for all watercourses and 50m from the River Ouse. As set out in the oCEMP [EN0110012/APP/LVS/07.02], silt fencing will be used strategically (i.e. within overland flow paths) where required to minimise sediment pollution to watercourses.

8.3.4 Any works relating to HDD activities will be undertaken in line with a Method Statement, as set out in the oCEMP [EN0110012/APP/LVS/07.02]. Strict adherence to the Method Statement will be required when undertaking HDD with any changes requiring approval from the Contractor's Project Manager and documented risk assessments. The Method Statement will cover project details, equipment setup, drilling procedures, and the handling of drilling fluids, emphasising adherence to safety measures and risk assessments. The document will also include details on emergency response procedures,

environmental protection strategies, and the use of personal protective equipment. It will also stress the importance of training, supervision, and communication among all personnel involved to ensure the successful and safe completion of the works. [HDD under the River Ouse will be undertaken between July and September, unless otherwise agreed with the EA, to avoid sensitive times for fish.](#)

- 8.3.5 A frac-out contingency plan will be implemented as a mitigation measure which will include measures to prevent, contain and control the risk of frac-out including clean-up procedures as set out in the oCEMP [EN0110012/APP/LVS/07.02]. These measures have been considered with regards to the conservation objectives set for the qualifying features of the Humber SAC.
- 8.3.6 As per Chapter 15: Water Resources and Flood Risk [EN0110012/APP/LVS/06.01.15], long term monitoring of the Proposed Development will be undertaken to ensure effective monitoring of water receptors close to key infrastructure or construction works. This will include the monitoring of both surface-water and groundwater receptors in proximity to these works. The specific receptors requiring monitoring will be identified at the final detailed design stage once the design is complete, with monitoring requirements implemented as set out in the oCEMP [EN0110012/APP/LVS/07.02], where necessary.

Conclusion

- 8.3.7 The potential for adverse effects upon the integrity of the qualifying species (sea and river lamprey) of the Humber Estuary SAC has been identified through changes in water quality (e.g. from frac-out risk or overland flow from construction areas). Mitigation measures to reduce this risk have been set out above which comprise a frac-out contingency plan as secured through the oCEMP. In the unlikely event of a frac-out event, the measures are considered to minimise the scale of the incident such that it would be highly localised and temporary. Small scale temporary impacts to habitats local to the Proposed Development (and considerable distance from the European sites) upon which the qualifying species rely would not undermine the conservation objectives.

In summary, it is considered that, when incorporating the described avoidance and/or mitigation measures, an adverse effect on lamprey species through changes in water quality within FLL can be ruled out.

Harm, disturbance or displacement through noise and vibration on qualifying fish species within FLL (construction)

- 8.3.8 Lamprey will not be disturbed, injured, or killed within the Humber Estuary SAC, as no construction activities are planned within the boundary of the European site. However, disturbance of mobile species within FLL (such as the River Ouse) could occur during the construction phase due to potential noise and vibration associated with works undertaken in close proximity to the river channel and banks.

- 8.3.9 Adult river lamprey typically migrate out of estuaries into freshwater from October to December to travel upstream to spawning grounds. Upstream and downstream migration of river lamprey occurs at night under cover of darkness, where individuals make use of tidal flows. Young adults migrate the opposite direction from freshwater into the estuary during the late autumn/winter.
- 8.3.10 Adult sea lamprey typically migrate out of estuaries into freshwater from April and May to travel upstream to spawning grounds. Young adults also migrate the opposite direction from freshwater into the estuary during the autumn/winter.
- 8.3.11 According to the Supplementary Advice on Conservation Objectives for the SAC, sea lamprey presence is very low compared to river lamprey; the five main rivers in the catchment for lamprey spawning are the Derwent, Swale, Wharfe, Nidd and Ure, which all support healthy populations of river lamprey ammocoetes. Nevertheless, the River Ouse is considered a migratory route for both sea and river lamprey. This migratory activity has been confirmed through Environment Agency monitoring data, which recorded lamprey species upstream at Naburn Weir (15.7 km upstream) in 2018.
- 8.3.12 In addition to serving as a migratory route, and notwithstanding the proximity to the estuary and daily fluctuations in river levels which may affect suitability, deep marginal fine sediments along the Cable Route Corridor in the River Ouse are considered capable of supporting larval (ammocoete) stage lamprey.
- 8.3.13 In the absence of suitable mitigation, the construction activities outlined above could impact migrating and resident lamprey, by disturbing migrating individuals during the periods set out above, or individuals using habitats adjacent to the works. Delayed or disturbed spawning migration could affect recruitment, which could affect the populations of lamprey and their distribution within FLL.
- 8.3.14 However, the sensitivity of lamprey to atmospheric noise and vibration is inherently limited. Lamprey are categorised as low hearing sensitivity fish (Ref 1). They lack specialist hearing structures such as a swim bladder or other anatomical adaptations that amplify sound signals, and their auditory system is relatively simple. They are generally considered sensitive only to particle motion within a narrow frequency band, with some research indicating exclusive sensitivity to particle motion (Ref 5). This is relevant when considering potential effects from HDD activities, as the degree to which vibration transfers into the aquatic environment determine whether particle motion levels in water could be detectable by lamprey species.
- 8.3.15 For HDD activities, vibration transmitted into water (via the ground) is considered to be low compared to high impact underwater activities such as piling or blasting. Sound does not propagate efficiently from ground into water. When a wavefront encounters a boundary between different geological media (e.g. rock/soil interface or the water table), part of the energy is transmitted, part reflected, and part refracted, with dissipation dependent on the density and stiffness of the material. A similar process occurs when vibration reaches the interface between solid ground and water; however, shear waves cannot travel through liquids, so only compressional wave energy enters the water. Due to the

large difference in stiffness and density between water and solid ground, most of the incident energy is reflected or refracted, meaning vibration levels transmitted into the water column are substantially lower than into the ground. As a result, only a limited proportion of HDD-related vibration will transfer into the water column.

- 8.3.16 Based on the above, it is considered unlikely for HDD to result in any material substrate vibration or associated noise in the water column that would result in behavioural or physical impacts to lamprey given the large volumes of substrate between the HDD pits and the river (a minimum setback distance of 50 m from the River Ouse and a minimum depth of 5 m below the bed level). The drilling activity will be temporary and short-term, with the drilling process at this location typically completed within 1-2 days. Taken together, the limited auditory sensitivity of lamprey, and the attenuation of vibration across the river corridor indicate that HDD activities are unlikely to generate underwater noise or vibration at levels that could cause physical injury or significant behavioural disruption.

Mitigation

- 8.3.17 Although noise and vibration disturbance is predicted to be minimal, a precautionary avoidance period should be observed for lamprey. For river lamprey, peak avoidance periods for migration are between October and March. For sea lamprey, peak avoidance periods for migration are between April and May. ~~The timing of avoidance periods should~~ HDD under the River Ouse will therefore be undertaken between July and September, unless otherwise agreed in consultation with the EA. However, it is assumed that to avoid sensitive times for fish. The core spring migrations (i.e. downstream movement of salmon smolts and upstream migration of sea lamprey) and the core winter spawning migration (upstream migration of salmonids and river lamprey) will therefore be avoided unless otherwise agreed by the EA.
- 8.3.18 Construction best practices will be followed to minimise unnecessary noise and vibration, including the use of low-vibration drilling rigs and acoustic shielding where appropriate.

Conclusion

- 8.3.19 Noise or vibration levels are anticipated to be low for the reasons outlined; should levels approach thresholds capable of disturbing lamprey, the mitigation measures in place are considered sufficient to ensure that any impacts would remain highly localised and temporary. Minor, short-term disturbance to functionally linked habitats within the Proposed Development footprint, located at considerable distance from the European sites, would not undermine the conservation objectives. With mitigation secured through the oCEMP, including agreed avoidance periods with the Environment Agency to protect sensitive migration stages, HDD noise and vibration are not expected to pose a risk to lamprey populations or to the integrity of the Humber Estuary SAC.

- 8.3.20 In summary, it is considered that, when incorporating the described avoidance and/or mitigation measures, an adverse effect on lamprey species through harm, disturbance or displacement through noise and vibration within FLL can be ruled out.

Harm, disturbance or displacement of qualifying fish species through EMF (Operational)

- 8.3.21 Sea and river lamprey will not be harmed, disturbed, or displaced within the Humber Estuary SAC, as no operational activities are planned within the boundary of the European site. However, disturbance of mobile species within FLL (such as the River Ouse) could occur due to potential operational EMF effects associated with the Cable Route Corridor.
- 8.3.22 Sea and river lamprey are anadromous, spawning in large freshwater rivers and migrating to sea to feed as pre-adults and adults. They aggregate to spawn and extrude their eggs into 'nests' excavated in the riverbed. After hatching the young lamprey larvae, known as ammocoetes, drift downstream with the current. They settle in nursery habitat consisting of fine, soft substrate in well oxygenated, slow flowing water. The ammocoetes are blind and spend several years in this muddy nursery habitat before metamorphosing.
- 8.3.23 In the absence of suitable mitigation, there is potential for EMFs associated with cables crossing watercourses to disturb sea and river lamprey during operation. Where the cables from electrical infrastructure associated with energy installations cross watercourses there is potential for residual EMFs generated to impact on sea and river lamprey through changes in lamprey behaviour and migration, and via the EMFs affecting the development of sea and river lamprey ammocoetes.
- 8.3.24 The potential response of fish to EMF is species specific, with different species being more or less sensitive to EMFs. There is evidence to suggest that EMFs impact fish behaviour, but most of this evidence has been collected in marine and estuarine environments and there remains a degree of uncertainty, both within the research community at the regulatory authorities, and further evidence of effects is required especially for anadromous species (Ref 6).
- 8.3.25 However, even with this uncertainty in the behavioural response of fish to EMFs many factors can be used to assess potential impacts. These include the type and strength of the residual EMFs (measured in micro-Teslas), the species and life-stage affected, in the context of the habitat present within the vicinity of the Cable Route Corridor, and the use of the habitat for particular life-stages (e.g. migration, spawning, feeding etc.) in the vicinity of the Cable Route Corridor.
- 8.3.26 An EMF assessment has been undertaken to support this assessment and includes the calculation of residual EMFs anticipated to be emitted into the watercourse above the cable crossings. The methodology, including assumptions and limitations are contained in Appendix 16.6: Electromagnetic Field Report (ES Volume 3) **[EN0110012/APP/LVS/06.03.16.06]**.

- 8.3.27 The assessment involves calculating the residual EMFs that will present vertically above the cable and into the water column, and horizontally along the riverbed upstream and downstream of the cable centre line. The maximum residual EMF strengths are observed immediately above the cable centre line. At the riverbed this is predicted to be a maximum of 14.72 micro-Tesla (μT) reducing with distance from the bed and up into the water column; 14.15 μT (0.1 m), 13.61 μT (0.2 m), 12.17 μT (0.5 m), 10.22 μT (1.0 m), 8.71 μT (1.5 m) and 7.51 μT (2.0 m).
- 8.3.28 The strength of the EMF at the riverbed decreases with distance upstream and downstream of the cable centre line. This equates to the following residual EMF strengths; 14.72 μT (0 m), 3.68 μT (5 m) and 1.64 μT (10 m) and 0.59 μT (20 m).
- 8.3.29 Based on the above there is potential for residual EMFs to effect migrating river and sea lamprey, both adults moving upstream to spawning and post-juvenile 'transformers' on their way to sea. Juvenile lamprey ammocoetes may also be present, living in marginal silts in the River Ouse within the vicinity of the cable crossing.
- 8.3.30 There is lots of evidence that lamprey can detect electric fields and weak electric fields play a role in sexual behaviour and spawning. However, at present, there is no published evidence demonstrating that sea lamprey can detect magnetic B fields (Ref 7). Consequently, electromagnetic cues are not considered to play a recognised role in their migration from feeding grounds to coastal and estuarine habitats.
- 8.3.31 The specific mechanisms guiding their return migrations remain uncertain. However, once at the coast, stream-finding behaviour of adult sea lamprey has been subject to a substantial amount of research. Research indicates that they employ olfactory cues for identifying rivers (Ref 8). The key olfactory signal is a bile acid released by larval lamprey (Ref 9), which enables adults to identify rivers supporting juvenile populations. Unlike salmon, lamprey do not home to natal rivers but preferentially ascend rivers where larvae are present, thereby ensuring access to suitable spawning and nursery habitats. These bile acid cues are not species-specific (Ref 10) and function as a common pheromone among several lamprey species.
- 8.3.32 No research on the effects of EMFs on the early life stages of lamprey was identified to support this assessment. However, any potential effect is highly localised to the cable location and would only impact juvenile lamprey should they remain in close proximity, rather than moving away. In addition, there is no evidence that lampreys possess an ability to detect B fields and there is no evidence to suggest the residual EMFs would adversely affect the development of juvenile lamprey.

Mitigation

- 8.3.33 As described in Appendix 16.6: Electromagnetic Field Report (ES Volume 3) **[EN0110012/APP/LVS/06.03.16.06]**, underground cables are designed such that they will not produce external (non-magnetic) electric fields. Underground cables required for the Proposed Development will be enclosed in a sheath (a

protective layer within the cable) which has an embedded ability to reduce the potential for electric fields to be emitted. In addition, Cabling will be buried at a minimum depth of 5 m below the bed within the River Ouse, reducing the residual EMF emitted within the water column.

8.3.34 The detailed CEMP will set out the EMF mitigation measures that have been deployed (including the depth of cabling) across the Proposed Development and explain how that has taken account of the latest research and practice and consultation with Natural England and the Environmental Agency on this matter. The starting point will be that the depth of the cabling will be a minimum of 5 metres, unless otherwise agreed by the Environment Agency and Natural England as part of the aforementioned consultation.

Conclusion

~~8.3.34~~8.3.35 In summary, it is considered that, when incorporating the described mitigation measures (shielding of electric field and burying the cable at a minimum distance of 5 m below the bed level), an adverse effect on lamprey species through harm, disturbance or displacement through noise and vibration within FLL can be ruled out.

9 Overall conclusion of appropriate assessment

- 9.1.1 The Stage 1 screening identified the potential for LSEs on the qualifying features of the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar and Humber Estuary SAC via the following pathways:
- 1) Loss or degradation of FLL for bird species (SPA/Ramsar qualifying features);
 - 2) Disturbance and displacement (noise, vibration, visual intrusion, lighting and recreational activity);
 - 3) Potential disruption of bird flightpaths due to glint and glare;
 - 4) Harm, disturbance or displacement of qualifying fish species within FLL;
 - 5) Water quality and pollution pathways within FLL during construction; and
 - 6) Harm, disturbance or displacement of qualifying fish species within FLL arising from Electromagnetic Fields (EMF) during operation.
- 9.1.2 This Appropriate Assessment has considered these pathways in detail, taking into account the embedded design measures and additional mitigation secured through the DCO Application, oCEMP [EN0110012/APP/LVS/07.02], oOEMP [EN0110012/APP/LVS/07.03], oDEMP [EN0110012/APP/LVS/07.04] and oLEMP [EN0110012/APP/LVS/07.05], including:
- 1) The creation, enhancement and long-term management of the BMA as high-quality, low disturbance and managed FLL;
 - 2) Construction phasing and seasonal timing restrictions to avoid peak periods of sensitivity for non-breeding birds and migratory fish;
 - 3) Controls on noise, vibration, lighting and visual disturbance (including temporary hoarding and screening);
 - 4) A Method Statement and frac-out contingency plan for HDD activities around the River Ouse; A minimum set back distance of 50 m from the River Ouse for construction related activities and adherence to standard pollution prevention guidance.
- 9.1.3 With these secured measures in place, the assessment concludes that:
- 1) The extent, distribution and functional quality of FLL supporting qualifying bird species and the wider waterbird assemblage will be maintained, and in places enhanced, for the lifetime (60 years) of the Proposed Development;
 - 2) Disturbance pressures during construction, operation and decommissioning will be localised, temporary and not of a magnitude or duration that would interrupt the ornithological processes supporting the European site features;

- 3) Operational glint and glare do not give rise to any credible mechanism by which the integrity of the European sites could be undermined.

9.1.4 Taking the evidence and secured mitigation as a whole, and applying the precautionary principle, there is no reasonable scientific doubt that the Proposed Development will not result in an AEoI of the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar or Humber Estuary SAC, either alone or in combination with other plans and projects.

10 In-combination effects

- 10.1.1 In accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), this section considers whether the Proposed Development, in combination with other relevant plans and projects, may result in adverse effects on the integrity of the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites.
- 10.1.2 For ornithology, pathways relating to loss of FLL, disturbance and displacement, and potential glint and glare effects are therefore taken forward to the Appropriate Assessment, with all other pathways screened out.
- 10.1.3 For Aquatic ecology, pathways relating to changes to water quality within FLL, Harm, disturbance or displacement through noise and vibration on qualifying fish species within FLL (construction), and harm, disturbance or displacement of qualifying fish species through EMF (operational) are taken forward, with all other pathways screened out.
- 10.1.4 It is also important to note that construction traffic associated with the Proposed Development and committed developments has also considered as part of the cumulative Transport Assessment in Chapter 14: Traffic and Movement (ES Volume 1) **[EN0110012/APP/LVS/06.01.14]**. Whilst temporary increases in vehicle movements could occur during the construction period, these would be confined to existing highway corridors and managed through the Outline Construction Traffic Management Plan (oCTMP) has also been developed **[EN0110012/APP/LVS/07.12]**. As all European sites and relevant supporting habitats are either not sensitive, absent and (or) lie beyond these threshold distances with the exception of Skipwith Common SAC (paragraph 7.1.7), the same basis for screening out applies in-combination as stated in paragraphs 7.1.7-7.1.8. There is no credible pathway exists for traffic emissions and (or) construction dust to affect qualifying features in relation to SPA and Ramsar sites. Accordingly, construction traffic and air-quality impacts would not give rise to additional habitat effects for European sites beyond those assessed for the Proposed Development alone or in-combination.

The approach to the identification of relevant developments to be considered is described in Chapter 17: Cumulative and In-Combination Effects (ES Volume 1) **[EN0110012/APP/LVS/06.01.17]**. However, for the purposes of the HRA, that long list and short list has been reviewed and refined to identify only those plans and projects that are relevant to the integrity of the Lower Derwent Valley and Humber Estuary European sites, based on shared impact pathways, temporal overlap and geographic proximity. A short list of relevant plans and projects considered capable of acting in combination with the Proposed Development for HRA purposes is therefore presented in Table 10-1 below and shown on Figure 17.1: Location of Short List Cumulative Schemes (ES Volume 2) **[EN0110012/APP/LVS/06.02.17.01]**.

Table 10-1 In-combination assessment

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
1	Drax Bioenergy with Carbon Capture and Storage (BECCS) EN010120	10.7 km / 8.9 km	Project located in a high disturbance, industrialised landscape with no functional or spatial overlap with Light Valley Order Limits. HRA concluded no FLL and no pathways to LDV/Humber estuary SPA/Ramsar features.	The project HRA identified potential impact pathways in relation the Humber SAC. It is considered that significant effects upon the Humber Estuary would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which the Humber Estuary SAC is designated.	No adverse in-combination effect.	No adverse in-combination effect.
2	Helios Renewable Energy Project EN010140	6 km / 4.5 km	HRA concluded the Helios site does not contain FLL. Habitat mitigation (c. 37 ha open habitat) to support non-breeding birds has been created as part of the Proposed Development.	The HRA screening indicates that LSEs for the Proposed Development can be ruled out in relation to the Humber SAC due to separation distance and the inclusion of precautionary standard pollution control measures. As such, there are no residual effects that may operate	No adverse in-combination effect. Neutral to positive outcome due to increase of connectivity and support for LDV and Humber Estuary SPA and waterbird assemblage species.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
				'in combination' with the Proposed Development.		
3	Fenwick Solar Farm (237.5 MW) EN010152	11.7 km / 8.4 km	ES concluded no significant effects on non-breeding birds; distance and absence of shared FLL removes any plausible pathway.	The HRA screening indicates that LSEs for the Proposed Development can be ruled out in relation to the Humber Estuary SAC due to the inclusion of precautionary standard pollution control measures. As such, there are no residual effects that may operate 'in combination' with the Proposed Development.	No adverse in-combination effect.	No adverse in-combination effect.
4	Ferrybridge Multifuel Carbon Capture and Storage (EfW CCS) EN0710002	5 km / 3 km	Pre-application and no ornithology data available. Distance and industrial context mean no plausible pathway to interact with the Proposed Development.	Pre-application and no aquatic data available. The Proposed Development is located near the River Aire. However, no HRA documentation is available on the planning portal and no design information available in relation to drainage/outfalls. Due to anticipated standard embedded/additional mitigation likely to be imposed for the project it is likely that any significant effects from the project on qualifying interests can	No adverse in-combination effect (based on available information).	Not assessable at this stage (based on available information).

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
				mitigated such that there are no adverse in-combination effects.		
5	Yorkshire Green (OHL and substation) EN020024	0.3 km / 0 m	Review of the vantage point flight-activity data shows only a single flock of 29 golden plover recorded in proximity to the Over Head Line (OHL) works, with no repeat use and no evidence of regularly used flightlines intersecting the OHL route. Solar Sites 6/7 and 8 lie closest to the OHL route; however, baseline surveys for these sites recorded negligible numbers of qualifying SPA/Ramsar species and did not identify any shared high-use flight corridors with the OHL. There is no spatial or functional overlap between the small number of birds occasionally recorded near the OHL and the areas used by species near Sites 6/7 and 8. Given the limited bird activity, absence of defined flightlines,	Although the Proposed Development crosses the River Ouse, it is located beyond the Zol of the Humber Estuary SAC and therefore is not expected to contribute to in-combination effects.	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			and lack of functional linkage, there is no credible pathway for in-combination collision or displacement effects on non-breeding waterbirds.			
6	East Yorkshire Solar Farm EN010143	8.6 km / 7.6 km	30 ha mitigation for golden plover and pink-footed goose and it likely to be beneficial in terms of increasing higher quality habitat between the SPAs and FLL between both developments.	The HRA screening indicates that LSEs from noise and vibration for the Proposed Development can be ruled out in relation to the Humber SAC. However, LSEs could not be ruled out for changes to water quality. It is considered that significant effects upon the Humber Estuary would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which the Humber Estuary SAC is designated.	No adverse in-combination effect; minor positive due to increased connectivity.	
7	Ferrybridge Next Generation Power	0 m / 0 m	Pipeline intersects FLL in Solar Development Site 4 used by	Due to anticipated standard embedded/additional mitigation	No adverse in-combination effect.	No adverse in-

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
	Station and gas pipeline EN0110011		greylag goose. Disturbance would be temporary and spatially limited. It is reasonable to assume standard DCO Application construction controls will apply. The proposed pipeline does not interact with the BMA, and the BMA delivered as part of the Proposed Development will functionally replace the area of FLL affected by the pipeline works. To ensure that construction activities are appropriately coordinated and disturbance is minimised, the CEMP will include provisions for liaison between project teams where construction activities overlap spatially or temporally. There is active engagement between the Applicant and the promoter of this development.	likely to be imposed for the project it is likely that any significant effects from the project on qualifying interests can be mitigated such that there are no adverse in-combination effects. However, the Applicant has proactively engaged with the promoter of this development and continues to collaborate to ensure that mitigation strategies are aligned where relevant, providing further confidence that the integrity of the European sites will be maintained. There is active engagement between the Applicant and the promoter of this development.		combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
8	Humber Carbon Capture Pipeline EN0710003	11.0 km / 8.35 km	Linear, temporary works/reversible >10 km from Light Valley Solar and no plausible pathway to non-breeding SPA/Ramsar features or shared FLL.	Pre-application and no aquatic data available. The Proposed Development crosses the Humber Estuary SAC and likely to result in LSE for changes to water quality and noise and vibration disturbance. HRA has not been undertaken although it is considered that significant effects upon the Humber Estuary would be avoided through adherence to standard practice measures. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which the Humber Estuary SAC is designated.	No adverse in-combination effect.	Not assessable at this stage.
9	Mylen Leah Solar Farm EN0110002	5.1 km / 5.2 km	Very early stage and no data available to assess. In the absence of scheme-specific information, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would	Very early stage and no data available to assess.	No adverse in-combination effect.	Not assessable at this stage.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.			
21	Monk Fryston BESS 2021/0633/FULM	2.45 km / 0 m	Small-scale works within existing infrastructure; >3 km Light Valley Proposed Development.	Small-scale works within existing infrastructure and no plausible pathway to Humber Estuary SAC.	No adverse in-combination effect.	No adverse in-combination effect.
43	Mushroom and algae facility ZG2024/1101/FULM	11 m / 50 m	Small footprint near low-use farmland (Solar Development Sites 6/7). Likely negligible disturbance if completed during the non-breeding period. However, the BMA would offset any disturbance due to the distance between the developments.	Small footprint project and no plausible pathway to Humber Estuary SAC.	No adverse in-combination effect.	
44	150 dwellings 2022/0665/OUTM	1.15 km / 280 m	Small-scale housing with typical edge assemblage only; no SPA/Ramsar species recorded.	Small-scale housing and no plausible pathway to Humber Estuary SAC.	No adverse in-combination effect.	No adverse in-combination effect.
48	EIA Screening for Monk Fryston battery energy storage system	870 m / 450 m	Development permitted. A limited in scale BESS site located in a moderately urban area, close to the village of	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
	ZG2024/1155/SCN		Monk Fryston but on the separated by the railway line and set back from the road. Conclusions of the EIA resulted in no LSEs and effects can be managed in accordance with CEMP and good practice measures.			
49	Erection of 76 dwellings ZG2024/0041/FULM	3.6 km/ 0.9km	No qualifying species recorded as utilising the site during the non-breeding bird surveys. LPA supports findings.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
50	Outline planning application for residential development of up to 110 dwellings ZG2023/1356/OUTM Also local plan land allocation HAMBLETON/008	1.05 km/ 0.54 km	No qualifying species recorded as utilising the site. The LPA has requested the submission of an oCEMP and oLEMP for the development to avoid any adverse impacts.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
53	Erection of 106 residential dwellings ZG2023/0774/FULM	0.67 km/ 0.62 km	Planning application refused (not ecology/ornithology related) and has been appealed. Non-breeding birds	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
	Also local plan land allocation SHERBURN/011		were not considered as part of the application.			
67	Small Solar Farm (adjacent Solar Development Site 3) AP/2025/0037/REF	0 m / 0 m	No SPA/Ramsar species recorded. Solar Development Site 3 contained negligible number of SPA qualifying species, and impacts are considered unlikely, particularly as the loss of land through the Proposed Development is maintained through the BMA in Solar Development 1.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
69	Solar + BESS ZG2024/1129/FULM	1.55 km / 0.1 km	No qualifying species recorded. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	No plausible pathway to Humber Estuary SAC fish qualifying interests.	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
70	BESS (EIA screening) ZG2024/1099/SCN	1.8 km / 0 km	Little information available and no data to assess due to the early stages of pre-application. In the absence of scheme-specific information, it is reasonable to assume that standard best-practice construction and environmental controls typical of BESS developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention. On this basis and given the temporary and localised nature of construction activities associated with BESS developments, no pathway has been identified by which the project could give rise to an adverse in-combination effect on the integrity of the European sites.	Little information available and no data to assess due to the early stages of pre-application. However, due to anticipated standard embedded/additional mitigation likely to be imposed for the project it is likely that any significant effects from the project on qualifying interests can be mitigated such that there are no adverse in-combination effects.	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
73	140 dwellings ZG2023/0551/OUTM	2.6 km / 0 km	No qualifying species recorded. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	Small-scale housing and no plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
75	Installation of battery storage facility ZG2023/1179/FULM	2.2 km / 3 km	No qualifying species recorded. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
76	110 dwellings ZG2023/1017/OUTM	3.2 km / 0.66 km	Application refused, but appeal was granted. - no qualifying	Application refused, but appeal was granted. However, no	No adverse in-combination effect.	No effect

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			species were recorded within the Site. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.		
88	Solar Farm (EIA screening) ZG2023/0481/SCN	50 m / 10 m	No data due to early stages of pre-application. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	No data due to early stages of pre-application.	Not assessable. However, there is potential for impact, but Applicant will have CEMP and best practice measures as part of the Proposed Development to safeguard species that are relevant.	Not assessable at this stage.
91	40 MW Solar 2020/1250/SCN	6.7 km / 7 km	Early stage: no SPA/Ramsar species recorded. However, it	No plausible hydrological pathway to Humber Estuary SAC and the	No adverse in-combination effect (current).	No adverse in-

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	site lies at a substantial distance from the designated features.		combination effect
92	Major employment site 2021/1531/EIA ZG2025/0529/REMM SHERBURN/028	60 m / 660 m	Industrial redevelopment: low ecological value and no SPA/Ramsar FLL identified.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect
98	SEGL2 Converter and HV cables 2022/0711/EIA	11.7 km / 9.8 km	HRA found no LSEs on European sites. Temporary minor disturbance only. With the implementation of a CEMP on this project, it is unlikely that adverse impacts would occur that would result in effects upon bird populations for which the Humber Estuary and Lower Derwent Valley	The project HRA identified potential impact pathways in relation the Humber SAC. It is considered that significant effects upon the Humber Estuary would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would	No adverse in-combination effect.	No adverse in-combination effect

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			SPA and Ramsar is designated.	occur that would result in effects upon fish populations for which the Humber Estuary SAC is designated.		
100	Consented Solar Farm 2021/0978/FULM	4.6 km / 2.8 km	Planning permitted in 2022. Low numbers of common farmland birds. Biodiversity to protect habitats during construction, covering access control, timing, pollution, noise, and lighting. With adherence, no residual effects on designated sites anticipated. mitigation secured and no FLL identified.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	
102	Selby public realm 2021/0692/SCP	7.2 km / 2.5 km	Fully urban area; no ornithology pathways.	The Proposed Development is located adjacent to the River Ouse. However, no HRA documentation is available on the planning portal. An aquatic walkover assessment is scheduled to be undertaken to support the EIA. In addition, a HRA is scheduled. It is considered that any significant effects upon the Humber Estuary	No adverse in-combination effect.	Not assessable at this stage.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
				would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which the Humber Estuary SAC is designated.		
103	Solar and BESS ZG2025/0733/EIA	4.45 km / 1.6 km	Surveys ongoing (July 2025) and no information available.	Not assessable at this stage.	Not assessable at this stage.	Not assessable at this stage.
126	Eggborough CCGT EN010081	2.8 km / 2.7 km	No ornithology data: distance and land use indicate no pathway. With the implementation of a CEMP on this project, it is unlikely that adverse impacts would occur that would result in effects upon bird populations for which the Humber Estuary and Lower Derwent Valley SPA and Ramsar is designated	The project HRA identified potential impact pathways in relation the Humber SAC. It is considered that significant effects upon the Humber Estuary would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which	The HRA concluded that the project would not result in LSEs on the Humber Estuary SPA/Ramsar or other European sites, either alone or in combination, with potential pathways via air quality and surface water screened out due to distance, dilution and the absence of a meaningful impact mechanism. The	No adverse in-combination effect

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
				the Humber Estuary SAC is designated.	Proposed Development does not give rise to operational air emissions, does not introduce surface water pathways to designated sites, and includes secured mitigation for non-breeding birds.	
157	New clay quarry and restoration NY/2019/0136/ENV	2.1 km / 1.8 km	Temporary construction >20 km from the BMA. temporary pipeline located up to 20 km from the BMA (Solar Development Site 1) no spatial or functional linkage.	The proposed project will involve the realignment of Heron Dyke (drain), a tributary of Pallion Dyke, which is adjacent to Solar Development Site 1. Environmental DNA (eDNA) surveys conducted downstream of the project area in relation to the Proposed Development recorded only minor fish species. Notably, sea lamprey and river lamprey were absent from the survey results. On this basis, Heron Dyke is not considered to represent functionally linked habitat for the qualifying interests of the Humber Estuary SAC	No adverse in-combination effect;	No adverse in-combination effect

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
158	Ash recovery (scoping) NY/2022/0027/SCO	10.2 km / 7.3 km	Early stages of application and no data available to assess. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
160	Agricultural AD facility NY/2024/0200/FUL	70 m / 400 m	Small footprint. not functionally linked to any SPA/Ramsar site- development summarised that the site was of limited bird value.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
161	Barlow Ash Mound restoration NY/2024/0159/ENV	10 km / 7 km	Located ~10 km away. Outline Landscape and Biodiversity Restoration Strategy will deliver extensive new neutral grassland, woodland, scrub, and hedgerow habitats managed for wintering birds. Restoration to create open grassland (>8 ha) and	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect; potentially beneficial.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			structurally diverse habitats supporting skylark, lapwing, and other assemblage species. Lighting and noise effects near Eco-lagoon negligible given existing disturbance.			
162	Inert import restoration NY/2024/0132/SCO	5.8 km / 7.4 km	No data; early stage; no evidence of pathway. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	Early stages of application and no data available to assess.	Not assessable at this stage.	Not assessable (early stage).
167	49.9 MW Solar and BESS ZG2025/0427/EIA	7.5 km / 8.8 km	Woodland/hedgerow/grassland mitigation secured; skylark-focused; no SPA species.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
168	49.9 MW Solar ZG2025/0100/EIA	6.4 km / 6.5 km	Localised farmland (breeding) bird effects only; precautionary buffers in place.	No plausible hydrological pathway to Humber Estuary SAC and the	No adverse in-combination effect.	No adverse in-

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			With the implementation of a CEMP on this project, it is unlikely that adverse impacts would occur that would result in effects upon bird populations for which the Humber Estuary and Lower Derwent Valley SPA and Ramsar is designated	site lies at a substantial distance from the designated features.		combination effect.
170	Solar (50 years) and substation ZG2025/0693/EIA	8.2 km / 4.1 km	Common farmland assemblage. No SPA qualifying species recorded.	No alterations to the River Ouse form part of the project. Standard mitigation measures anticipated to be required under relevant legislation, including pollution prevention guidance, would be implemented.	No adverse in-combination effect.	No adverse in-combination effect.
171	Solar + BESS ZG/2025/0762/EIA	4.55 km / 1.45 km	Surveys ongoing. However, early baseline suggests typical farmland assemblage (breeding). However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including	No plausible pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	Not assessable at this stage.	No adverse in-combination effect

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			controls on working hours, noise, lighting, access management and pollution prevention.			
176	Development of up to 99 dwellings and all other works ZG2025/0840/OUTM	4.5 / 1.05 km	Site location does not support non-breeding birds. However, it is reasonable to assume that standard best-practice construction and environmental controls typical of solar developments would be implemented, including controls on working hours, noise, lighting, access management and pollution prevention.	No plausible pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features.	No adverse in-combination effect.	No adverse in-combination effect.
180	Ground mounted solar farm 2023/0128/EIA	10.95 km / 9.85 km	Permitted development. HRA concluded no qualifying species present and therefore, no adverse impacts on the European sites.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
181	100 dwelling development ZG2025/0928/OUTM	4 km / 0.25 km	Limited suitable habitat for non-breeding birds, as supported by the LPA.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
182	75 dwelling development ZG2025/1019/FULM	1.55 km / 0.03 km	Limited suitable habitat for non-breeding birds, as supported by the LPA.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
183	300 dwelling development ZG2025/0982/OUTM	2.4 km / 2.75 km	Limited suitable habitat for non-breeding birds, as supported by the LPA	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
185	180 dwelling development ZG2025/0983/OUTM	0.4 km / 0.63 km	Limited suitable habitat for non-breeding birds, as supported by the LPA.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.
192	Construction of underground cable 22/01990/STPLFE	12.25 km / 9.4 km	Application approved. The Proposed Development will result in the temporary loss of a small area of agricultural land, with limited permanent loss associated with the proposed converter station, some of which may function as supporting habitat for qualifying bird species of the Humber Estuary SPA and Ramsar and Lower Derwent Valley SPA and Ramsar. However, the affected area is	The project HRA identified potential impact pathways in relation the Humber SAC. It is considered that significant effects upon the Humber Estuary would be avoided through adherence to measures detailed in the respective CEMPs. With the implementation of a CEMP on this project, it is unlikely that adverse impacts to watercourses would occur that would result in effects upon fish populations for which	No adverse in-combination effect.	No adverse in-combination effect.

ID	Project / type	Distance to Solar / Cable	Ornithology In-Combination AA details	Fish In-Combination AA details	In-Combination AA conclusion for ornithology	In-Combination AA conclusion for fish
			small in extent, largely temporary in nature, and occurs within a wider landscape where agricultural habitat is widespread and abundant. Wintering bird surveys did not record qualifying species within areas subject to permanent land take, and large areas of adjacent farmland will remain available throughout construction and operation.	the Humber Estuary SAC is designated.		
196	Sand and gravel quarry scheme 25/02626/FU	9.7 km / 7.1 km	Given the temporary nature of the works, the absence of evidence for regular or significant wintering bird use, and the lack of spatial or functional connectivity with designated sites such as the Humber Estuary SPA and Ramsar, no pathway has been identified for this development. The project therefore does not have the potential to result in likely significant effects.	No plausible hydrological pathway to Humber Estuary SAC and the site lies at a substantial distance from the designated features	No adverse in-combination effect.	No adverse in-combination effect.

11 Conclusion on in-combination effects

- 11.1.1 In accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), an in-combination assessment has been undertaken to consider whether the residual effects of the Proposed Development, together with other relevant plans and projects, could give rise to adverse effects on the integrity of the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar and Humber Estuary SAC.
- 11.1.2 For ornithology, the in-combination assessment has focused on pathways relating to loss or degradation of FLL, disturbance and displacement, and potential glint and glare effects, as identified at Stage 1 screening. For aquatic ecology, the assessment has focused on water quality and pollution pathways, and harm, disturbance or displacement of qualifying fish species (including potential EMF effects). For terrestrial ecology, relevant projects have been considered insofar as they could contribute to cumulative changes in supporting habitats or disturbance regimes within or functionally linked to the European sites.
- 11.1.3 The review of other plans and projects (Table 10-1) confirms that the vast majority are either:
- 1) Geographically distant from the Order Limits and (or) identified;
 - 2) Located in urban areas or industrial areas with no functional linkage to the SPA/Ramsar/SAC sites; or
 - 3) Of a smaller scale, where there are no meaningful interactions of the Proposed Development.
- 11.1.4 Several solar and infrastructure projects include their own secured mitigation and habitat enhancement measures (e.g. localised open habitat or grassland creation). These are either functionally separate from the Proposed Development or, where relevant to the same qualifying species, are expected to make a neutral or marginally positive contribution to the availability of supporting habitat at the wider landscape scale.
- 11.1.5 A small number of projects are at an early stage of development and are currently “not assessable” due to lack of detailed design or baseline information. For these schemes, no clear impact pathway has been identified that would act cumulatively with the Proposed Development on the qualifying features of the European sites. Any future consented project would itself be subject to HRA at the relevant decision stage, ensuring that additional in-combination pressures on the same European sites are appropriately controlled.
- 11.1.6 Where limited spatial or temporal overlap with other schemes could theoretically occur, it is reasonable to assume that standard DCO Application controls and best-practice construction measures would apply. In addition, the Applicant is committed to ongoing engagement with other relevant promoters (Ferrybridge Next Generation Power Station and gas pipeline; ID 7), as appropriate, to ensure that construction activities are coordinated where necessary and that potential

cumulative disturbance effects are managed in line with the conservation objectives of the European sites. This commitment is secured through the oCEMP.

- 11.1.7 Based on the above, there is no evidence of any mechanism by which the Proposed Development, in combination with other plans and projects, would give rise to additive or synergistic effects of a magnitude that could undermine the conservation objectives of the Lower Derwent Valley SPA/Ramsar, Humber Estuary SPA/Ramsar or Humber Estuary SAC.
- 11.1.8 On this basis, and applying the precautionary principle, it is concluded that there are no adverse effects on site integrity in-combination with other plans and projects for any of the screened-in pathways.

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Annex A Shadow Habitat Regulations Assessment Annexes

A.1. Solar Development Sites Order Limits - frequency of use (non-breeding period)

- A.1.1. Mean values represent the average count per survey visit across all sites, calculated using all species records from that month and divided by the total number of site-visits (e.g. 18 visits per month).
- A.1.2. Frequency of presence was assessed by recording the number of survey visits during which each species was observed at least once and expressing this as both the total number of visits with presence and the corresponding percentage of all survey visits within that month. This metric provides an indication of the regularity of site use and distinguishes between persistent use and episodic or transient occurrence.

Table A-1 Solar Development Sites Order Limits – frequency of use summary (non-breeding period)

October					
Species	Minium no. per month	Max no. per month	Mean per month	Visits with presence (n=18)	Visits with presence (%)
Lapwing	0	234	58	6	33
Golden plover	0	2	0.2	2	11
Greylag goose	0	0	0	0	0
November					
	Minium no. per month	Max	Mean	Visits with presence (n=18)	Visits with presence (%)
Lapwing	0	126	31	10	56
Golden plover	0	9	0.9	5	28
Greylag goose	0	157	8.7	1	6
December					
	Minium no. per month	Max	Mean		

Lapwing	0	32	4	7	39
Golden plover	0	30	2.1	3	17
Greylag goose	0	27	1.5	1	6
January					
	Minium no. per month	Max no. per month	Mean	Visits with presence (n=18)	Visits with presence (%)
Lapwing	0	212	45	8	44
Golden plover	0	112	27	9	50
Greylag goose	0	32	1.8	1	6
February					
	Minium no. per month	Max no. per month	Mean	Visits with presence (n=18)	Visits with presence (%)
Lapwing	0	128	12	7	39
Golden plover	0	47	7	5	28
Greylag goose	0	227	36	6	33
March					
	Minium no. per month	Max no. per month	Mean	Visits with presence (n=18)	Visits with presence (%)
Lapwing	0	19	6	9	50
Golden plover	0	1	0.1	1	6
Greylag goose	0	14	1.4	3	17
April					
	Minium no. per month	Max no. per month	Mean	Visits with presence (n=24)	Visits with presence (%)
Lapwing	0	6	3.5	14	58

Golden plover	0	9	0.4	1	4
Greylag goose	0	25	6.1	11	46
Each month comprises three survey visits to each site (six sites; 18 visits per month, except April with four visits per site). Percentages represent the proportion of survey visits during which the species was recorded; zero values represent confirmed absence.					

A.2. Solar Development Site 1 - frequency of use summary (non-breeding period)

- A.2.1. Mean values represent the average count per visit at Solar Development Site 1, calculated using all species records for that site within the month. The total number of species records contributing to each mean is shown in brackets to provide transparency.
- A.2.2. Frequency of presence was assessed by recording the number of survey visits during which each species was observed at least once and expressing this as both the total number of visits with. This metric provides an indication of the regularity of site use and distinguishes between persistent use and episodic or transient occurrence.

Table A-2 Solar Development Site 1 – frequency of use summary (non-breeding period)

Month	Species	Minium no. per month	Max per month	Mean per month (total number of records)	Visits with presence per month (n= 3 / April and May n=4)
Oct	Lapwing	1	234	58 (9)	3 / 3
	Golden plover	0	2	0.7 (1)	1 / 3
	Greylag goose	0	0	0	0 / 3
Nov	Lapwing	1	126	33.6 (11)	3 / 3
	Golden plover	0	9	3 (4)	2 / 3
	Greylag goose	0	0	0	0 / 3
Dec	Lapwing	1	32	12 (3)	3 / 3
	Golden plover	0	0	0	0 / 3
	Greylag goose	0	0	0	0 / 3
Jan	Lapwing	3	212	62.8 (12)	3 / 3
	Golden plover	1	112	28.7 (12)	3 / 3
	Greylag goose	0	0	0	0 / 3
Feb	Lapwing	5	128	37.6 (5)	3 / 3
	Golden plover	0	42	14 (1)	1 / 3
	Greylag goose	0	0	0	0 / 3
Mar	Lapwing	2	12	4 (14)	3 / 3
	Golden plover	0	1	0.3 (1)	1 / 3
	Greylag goose	0	0	0	0 / 3
Apr	Lapwing	2	6	3 (12)	4 / 4
	Golden plover	0	0	0	0 / 4
	Greylag goose	0	12	3.6 (6)	3 / 4

Month	Species	Minium no. per month	Max per month	Mean per month (total number of records)	Visits with presence per month (<i>n</i> = 3 / April and May <i>n</i> =4)
May	Lapwing	1	6	1.8 (19)	4 / 4
	Golden plover	0	0	0	0 / 4
	Greylag goose	0	4	2.4 (4)	3 / 4

A.3. Annex C Guidance- Natural England

Date: 02 September 2024
Our ref: 484533
Your ref: EN020036

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BY EMAIL ONLY

Dear Sir / Madam

Environmental Impact Assessment Scoping Consultation under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulation 11

Proposal: Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Proposed Grimsby to Walpole Project (the Proposed Development)

Location: Lincolnshire

Thank you for seeking our advice on the scope of the Environmental Statement (ES) in the consultation dated 06 August 2024, received on 06 August 2024.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

A robust assessment of environmental impacts and opportunities, based on relevant and up to date environmental information, should be undertaken prior to an application for a Development Consent Order (DCO). Annex A to this letter provides Natural England's advice on the scope of the Environmental Impact Assessment (EIA) for the Proposed Development.

Natural England have participated previously in non-statutory pre-application engagement on the Proposed Development with the Applicant. Comments on this are included in the attached Annex.

For any further advice on this consultation please contact the case officer [REDACTED] [\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk) and copy to consultations@naturalengland.org.uk.

Yours faithfully

[REDACTED]
Sustainable Development Higher Officer
East Midlands Area Team

Annex A – Natural England’s Advice on EIA Scoping

1. General principles

1.1 Regulation 11 of the Infrastructure Planning Regulations 2017 - (The EIA Regulations) sets out the information that should be included in an Environmental Statement (ES) to assess impacts on the natural environment. This includes:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases
- Appropriately scaled and referenced plans which clearly show the information and features associated with the development
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen
- A description of the aspects and matters requested to be scoped out of further assessment with adequate justification provided.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development
- A description of the aspects of the environment likely to be significantly affected by the development including biodiversity (for example fauna and flora), land, including land take, soil, water, air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), cultural heritage and landscape and the interrelationship between the above factors
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium, and long term, permanent and temporary, positive, and negative effects. Effects should relate to the existence of the development, the use of natural resources (in particular land, soil, water and biodiversity) and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment
- An outline of the structure of the proposed ES

1.2 Through our discussions with the applicant to date, Natural England (NE) are confident that the general principles above are likely to be addressed within the Environmental Statement.

1.3 It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the ‘in combination’ effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

2. Cumulative and in-combination effects

2.1 It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the ‘in combination’ effects of the proposed development with any existing developments and current applications.

2.2 An impact assessment should identify, describe, and evaluate the effects that are likely

to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):

- a) existing completed projects
- b) approved but uncompleted projects
- c) ongoing activities
- d) plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
- e) plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects

2.3 In particular, NE would like to refer to the high development pressure around the Humber Estuary. The impacts of this proposal in combination with other projects (NSIPS and TCPA projects) along the Humber must be considered within the ES. Especially, projects with the potential to impact functionally linked land should be considered.

3. Biodiversity and geodiversity

3.1 The assessment will need to include potential impacts of the proposal upon sites and features of nature conservation interest as well as opportunities for nature recovery through biodiversity net gain (BNG). There might also be strategic approaches to take into account.

3.2 Ecological Impact Assessment (EclA) is the process of identifying, quantifying, and evaluating the potential impacts of defined actions on ecosystems or their components. EclA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal. [Guidelines](#) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM).

3.3 Public authorities who operate in England must consider what they can do to conserve and enhance biodiversity in England. This is the strengthened '[biodiversity duty](#)' that the Environment Act 2021 introduces. This means that, as a public authority, National Grid must:

- Consider what they can do to conserve and enhance biodiversity.
- Agree policies and specific objectives based on their consideration.
- Act to deliver their policies and achieve their objectives.

4. International and European sites

4.1 The development site is within or may impact on the following **European/internationally designated nature conservation site(s)**:

- Humber Estuary Special Area of Conservation (SAC)
- Humber Estuary Special Protection Area (SPA)
- Humber Estuary Ramsar
- The Wash & North Norfolk Coast SAC
- The Wash SPA
- The Wash Ramsar
- Saltfleetby – Theddlethorpe Dunes & Gibraltar Point SAC
- Gibraltar Point SPA

- Gibraltar Point Ramsar

- 4.2 The ES should thoroughly assess the potential for the proposal to affect internationally designated sites of nature conservation importance / European sites, including marine sites where relevant. This includes SPAs, SACs, listed Ramsar sites, candidate SACs and proposed SPAs.
- 4.3 Article 6 (3) of the Habitats Directive requires an appropriate assessment where a plan or project is likely to have a significant effect upon a European Site, either individually or in combination with other plans or projects.
- 4.4 Table 1 outlines potential impact pathways where further information/assessment is required. The advice is based on the information provided at this stage. NE may have additional comments to make when further information is provided.

Table 1: Potential risks to international/European designated sites

Site name with link to conservation objective	Potential impact pathways where further information/assessment is required
• Humber Estuary SPA • Humber Estuary Ramsar • The Wash SPA • The Wash Ramsar • Gibraltar Point SPA • Gibraltar Point Ramsar	<u>Ornithological Interest</u> • Noise & Visual Disturbance to birds during construction, including at Functionally Linked Land (FLL). • Bird collision risk during operation. • Visual Disturbance to birds during operation, including changes in lighting, perception as pylons as predator perch points. • Long term loss or damage to supporting habitats, including FLL. NE welcomes that the Habitats Regulations Assessment (HRA) will be informed by wintering and passage bird surveys. Please refer to Annex C Passage and wintering bird surveys for functionally linked land associated with the Humber Estuary and/or Lower Derwent Valley designated sites (Version 1.1, December 2021) for guidance on the methodology and presentation of the bird survey results to aid the assessment of impacts. We also recommend referring to Annex B: Humber Estuary Special Protection Area: non-breeding waterbird assemblage (Version 1.2, June 2023) for guidance on assessing impacts to the 'main component species' of the Humber Estuary SPA non-breeding waterbird assemblage. NE has generally advised that if $\geq 1\%$ of a designated bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration is required. However, where species are particularly

Site name with link to conservation objective	Potential impact pathways where further information/assessment is required
	vulnerable due to declines in the Humber Estuary population, then it may not be appropriate to rely on the 1% of the estuary population as the critical threshold. Mitigation measures may be required where lower numbers of vulnerable species are using a site that is proposed for development. Comments on Chapter 8 of the EIA Scoping Report: - Table 8.1 notes 2 surveys a month will be completed for higher risk areas. We welcome this frequency for surveying high risk areas. We would advise higher risk areas are informed by the year 1 surveys and the Impact Risk Zones (IRZs) for the designated sites. - Paragraph 8.5.62 notes that there is some difference between the survey coverage and the scoping boundary due to the evolving corridor. As the Applicant has confirmed they will still collect two years of wintering bird data for this area, we agree that this will not constrain the final evaluation of impacts. - Paragraph 8.5.64 states that a qualitative assessment of collision risk will be made. We agree this is a suitable approach. - Table 8.4 sets out the impacts scoped in and out of the assessment. We agree with the scoping conclusions. - Table 8.5 summarises the scope of the surveys, which is as we have previously agreed for wintering and breeding birds. Comments on Appendix 8B: - P.10-11 state that the wintering bird surveys for 2024-2025 will cover the months Nov-Mar. We normally advise the wintering period should include Oct – Mar, as advised for the project. Table 8.5 in the Scoping Report states that surveys will cover Oct – Mar. Therefore, we need clarification on which months will be included in the wintering bird survey. We would strongly recommend including Oct 2024 in the survey schedule.
Humber Estuary SAC The Wash & North Norfolk Coast SAC Saltfleetby-Theddlethorpe Dunes &	<u>Habitat Interest</u> - Air Quality impacts via construction traffic and dust mobilisation. See section 16 below. - Loss and fragmentation of designated habitats and FLL for mobile species (including lamprey and otter), including from barrier effects.

Site name with link to conservation objective	Potential impact pathways where further information/assessment is required
Gibraltar Point SAC	• Pollution events & water quality changes where hydrologically connected to the designated sites. See section 17 below. • Changes to the hydrology of the designated sites from discharge and / or abstraction. See section 17 below. <u>Species Interest</u> • Disturbance to River Lamprey <i>Lampetra fluviatilis</i> and Sea Lamprey <i>Petromyzon marinus</i>, i.e. noise, vibration and pollution, including at functionally linked habitats (Humber Estuary SAC). • Disturbance to Otter <i>Lutra lutra</i>, i.e. noise, vibration and pollution, including at functionally linked habitats (The Wash and North Norfolk Coast SAC). • Long term loss, fragmentation or damage to supporting habitats, including functionally linked habitats.

5. Nationally designated sites - Sites of Special Scientific Interest

5.1 Sites of Special Scientific Interest (SSSI) are protected under the Wildlife and Countryside Act 1981 (as amended). Further information on the SSSI and its special interest features can be found at www.magic.gov.uk.

5.2 Natural England's SSSI Impact Risk Zones can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the [Natural England Open Data Geoportal](#).

5.3 The development site is within or may impact on the following **Sites of Special Scientific Interest**:

- Humber Estuary SSSI
- The Wash SSSI
- Gibraltar Point SSSI
- Bratoft Meadows SSSI

5.4 The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within the SSSIs and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects. NE agree with those impacts, receptors and potential for significant effects outlined in Table 8.4 of the EIA Scoping Report.

Table 2: Potential risks to nationally designated sites

Site name with link to citation	Potential impact pathways where further information/assessment is required
• Humber Estuary SSSI	A SSSI impact assessment will be required to provide an assessment of the impacts to features which are only notified as part

Site name with link to citation	Potential impact pathways where further information/assessment is required
• The Wash SSSI • Gibraltar Point SSSI	of the SSSIs, as well as the assessment of those which are also designated as European site features in Table 1. The impact pathways to be considered within the assessments are the same as stated above for the international/European designations in Table 1.
• Bratoft Meadows SSSI	NE notes from the non-statutory consultation that sections 6 and 7 of the cable search routes include areas in proximity to Bratoft Meadows SSSI, which is notified for its lowland neutral grassland feature. Any construction activity within 200m will need to review air pollution impacts to the site including from dust and NO _x from increased traffic movements during construction and any maintenance activities once operational.

6. Regionally and Locally Important Sites

6.1 The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. Local Sites are identified by the local wildlife trust, geo-conservation group or other local group and protected under the NPPF (paragraph 174 and 175). The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improving connectivity with wider ecological networks. Contact the relevant local body for further information.

7. Nationally designated landscapes

7.1 Public bodies have a duty to seek to further the statutory purposes of designation in carrying out their functions (under section 245 of the Levelling Up and Regeneration Act 2023). This duty also applies to proposals outside the designated area but impacting on its natural beauty.

7.2 The development site may impact on the Lincolnshire Wolds National Landscape (LWNL); formally known as the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB).

7.3 The [Overarching National Policy Statement for Energy \(EN-1\)](#) (section 5.10) provides significant protection for these nationally designated landscapes including their settings.

7.4 Assessment should be made of the direct and indirect effects on this designated landscape and in particular the effect upon its special qualities and purpose for designation – conserving and enhancing natural beauty. The management plan for the designated landscape may also have relevant information that should be considered in the EIA.

7.5 The ES should also include assessment of impact of severance on biodiversity and the functionality of habitats at a landscape scale in the national landscape setting. This should include how impacts to these features will be avoided.

7.6 Natural England have encouraged the Applicant to engage the Lincolnshire Wolds National Landscape Partnership to discuss potential impacts of the proposals national landscape. We understand this has been happening in relation to creating the LVIA.

7.7 Comments on the EIA Scoping Report:

- The statutory purpose of the Lincolnshire Wolds National Landscape is to conserve and enhance the area's natural beauty. NE welcome the Project will be designed to comply with existing National Grid standards and the guidelines and policies detailed in [National Policy Statement for Electricity Networks Infrastructure \(EN-5\)](#) (Chapter 2, paragraph 2.9.7 to 2.9.25).
- NE's landscape advice will focus on the potential for adverse effects on the statutory purpose of the LWNL and its setting. NE consider that much of the proposed route is likely to be within 5km of the LWNL boundary and within the setting of the LWNL and emphasise that this route is adjacent to the entire eastern edge of the designation, a circa 50km distance.
- We note that the Applicant has provided their own summary of NE's advice in Table 6.1 of the EIA Scoping Report. Natural England's full advice on the project to date, reviewed in the context of the EIA Scoping Report, is presented below within Table 3.
- We would like to note that the full rationale for the 2km buffer to the national landscape was not understood by NE at the route-selection (CPRSS) stage. We note that the EIA Scoping Report is proposing a study area of 5km from the proposed route, which is sited within 1km of the national landscape in places, and that the *"emphasis of the assessment will, however, be based on receptors lying within 3 km as beyond this distance significant landscape effects are highly unlikely to arise"* (para 6.4.6 EIA Scoping Report). We are unclear what landscape evidence has been used to establish these 5km and 3km thresholds, particularly in the absence of maps showing zones of theoretical visibility, however we welcome the Applicants intention to produce this evidence over a 10km distance.

Table 3: Natural England's EIA scoping advice on the Grimsby to Walpole project to date regarding the potential for adverse effects on the statutory purpose of the Lincolnshire Wolds National Landscape and its setting.

Stage	NE Advice	NE further comment at EIA Scoping stage
CPRSS methodology	NE's landscape advice will focus on the potential for adverse effects on the statutory purpose of the LWNL and its setting. LWNL is a nationally designated landscape, and its statutory purpose is to conserve and enhance the area's natural beauty. Consideration should be given to the direct and indirect effects on the designated landscape, and particularly the effect upon its purpose for designation, as well as the content of the relevant management plan.	Advice remains.
	The information presented does not provide certainty that the project can avoid direct impacts to the national landscape, the project would not be sited within the 2km buffer to the national landscape, the rationale behind the 2km buffer, the rationale behind the sensitivity weighting of the 2km buffer, or how landscape and visual evidence will inform the evaluation of the various route options.	The EIA Scoping Report indicates that the project cannot avoid direct impacts to the national landscape (temporary access routes), and that the project is sited within 1km of the LWNL at its closest. The rationale/evidence behind the CPRSS methodology was not provided to NE.
	NE support the presumption of undergrounding cables if the corridor was to go through the LWNL, as well as no substations or OHL within the LWNL.	Advice remains. 6.5.36 of EIA scoping report states <i>"It is therefore proposed to exclude consideration of the direct effects on the landscape of the Lincolnshire Wolds"</i>
	The technical note on CPRSS methodology	

	states “<i>The buffers were not intended to be areas where transmission development must be avoided but instead are areas where transmission development should be minimised</i>”. NE advise that impacts to the landscape setting of LWNL is properly considered within early assessment.	<i>National Landscape (AONB) from the assessment with the exception of any effects arising from temporary access routes</i>”. Accordingly, NE advises that the LVIA include an assessment of the potential direct impacts from temporary access routes through the LWNL. Table 6.2 states “<i>at its closest the Lincolnshire Wolds National Landscape (AONB) lies within 1 km of the Scoping Boundary and the Project is partly within the setting of the designated area. Some of the roads through the designated area may be used as temporary access routes.</i>” NE consider that much of the proposed route is likely to be within 5km of the LWNL boundary and therefore within the setting of the LWNL and emphasise that this route is adjacent to the entire eastern edge of the designation, ca. 50km. NE note that a specific “setting study” is proposed by the Applicant to be submitted alongside other landscape assessment. We advise that this assessment includes effects on the ‘special qualities’ of the designated landscape, as set out in the statutory management plan for the area. These identify the particular landscape and related characteristics which underpin the natural beauty of the area and its designation status. NE are unclear what landscape and visual evidence has underpinned the proposed study area shown in Figure 6.1. The study area should be informed by ZTV analysis, which has not been provided. Appendix 6A (landscape methodology) provides no rationale behind using the metric 0.61 degrees to rule out significant landscape and visual effects.
	NE support that the LWNL is afforded the highest sensitivity weighting of 5 “Very High potential for the Project to be constrained” (as defined in the technical note).	Advice remains.
	NE are not clear why the 2km buffer to LWNL has been allocated a sensitivity weighting of 2 “Low potential to constrain the Project” for all project elements (OHL corridor, cable corridor, substation site). This requires justification. National planning policy and guidance is clear that development outside but within the setting of a designated landscape can impact negatively on its	Advice remains.

	statutory purposes.	
	NE are not clear why the sensitivity weightings of the OHL corridor, cable corridor, substation site (within the 2km buffer) are the same. This requires justification. Different infrastructure types have different landscape & visual impacts, and the sensitivity weightings (for 2km buffer) should reflect this/justify why they are the same.	Advice remains.
	What landscape and visual evidence, and rationale, has been used to underpin the proposal for a 2km buffer?	Advice remains.
	Page 4 of technical report states that “The extent of buffers was based upon the professional judgement of the relevant Project team subject matter expert, considering relevant legislation, policy and best practice.” - Is the “Identification of designated sites” and a “Review of Landscape Character Assessments of relevance to the study areas” the only landscape evidence used to inform routeing and siting (and the buffer)? Is this the full list of data used? How did the ground truthing exercise (pg. 20) and the LCA review inform the corridors and siting zones, and the buffer? - What was the relevant legislation, policy and best practice considered (for landscape-related constraints)? Full methodology should include this.	Advice remains. Clarifications on the landscape evidence used by the Applicant in their routing and siting considerations has not been provided to NE. However, NE note that the EIA Scoping Report including Appendix 6A (methodology) does include information about the legislation, policy and guidance considered.
Non-statutory consultation	The CPRSS confirms that direct impacts to the LWNL cannot be avoided by the Corridors, Siting Zones, and Siting Areas presented (Table 5-5). We note that (para 5.2.22) “ <i>Due to the potential challenge in routeing in the area between the AONB and Grimsby/Cleethorpes it was therefore considered that an alternative underground cable corridor to the west of the Overhead Line Study Area (within the AONB) should be considered as a viable alternative</i> ”. NE advise that a robust justification as to why the Western Corridor route cannot avoid the AONB (or its setting) will be necessary to meet the requirements of national policy. NE would like to understand this justification.	Advice remains.
	We note that para 6.2.9 confirms that lines within AONB will be undergrounded, and that temporary significant adverse effects on the AONB could occur during construction. NE support the presumption of undergrounding cables if a direct route through the AONB is unavoidable. NE advise that the scope of the LVIA should include an assessment of potential construction and operational effects on the defined (in the AONB Management	Advice remains.

	Plan) special qualities of the AONB and the delivery of the area's statutory purpose. NE advise that any assumptions at this stage that the buried pipeline will not have any adverse (significant or otherwise) effects once the route is reinstated and the scheme is operating should be avoided.	
	NE advise that further details on the design and siting of Sealing End Compounds should be provided, and that the potential effects of Sealing End Compounds on the AONB should be included within the scope of the LVIA.	NE note the clarification on page 6-10 of the EIA Scoping Report that "No Sealing End Compounds are currently proposed as part of the Project."
	NE advise that OHLs within parts of the Western Corridor have the potential to be within the immediate setting of the AONB. We note that the CPRSS acknowledges this potential effect, which NE advise will need to be explored further within an LVIA (para 6.2.8) <i>"There is potential that, even with careful routeing, significant adverse visual effects on the setting of the AONB and views to/from the AONB may not be avoidable and therefore consideration of other mitigation (informed by detailed landscape and visual assessments) such as alternative pylon types or undergrounding an overhead line (as described in Paragraph 4.8.4, hereafter 'other mitigation') in these Sections may be considered."</i> NE would like to understand whether OHL will be avoided completely in the 2km constraint buffer to the AONB, and the scope for undergrounding cables within the setting of the AONB.	Advice remains. NE notes that the EIA Scoping Report indicates that the project cannot avoid direct impacts to the national landscape (temporary access routes), and that the project is sited within 1km of the LWNL at its closest.
EIA Scoping Report	Lincolnshire Wolds Nationally Designated Landscape - The development site is within or may impact on the LWNL. - National Policy Statements EN-1 and EN-5 provide the highest level of planning protection for these nationally designated landscapes. - Public bodies have a duty to seek to further the statutory purposes of designation in carrying out their functions (under section 245 of the Levelling Up and Regeneration Act 2023). This duty also applies to proposals outside the designated area but impacting on its natural beauty. - Consideration should be given to the direct and indirect effects on this designated landscape and in particular the effect upon its purpose for designation. The management plan for the designated landscape may also have relevant information that should be considered in the EIA.	N/A.

	Landscape and visual impacts • The environmental assessment should refer to the relevant <u>National Character Areas</u>. Character area profiles set out descriptions of each landscape area and statements of environmental opportunity. • The ES should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA) and the use of the NE guidance Landscape character assessments: identify and describe landscape types - GOV.UK (www.gov.uk). LCA provides a sound basis for guiding, informing, and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character. • A landscape and visual impact assessment should also be carried out for the proposed development and surrounding area. NE recommends use of the methodology set out in <i>Guidelines for Landscape and Visual Impact Assessment 2013</i> (3rd edition) produced by the Landscape Institute and the Institute of Environmental Assessment and Management. • In response to the Landscape Assessment Methodology described in Appendix 6A, NE welcome that the LWNL is classified as having a Very High landscape value; that landscape value and susceptibility will be assessed independently; and the clarification that a moderate effect will be classified as a significant effect. • We advise that the landscape and visual impact assessment also includes effects on the 'special qualities' of the designated landscape, as set out in the statutory management plan for the area. These identify the particular landscape and related characteristics which underpin the natural beauty of the area and its designation status. • The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. This should include an assessment of the impacts of other proposals currently at scoping stage. This assessment should be made in alignment with the GLVIA. An important output of the assessment will be a conclusion on whether any additional or total cumulative effects will	N/A.
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	adversely affect the landscape character or conflict with the special qualities or objectives of the LWNL or its wider landscape setting. • NE welcome that the scope of the assessment will cover potential impacts to key views to and from the LWNL (Table 7.2, EIA Scoping Report). However, NE are not clear why people using National Trails and regionally promoted routes (beyond 3 km of the Project) are currently scoped out of the proposed assessment, and how the information presented in Figure 16.2 has been used to make this judgement. NE advise that there is the potential for views out of the LWNL to be affected by the proposed development, particularly from viewpoints at a higher elevation, and that these viewpoints may exist beyond 3km from the project. Evidence to exclude this scenario has not been presented.	
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8. Landscape and visual impacts

8.1 The environmental assessment should refer to the relevant [National Character Areas](#). Character area profiles set out descriptions of each landscape area and statements of environmental opportunity.

8.2 The EIA should include a full assessment of the potential impacts of the development on local landscape character using [landscape assessment methodologies](#). We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing, and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character.

8.3 A landscape and visual impact assessment should also be carried out for the proposed development and surrounding area. Natural England recommends use of the methodology set out in *Guidelines for Landscape and Visual Impact Assessment 2013* (3rd edition) produced by the Landscape Institute and the Institute of Environmental Assessment and Management. For National Parks and National Landscapes (formerly AONBs), we advise that the assessment also includes effects on the 'special qualities' of the designated landscape, as set out in the statutory management plan for the area. These identify the particular landscape and related characteristics which underpin the natural beauty of the area and its designation status.

8.4 The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. This should include an assessment of the impacts of other proposals currently at scoping stage.

8.5 To ensure high quality development that responds to and enhances local landscape character and distinctiveness, the siting and design of the proposed development should reflect local characteristics and, wherever possible, use local materials. Account should be taken of local design policies, design codes and guides as well as guidance in the [National Design Guide](#) and [National Model Design Code](#). The ES should set out the

measures to be taken to ensure the development will deliver high standards of design and green infrastructure. It should also set out detail of layout alternatives, where appropriate, with a justification of the selected option in terms of landscape impact and benefit.

8.6 The National Infrastructure Commission has also produced Design Principles [Design Principles for National Infrastructure - NIC](#) endorsed by Government in the National Infrastructure Strategy.

9. Protected species

9.1 The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law. Records of protected species should be obtained from appropriate local biological record centres, nature conservation organisations and local groups. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area.

9.2 The area likely to be affected by the development should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and, where necessary, licensed, consultants.

9.3 Natural England has adopted [standing advice](#) for protected species, which includes guidance on survey and mitigation measures. A separate protected species licence from Natural England or Defra may also be required.

9.4 Applicants should check to see if a mitigation licence is required using NE guidance on licencing [NE wildlife licences](#). Applicants can also make use of Natural England's charged service [Pre Submission Screening Service](#) for a review of a draft wildlife licence application. Natural England then reviews a full draft licence application to issue a Letter of No Impediment (LONI) which explains that based on the information reviewed to date, that it sees no impediment to a licence being granted in the future should the DCO be issued. This is done to give the Planning Inspectorate confidence to make a recommendation to the relevant Secretary of State in granting a DCO. Work relating to a LONI may be undertaken via the existing Service Level Agreement between the Applicant and Natural England. [Advice Note Eleven, Annex C – Natural England and the Planning Inspectorate | National Infrastructure Planning](#) contains details of the LONI process.

9.5 Comments on the EIA Scoping Report, Chapter 8:

- **Table 8.5: Study Areas and methods to be used during further ecological surveys pgs 8-49-8-52:** NE welcome further consultation on the water vole survey approach
- **Paragraph 8.6.9 Control and Management Measures, point B06:** The Proposed Development may want to consider a selection of bat replacement structures be used to increase the range of bat species that could be attracted to the features. For example, potential roost features (PRFs) could be created by veteranisation of existing healthy retained trees, or PRFs in trees that are to be felled could be translocated to retained trees (where safe to do so), standing monoliths or dead

wood features could also be created within retained woodlands where practicable and safe to do so.

- **8.8.3 Expected Survey Requirements pg. 8-49:** Natural England would expect to see ground level tree assessments, climbed inspections or emergence surveys (where trees are unsafe to climb) where there are trees or structures of moderate - high bat roosting potential that are likely to be directly impacted by works i.e. removed, structurally changed, or subjected to high levels of disturbance. Where there is moderate -high potential for hibernation use inspections would be expected between core wintering months (January and February).

9.6 As surveys progress and if they highlight the need for protected species licensing then we strongly encourage engaging with NE as soon as possible. Due to the uncertainty over District Level Licensing in Lincolnshire we would strongly encourage that you pursue a traditional EPS Mitigation-licensed approach for Great Crested Newt (GCN). See below, section 10.

10. District Level Licensing for great crested newts

10.1 The applicant has expressed an interest in entering into a District Level Licence (DLL) agreement.

10.2 Where strategic approaches such as DLL for GCN are used, a LONI will not be required. Instead, the developer will need to provide evidence to the Examining Authority (ExA) on how and where this approach has been used in relation to the proposal, which must include a counter-signed Impact Assessment and Conservation Payment Certificate (IACPC) from Natural England, or a similar approval from an alternative DLL provider.

10.3 The DLL approach is underpinned by a strategic area assessment which includes the identification of risk zones, strategic opportunity area maps and a mechanism to ensure adequate compensation is provided regardless of the level of impact. In addition, Natural England (or an alternative DLL provider) will undertake an impact assessment, the outcome of which will be documented in the IACPC (or equivalent).

10.4 If no GCN surveys have been undertaken, Natural England's risk zone modelling may be relied upon. During the impact assessment, Natural England will inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The IACPC will also provide additional detail including information on the Proposed Development's impact on GCN and the appropriate compensation required.

10.5 By demonstrating that the [DLL scheme for GCN](#) will be used, consideration of GCN in the ES can be restricted to cross-referring to the Natural England (or alternative provider) IACPC as a justification as to why significant effects on GCN populations as a result of the Proposed Development would be avoided.

10.6 It should be noted that at present, no scheme is active in Lincolnshire. A DLL scheme is planned to be launched within Lincolnshire, however the exact timescales of this are currently unknown. Natural England would encourage engagement from the applicant regarding DLL as soon as possible, to ensure entry into the scheme is feasible for the full length of the project.

11. Priority Habitats and Species

- 11.1 Priority Habitats and Species are of particular importance for nature conservation and included in the England Biodiversity List published under section 41 of the Natural Environment and Rural Communities Act 2006. Most priority habitats will be mapped either as Sites of Special Scientific Interest, on the Magic website or as Local Wildlife Sites. Lists of priority habitats and species can be found [here](#). Natural England does not routinely hold species data. Such data should be collected when impacts on priority habitats or species are considered likely.
- 11.2 Consideration should also be given to the potential environmental value of brownfield sites, often found in urban areas and former industrial land. Sites can be checked against the (draft) national Open Mosaic Habitat (OMH) inventory published by Natural England and freely available to [download](#). Further information is also available [here](#).
- 11.3 An appropriate level habitat survey should be carried out on the site, to identify any important habitats present. In addition, ornithological, botanical, and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present.
- 11.4 The Environmental Statement should include details of:
- Any historical data for the site affected by the proposal (e.g. from previous surveys)
 - Additional surveys carried out as part of this proposal
 - The habitats and species present
 - The status of these habitats and species (e.g. whether priority species or habitat)
 - The direct and indirect effects of the development upon those habitats and species
 - Full details of any mitigation or compensation measures
 - Opportunities for biodiversity net gain or other environmental enhancement

12. Ancient woodland, ancient and veteran trees

- 12.1 Ancient woodland is an irreplaceable habitat of great importance for its wildlife, its history, and the contribution it makes to our diverse landscapes. Paragraph 180 of the NPPF sets out the highest level of protection for irreplaceable habitats and development should be refused unless there are wholly exceptional reasons, and a suitable compensation strategy exists. Paragraph 2.9.19 of NPS EN-5 states that ‘...*applicants should: ...protect as far as reasonably practicable areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas.*’
- 12.2 Ancient Woodland has been identified within the scoping areas for the proposed development. We welcome the intention to avoid these areas as far as practicable as the route and Order Limits are defined. The ES should assess the impacts of the proposal on the ancient woodland and any ancient and veteran trees, and the scope to avoid and mitigate for adverse impacts. It should also consider opportunities for enhancement.
- 12.3 Natural England and the Forestry Commission have prepared [standing advice](#) on ancient woodland, ancient and veteran trees.

13. Biodiversity net gain

- 13.1 The Environment Act 2021 includes NSIPs in the requirement for BNG, with the biodiversity gain objective for NSIPs defined as at least a 10% increase in the pre-

development biodiversity value of the on-site habitat. It is the intention that BNG should apply to all terrestrial NSIPs accepted for examination from November 2025. Natural England welcome National Grid's commitment to deliver 10% biodiversity Net Gain across all of their construction projects in advance of this date, including this project.

- 13.2 Biodiversity Net Gain outcomes can be achieved on-site, off-site or through a combination of both, however, on-site provision should be considered first. Natural England advise that the latest version of the [biodiversity metric](#) should be used to calculate the biodiversity impact of the development. It should be noted that the same version of the BNG metric should be used pre- and post-development to ensure consistency, as each version of the metric may give altered biodiversity unit scores as the calculator is updated.
- 13.3 Natural England recognises the high opportunity for the development to deliver BNG and it is recommended that the following guidance is applied in order to achieve this:
- [Biodiversity Net Gain: Good Practice Principles for Development](#)
 - [BS 8683: 2021 Process for designing and implementing Biodiversity Net Gain](#)
- 13.4 In addition, the applicant should be aware of forthcoming guidance and legislation in relation to the Environment Act 2021, which may be released in the interim prior to submission of the DCO application.
- 13.5 In order to maximise nature recovery and target habitat enhancement where it will have the greatest local benefit it is recommended that locally identified opportunities should be acknowledged and incorporated into the design of BNG (both on and off-site). This should include any locally mapped ecological networks and priority habitats identified by City of Doncaster Council. In addition, Local Nature Recovery Strategies (LNRS) are a new mandatory system of spatial strategies for nature established by the Environment Act 2021 which will contribute to the national Nature Recovery Network (NRN). Work is currently underway to develop these strategies, which will identify strategic priorities for nature protection, recovery, and enhancement. Given the size, scale and opportunities afforded by the application is therefore recommended that engagement with relevant local planning authorities, responsible authorities and statutory consultees (including Natural England) is undertaken to align habitat enhancement through the development with any emerging plans and policies in relation to LNRS.

14. Connecting people with nature

- 14.1 The applicant should have regard to NPPF Paragraph 100 which requires planning decisions to protect and enhance National Trails. The National Trails website www.nationaltrail.co.uk provides further information.
- 14.2 The ES should consider potential impacts on access land, common land, public rights of way (including National Trails) and, where appropriate, the England Coast Path and coastal access routes and coastal margin in the vicinity of the development, in line with NPPF paragraph 100. It should assess the scope to mitigate for any adverse impacts. Rights of Way Improvement Plans (ROWIP) can be used to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.
- 14.3 Measures to help people to better access the countryside for quiet enjoyment and opportunities to connect with nature should be considered. Such measures could include

reinstating existing footpaths or the creation of new footpaths, cycleways, and bridleways. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Access to nature within the development site should also be considered, including the role that natural links have in connecting habitats and providing potential pathways for movements of species.

15. Soils and agricultural land quality

15.1 Soils are a valuable, finite natural resource and should also be considered for the ecosystem services they provide, including for food production, water storage and flood mitigation, as a carbon store, reservoir of biodiversity and buffer against pollution. It is therefore important that the soil resources are protected and sustainably managed. Impacts from the development on soils and best and most versatile (BMV) agricultural land should be considered. Further guidance is set out in the Natural England [Guide to assessing development proposals on agricultural land](#).

15.2 The following issues should be considered and, where appropriate, included as part of the ES:

- The degree to which soils would be disturbed or damaged as part of the development.
- The extent to which agricultural land would be disturbed or lost as part of this development, including whether any BMV agricultural land would be impacted.

15.3 This may require a detailed Agricultural Land Classification (ALC) survey if one is not already available. For information on the availability of existing ALC information see www.magic.gov.uk.

- Where an ALC and soil survey of the land is required, this should normally be at a detailed level, e.g. one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. The survey data can inform suitable soil handling methods and appropriate reuse of the soil resource where required (e.g. agricultural reinstatement, habitat creation, landscaping, allotments and public open space).
- The ES should set out details of how any adverse impacts on BMV agricultural land can be minimised through site design/masterplan.
- The ES should set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or biodiversity net gain. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.

15.4 Temporary displacement of soils because of the underground cable installation and temporary haul roads/ construction compounds can also result in permanent land quality change and soil damage if undertaken inappropriately. Degradation or permanent loss of BMV agricultural land should be considered in the EIA.

15.5 Further information is available in the Defra [Construction Code of Practice for the Sustainable Use of Soil on Development Sites](#) and The British Society of Soil Science [Guidance Note Benefitting from Soil Management in Development and Construction](#).

15.6 Comments on the EIA Scoping Report:

- **Paragraph 12.4.2:** The plan should apply to all soils affected by the scheme, not just those currently in agricultural use. This reflects the Government's commitment in its 25 Year Environment Plan for all soils to be sustainably managed. It is however recognised that some soils for engineering applications, such as for bulk fill will require different management to those selected for agricultural, landscaping or ecological end uses.
- **Paragraph 12.5.3:** We welcome use of the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) to guide soil management during construction. Alongside this there should also be a commitment for 'best and most versatile' (BMV) agricultural temporality required for the development to be returned back to its original ALC grade. This includes areas such as field scale ecological mitigation areas and borrow pits where reinstatement to the physical characteristics of 'best and most versatile' quality may also be required.
- **Paragraph 12.6.4:** An Outline Soil Management Plan should be provided with the ES. Natural England welcome the commitment to provide a detailed SMP post consent / pre-construction, however, an Outline SMP prepared at this stage to set out the soil management and restoration proposed to demonstrate the mitigation measures proposed in the ES have been considered and will be employed. It should be noted how restoration of the substations during decommissioning would be undertaken with regards to the soil resource.
- **Paragraph 12.6.4 Point AS01:** Natural England note and welcome the inclusion of roles and responsibilities. We advise that if the development proceeds, the developer uses an appropriately experienced soil specialist to advise on, and supervise, soil handling, including identifying when soils are dry enough to be handled and how to make the best use of the different soils on site.
- Machinery to be used will need to be specified. This should accord with best practice as set out in Defra 2009 Code of Construction Practice for the Sustainable Use of Soils on Construction Sites, namely using excavators and dump trucks. Use of bulldozers should not be permitted for any subsoils being returned to best and most versatile quality due to the high risk of soil compaction due to repeated trafficking. Bulldozers should not normally be used, other than if a modified loose tipping method of topsoil (not subsoil) replacement is employed in line with the Defra Construction Code.
- **Paragraph 12.8.2:** It is welcome that the permanent and temporary loss of soils in other (non-agricultural) land uses (second bullet) will be assessed; this should include all non-agricultural uses. The impacts on soils which are of particular importance for their carbon storage (peats and highly organic soils) should also be characterised.
- As noted previously an assessment of the impact on soil resources should be wider than just those affecting agricultural interests.
- **Paragraph 12.8.4:** Data on the presence of any agri-environment scheme can also be downloaded from the Natural England website.
- **Paragraph 12.9.3:** Duplication of 12.9.1

16. Air quality

- 16.1 Air quality in the UK has improved over recent decades but air pollution remains a significant issue. For example, approximately 85% of protected nature conservation sites are currently in exceedance of nitrogen levels where harm is expected (critical load) and approximately 87% of sites exceed the level of ammonia where harm is expected for

lower plants (critical level of 1µg)¹. A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The Government's Clean Air Strategy also has a number of targets to reduce emissions including to reduce damaging deposition of reactive forms of nitrogen by 17% over England's protected priority sensitive habitats by 2030, to reduce emissions of ammonia against the 2005 baseline by 16% by 2030 and to reduce emissions of NO_x and SO₂ against a 2005 baseline of 73% and 88% respectively by 2030. Shared Nitrogen Action Plans (SNAPs) have also been identified as a tool to reduce environmental damage from air pollution.

- 16.2 The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly, or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The ES should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk).
- 16.3 Natural England has produced guidance for public bodies to help assess the impacts of road traffic emissions to air quality capable of affecting European Sites. [Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations - NEA001](#)
- 16.4 In addition, ammonia can be emitted from vehicle exhaust emissions as a by-product of the catalytic conversion process designed to reduce emissions of nitrogen oxide.
- 16.5 Natural England therefore advises that ammonia sourced from traffic emissions should be included for assessment within the HRA. For further information please see this [report](#) from Air Quality Consultants (AQC) that looks at ammonia emissions from roads for assessing impacts on nitrogen-sensitive habitats.
- 16.6 There are currently two models which can be used to calculate the ammonia concentration and contribution to total N deposition from road sources. One of these models is publicly available and called [CREAM](#), and there is another produced by National Highways. The current CREAM model created by AQC used to assess ammonia emissions from road traffic has not been peer reviewed, however, at this time it has been recognised as a Best Available Tool and we deem it appropriate to be used where any caveats associated with this model are also considered within the assessment.
- 16.7 Information on air pollution modelling, screening and assessment can be found on the following websites:
- SCAIL Combustion and SCAIL Agriculture - <http://www.scail.ceh.ac.uk/>
 - Ammonia assessment for agricultural development <https://www.gov.uk/guidance/intensive-farming-risk-assessment-for-your-environmental-permit>
 - Environment Agency Screening Tool for industrial emissions <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>
 - Defra Local Air Quality Management Area Tool (Industrial Emission Screening Tool) – England <http://www.airqualityengland.co.uk/lagm>

¹ [Report: Trends Report 2020: Trends in critical load and critical level exceedances in the UK - Defra, UK](#)

16.8 Comments on the EIA Scoping Report:

- **Paragraph 14.4.1** references [IAQM guidance](#) for screening criteria for air quality impacts from construction dust. Ecological sites within 50m of the scoping boundary would be reviewed in line with this guidance. NE would ask for the more precautionary 200m distance. The rates at which dust particles are removed from the atmosphere depend strongly on their size. Large particles deposit rapidly near their source (within 100m) by gravitational settling; Intermediate particles are likely to travel up to 200-500m (DETR, 2000). Dust produced during the construction phase could cause smothering effects if the designated site is within approx. 200m. Smaller particles can travel up to 1km from source and some can be transported over long distances - even between different countries and continents.
- **Paragraph 14.4.3** references the [IAQM guidance](#) for indicative criteria for requiring an air quality assessment in regards to increases in road traffic. This is a more precautionary approach than we would request, so are satisfied it will capture all impacts to designated sites from additional construction traffic air pollution.

17. Water quality

17.1 The planning system plays a key role in determining the location of developments which may give rise to water pollution, and hence planning decisions can have a significant impact on water quality, and land. The assessment should take account of the risks of water pollution and changes to water quantity and how these can be managed or reduced. A number of water dependent protected nature conservation sites have been identified as failing condition due to elevated nutrient levels and nutrient neutrality is consequently required to enable development to proceed without causing further damage to these sites. The ES needs to take account of any strategic solutions for nutrient neutrality or Diffuse Water Pollution Plans, which may be being developed or implemented to mitigate and address the impacts of elevated nutrient levels.

18. Climate change

18.1 The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development will embed Nature Based Solutions, maintain ecological networks and build resilience to climate change. The ES should also incorporate the policies as set out in NPS EN-1 relating to climate change. The NPPF also requires that the planning system should contribute to the enhancement of the natural environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.

Annex B: Humber Estuary Special Protection Area: non-breeding waterbird assemblage (Version 1.2, June 2023)

The Humber Estuary Special Protection Area (SPA) qualifies under article 4.2 of the European Commission Bird Directive (79/409/EEC) in that it supports an internationally important assemblage of waterbirds. Confusion can arise concerning which species to consider when assessing the Humber Estuary SPA non-breeding, waterbird assemblage feature.

Natural England recommends focusing on what are referred to as the 'main component species' of the assemblage. Main component species are defined as:

- a) All species listed individually under the assemblage feature on the SPA citation (i.e. the species that qualified in 2007 when the site was designated).
- b) Species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count (currently 2017/18 - 2021/22).
- c) Species where more than 2000 individuals are present according to the most recent Humber Estuary WeBS count.

The assemblage qualification is therefore subject to change as species' populations change. It should be noted that species listed on the citation under the assemblage features, whose populations have fallen to less than 1% of the national population, retain their status as a main component species and should be considered when assessing the impacts of a project or plan on the Humber Estuary SPA.

Natural England advises that the main component species of the Humber Estuary SPA non-breeding waterbird assemblage include (June 2023):

a) *Species listed individually under the assemblage feature on the SPA citation:*

- Avocet, *Recurvirostra avosetta* (non-breeding)
- Bar-tailed godwit, *Limosa lapponica* (non-breeding)
- Bittern, *Botaurus stellaris* (non-breeding)
- **Black-tailed godwit, *Limosa limosa islandica* (non-breeding)¹**
- **Brent goose, *Branta bernicla* (non-breeding)¹**
- **Curlew, *N. arquata* (non-breeding)¹**
- **Dunlin, *Calidris alpina alpina* (non-breeding)¹**
- **Golden plover, *Pluvialis apricaria* (non-breeding)¹**
- Goldeneye, *Bucephala clangula* (non-breeding)
- Greenshank, *T. nebularia* (non-breeding)
- Grey plover, *P. squatarola* (non-breeding)
- Knot, *Calidris canutus* (non-breeding)
- **Lapwing, *Vanellus vanellus* (non-breeding)¹**
- **Mallard, *Anas platyrhynchos* (non-breeding)¹**
- Oystercatcher, *Haematopus ostralegus* (non-breeding)
- Pochard, *Aythya farina* (non-breeding)
- **Redshank, *Tringa totanus* (non-breeding)¹**
- Ringed plover, *Charadrius hiaticula* (non-breeding)
- **Ruff, *Philomachus pugnax* (non-breeding)¹**
- Sanderling, *Calidris alba* (non-breeding)

¹ Species known to use off-site supporting habitat / functionally linked land (FLL) in the non-breeding season

- Scaup, *Aythya marila* (non-breeding)
- **Shelduck, *Tadorna tadorna* (non-breeding)¹**
- **Teal, *Anas crecca* (non-breeding)¹**
- Turnstone, *Arenaria interpres* (non-breeding)
- **Whimbrel, *Numenius phaeopus* (non-breeding)¹**
- **Wigeon, *Anas Penelope* (non-breeding)¹**

And

b) Species which are not listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count:

- Green sandpiper, *Tringa ochropus* (non-breeding)
- **Greylag goose, *Anser anser* (non-breeding)¹**
- **Little egret, *Egretta garzetta* (non-breeding)¹**
- **Pink-footed goose, *Anser brachyrhynchus* (non-breeding)¹**
- Shoveler, *Anas clypeata* (non-breeding)
- **Crane, *Grus grus* (non-breeding)¹**

As stated above, the assemblage qualification is subject to change as species' populations change; therefore, the appropriate WeBS data should be considered in any assessment and the above list should be used as a guide only.

Please note, the advice set out above should be considered when assessing potential impacts on the waterbird assemblage feature. You will also need to consider potential impacts on species which are not considered to be non-breeding waterbirds but are listed on the citation qualifying under article 4.1 and 4.2 of the Directive. These include:

- **Hen harrier, *Circus cyaneus* (non-breeding)¹**
- **Marsh Harrier, *Circus aeruginosus* (breeding)¹**
- Little tern, *Sterna albifrons* (breeding)
- Avocet, *Recurvirostra avosetta* (breeding)
- Bittern, *Botaurus stellaris* (breeding)

The species marked ¹ in **bold text** are known to use off-site supporting habitat / functionally linked land (FLL) (e.g. arable farmland, grassland/pasture, and/or non-estuarine waterbodies) in the non-breeding season and may therefore be the most relevant for assessing potential impacts of a proposed plan/project on birds using FLL associated with the Humber Estuary SPA. However, please note that this list should be used as a guide only; usage may depend on factors such as the habitats available on the site and distance to the Humber Estuary etc. Therefore, assessments of potential impacts on birds using functionally linked land should consider all relevant species and clear justification should be provided if any species are excluded from the assessment.

¹ Species known to use off-site supporting habitat / functionally linked land (FLL) in the non-breeding season

Annex C: Passage and wintering bird surveys for functionally linked land associated with the Humber Estuary and/or Lower Derwent Valley designated sites (Version 1.1, December 2021)

Background

The below guidance is intended to inform assessments of proposed development sites in proximity to the Humber Estuary and/or the Lower Derwent Valley designated sites only, where potential impacts from loss of/disturbance to functionally linked land (FLL) have been identified, for example due to presence of suitable habitat (such as arable land/grassland or open waterbodies) and/or relevant bird records and/or local knowledge.

Natural England recommends that surveys are undertaken of the site and surrounding fields to provide an overview of bird usage during wintering and spring/autumn passage periods.

We recommend that the surveys are carried out in line with the following best practice guidance. Where alternative approaches are used, clear justification should be provided.

Please note that recommended survey periods, frequency and design may differ for sites located within the boundaries of Humber Estuary or Lower Derwent Valley designated sites, or in proximity to other designated sites. Please contact Natural England in such cases.

Survey periods and frequency

Natural England recommends that surveys are completed at the following frequency:

- Autumn Passage – two surveys per month between August to October inclusive.
- Winter - two surveys per month between October to March inclusive.
- Spring Passage – two surveys per month between March - Mid-May inclusive.

We advise that spring and autumn passage surveys are completed (in addition to winter surveys) as the Humber Estuary and Lower Derwent Valley SPAs are important for species migrating between breeding and wintering sites. Further advice on seasonality for Humber Estuary SPA and Lower Derwent Valley SPA designated features can be found at [Designated Sites View \(naturalengland.org.uk\)](https://naturalengland.org.uk/designated-sites-view) and [UK9006092 Lower Derwent Valley SPA Published 14 Sep 2023 \(naturalengland.org.uk\)](https://naturalengland.org.uk/uk9006092-lower-derwent-valley-spa), respectively.

Weekly visits during the autumn and spring passage periods are recommended where birds are likely to be present in the migration period only, due to high turnover of birds during migration. Note that certain passage species, such as whimbrel associated with the Lower Derwent Valley SPA, may have specific survey requirements due to their migration behaviour. Please discuss such cases with Natural England.

Natural England recommends that two years of wintering and passage surveys should be completed in certain cases to provide a more robust understanding of SPA bird usage on the site and inform design of suitable mitigation, where relevant. This will depend on site-specific factors, for example where proposed development sites:

- are in very close proximity to the designated site/s; and/or
- have a large development footprint; and/or
- are expected/shown to have high bird sensitivity, especially where activity varies significantly between years; and/or
- existing bird records / expert advice demonstrates usage of the site by high numbers of SPA birds.

Please contact Natural England if you are unclear on whether two years of wintering and passage surveys are recommended for this proposal.

Survey design

Wintering/passage surveys should be designed to ensure that results are sufficient to provide a robust picture of distribution, abundance and regularity of use by waterbirds associated with the Humber Estuary and/or Lower Derwent Valley SPAs across the full extent of the proposed development site. Please refer to Annex B and/or Annex B1 for the non-breeding waterbird assemblage list for the Humber Estuary and Lower Derwent Valley SPA, respectively.

A detailed methodology should be included in the relevant report/s, including key information such as number of visits, date and time of visits, viewpoint locations and/or transect routes walked. The survey results should provide some understanding of how the birds use the site (for example, for roosting or foraging) as well as presence/ absence. We would expect to see commentary of birds landing and taking off within and outwith the development site. We also recommend recording birds in flight, particularly if the application may have the potential to affect bird flight lines.

Consideration should also be given to surveys in poor weather/ visibility conditions. Usual survey methodology is to avoid surveying in poor conditions due to potential reduced detectability of birds. However, use can vary in different weather conditions, so it may be helpful to carry on with surveys in poor weather. Weather conditions may affect the results of the surveys and therefore should be considered in assessing the robustness of the dataset.

In addition, details of wider weather conditions should be included, for example, where there may have been a particularly wet or cold season and this may change bird distribution across the area, due to frozen ground etc. Furthermore, a milder autumn may lead to wintering birds arriving later and vice versa in colder autumns.

The methodology should also consider whether the site has any seasonal features such as dips and low-lying areas that retain water at particular times, for example early in the season or in wet years. These areas may have importance for waders at these times, but if surveyed during a drier spell or where full passage/winter surveys have not been completed, it may be possible to underestimate the importance of the site.

For sites in close proximity to the Humber Estuary, the surveys should cover different tidal states. Use of sites closer to the estuary are more likely to be tidally influenced. For sites which may potentially affect high tide roosts, observations should be conducted from two hours before high tide to two hours after high tide. For sites where there are high tide roosts, it may be beneficial to have a series of counts at different heights of tides ("through the tide counts"), as some sites are only used on Spring tides and others are only used on Neap and low tides.

For sites in proximity to the Lower Derwent Valley, the surveys should cover different times of day and different flooding states in the valley. For example, during certain winter periods, the designated site may be extensively flooded and therefore usage of surrounding functionally linked land may be higher for wading birds.

The surveys should cover open arable land/grassland and any waterbodies within the proposed site boundary, as well as land adjacent to the development that could be affected and provides the potential to support designated site species. Where a site is adjacent to the Humber Estuary designated site, additional considerations may be required, for example

ensuring adequate surveys of intertidal habitats. Please contact Natural England in such cases.

Surveys may also need to take account of surveys at dusk and dawn, depending upon the bird species (i.e. geese and swans). If geese and swans have the potential to use the development site or surrounding area, we would expect to see surveys 1 hour before and 1 hour after, dusk and dawn during the respective bird survey season (i.e. winter, spring and autumn passage (as above)). These surveys should be in addition to the standard daytime survey but can be carried out on the same day. For example, a dawn survey to count geese or swans at their night-time roost could then extend into a survey of daytime use of fields for foraging.

Natural England generally recommends that observations from vantage points (VP) are used. VP surveys are considered preferable to walkover surveys for observing behaviour of birds on the ground (i.e., whether they are foraging/loafing etc.), and to minimise the risk of flushing birds due to movement of a surveyor during a walkover survey. Also, birds which may otherwise have landed in the field during the survey period may be unlikely to do so with the presence of a moving surveyor. If landscape features mean it is not possible to avoid walking through part of the survey area to get from one point count to another, this should be noted and the reaction of any birds present recorded, including any that are flushed.

Further guidance on vantage point surveys can be found at [Recommended bird survey methods to inform impact assessment of onshore windfarms | NatureScot](#). Natural England recognises that the NatureScot VP guidance is written for impacts associated with wind turbines. However, Natural England considers that the survey guidance detailed in Section 3.7 provides an appropriate methodology to identify distribution and abundance of birds to inform the assessment of other developments. We acknowledge that some of the information regarding the required watch hours and height considerations etc will not be relevant in the context of other developments. Therefore, site-specific considerations should be taken into account when designing the survey methods.

Where VP surveys are not considered appropriate for a particular site, clear reasoning and justification regarding the alternative survey methods undertaken should be provided.

Natural England has generally advised that if $\geq 1\%$ of a Humber Estuary bird species population could be affected by a proposal, alone or in combination with other plans or projects, then further consideration is required. However, where species are particularly vulnerable due to declines in the Humber population, then it may not be appropriate to rely on the 1% of the estuary population as the critical threshold. Mitigation measures may be required where lower numbers of vulnerable species are using a site that is proposed for development.

Nocturnal surveys

Wader and waterfowl usage of arable land/grassland outside designated sites can be substantially different at night. Therefore, Natural England recommends nocturnal surveys are also carried out if waders and/or waterfowl have the potential to use the development site. These surveys should be in addition to the standard daytime surveys. We recommend that several visits should be completed to determine if the site and/or surrounding areas play a regular role in supporting SPA species at night. Night vision/infra-red equipment and survey on moonlit nights can establish presence of nocturnal species or presence and direction of feeding/migration movements both by calls and by sight¹.

Guidance on nocturnal surveys can be found at [Nocturnal bird surveys | Bird Survey Guidelines](#). The nocturnal survey design should take this guidance into account, and the approach should be justifiable in the assessment. It should be noted that for most species nocturnal activity is likely to be underestimated in any attempted survey¹.

¹ Scottish Natural Heritage: Recommended bird survey methods to inform impact assessment of onshore wind farms (March 2017- Version 2).

Annex B: Humber Estuary Special Protection Area: non-breeding waterbird assemblage

The Humber Estuary Special Protection Area (SPA) qualifies under article 4.2 of the European Commission Bird Directive (79/409/EEC) in that it supports an internationally important assemblage of waterbirds. Confusion can arise concerning which species to consider when assessing the Humber Estuary SPA non-breeding, waterbird assemblage feature.

Natural England recommends focusing on what are referred to as the 'main component species' of the assemblage. Main component species are defined as:

- a) All species listed individually under the assemblage feature on the SPA citation (i.e. the species that qualified in 2004 when the site was designated).
- b) Species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count.
- c) Species where more than 2000 individuals are present according to the most recent Humber Estuary WeBS count.

The assemblage qualification is therefore subject to change as species' populations change. It should be noted that species listed on the citation under the assemblage features, whose populations have fallen to less than 1% of the national population, retain their status as a main component species and should be considered when assessing the impacts of a project or plan on the Humber Estuary SPA.

Natural England advises that the main component species of the Humber Estuary SPA non-breeding waterbird assemblage include (October 2022):

a) *Species listed individually under the assemblage feature on the SPA citation:*

- Avocet, *Recurvirostra avosetta* (non-breeding)
- Bar-tailed godwit, *Limosa lapponica* (non-breeding)
- Bittern, *Botaurus stellaris* (non-breeding)
- **Black-tailed godwit, *Limosa limosa islandica* (non-breeding)¹**
- **Brent goose, *Branta bernicla* (non-breeding)¹**
- **Curlew, *N. arquata* (non-breeding)¹**
- **Dunlin, *Calidris alpina alpina* (non-breeding)¹**
- **Golden plover, *Pluvialis apricaria* (non-breeding)¹**
- Goldeneye, *Bucephala clangula* (non-breeding)
- Greenshank, *T. nebularia* (non-breeding)
- Grey plover, *P. squatarola* (non-breeding)
- Knot, *Calidris canutus* (non-breeding)
- **Lapwing, *Vanellus vanellus* (non-breeding)¹**
- **Mallard, *Anas platyrhynchos* (non-breeding)¹**
- Oystercatcher, *Haematopus ostralegus* (non-breeding)
- Pochard, *Aythya farina* (non-breeding)
- **Redshank, *Tringa totanus* (non-breeding)¹**
- Ringed plover, *Charadrius hiaticula* (non-breeding)
- **Ruff, *Philomachus pugnax* (non-breeding)¹**
- Sanderling, *Calidris alba* (non-breeding)

¹ Species known to use non-wetland habitats (e.g. arable farmland and/or grassland/pasture)

- Scaup, *Aythya marila* (non-breeding)
- **Shelduck, *Tadorna tadorna* (non-breeding)¹**
- **Teal, *Anas crecca* (non-breeding)²¹**
- Turnstone, *Arenaria interpres* (non-breeding)
- **Whimbrel, *Numenius phaeopus* (non-breeding)¹**
- **Wigeon, *Anas Penelope* (non-breeding)¹**

And

b) Species which are not listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count:

- Green sandpiper, *Tringa ochropus* (non-breeding)
- **Greylag goose, *Anser anser* (non-breeding)¹**
- **Little egret, *Egretta garzetta* (non-breeding)¹**
- **Pink-footed goose, *Anser brachyrhynchus* (non-breeding)¹**
- Shoveler, *Anas clypeata* (non-breeding)
- **White-fronted goose, *Anser albifrons* (non-breeding)¹**

As stated above, the assemblage qualification is subject to change as species' populations change; therefore, the appropriate WeBS data should be considered in any assessment and the above list should be used as a guide only.

Please note, the advice set out above should be considered when assessing potential impacts on the waterbird assemblage feature. You will also need to consider potential impacts on species which are not considered to be non-breeding waterbirds but are listed on the citation qualifying under article 4.1 and 4.2 of the Directive. These include:

- **Hen harrier, *Circus cyaneus* (non-breeding)¹**
- **Marsh Harrier, *Circus aeruginosus* (breeding)¹**
- Little tern, *Sterna albifrons* (breeding)
- Avocet, *Recurvirostra avosetta* (breeding)
- Bittern, *Botaurus stellaris* (breeding)

The species marked ¹ in **bold text** are known to use non-wetland habitats (e.g. arable farmland and/or grassland/pasture) and may therefore be the most relevant for assessing potential impacts of a proposed plan/project on birds using functionally linked land associated with the Humber Estuary SPA. However, please note that this list should be used as a guide only; usage may depend on factors such as the habitats available on the site and distance to the Humber Estuary etc. Therefore, assessments of potential impacts on birds using functionally linked land should consider all relevant species and clear justification should be provided if any species are excluded from the assessment.

¹ Species known to use non-wetland habitats (e.g. arable farmland and/or grassland/pasture)

A.4. Natural England and the Applicant Correspondence

- A.4.1. Annex A.4 presents the correspondence and documents between the Applicant and Natural England throughout the evolution of the application for the Proposed Development.

A.5. Methods

Light Valley Solar

Background and Survey Approach

Non-breeding Bird Survey Approach for Winter 2024-2025

We propose to undertake three surveys per month across the winter period of September 2024 to March 2025, comprising a Transect survey, a Vantage Point survey and a Nocturnal Vantage Point survey. These surveys will identify the distribution and abundance of birds utilising the site. The details of each survey are as follows:

Transect Surveys

Ten transects will be completed once per month across the period September 2024 to March 2025 (7 visits in total). These will record usage of the Site by target bird species and, in particular, species which form a qualifying or assemblage species of the Humber Estuary SPA or Lower Derwent Valley SPA. Surveyors will follow a set-route and map records of target species whilst ensuring not to disturb any foraging waterbirds present. Surveys will also record evidence of disturbance, such as farming activity or recreation (dog walking).

Vantage Point Surveys

Twenty-one Vantage Point locations will be surveyed once per month across the period September 2024 to March 2025 (7 visits in total). Surveys will be undertaken for a minimum of 3 hours in length, and therefore at least 21 hours survey time will be accrued at each VP location. Survey timings will be stratified across the day and include both dawn and dusk visits for each location. In the event that a regular flight line for target species is identified, such as swans moving to preferred foraging areas, then additional effort will be undertaken in that location.

Nocturnal Transect Surveys with Targeted Vantage Points

Ten transects with targeted Vantage Points along the route will be completed once per month across the period September 2024 to March 2025 (7 visits in total).

Surveys will start 1 hour before and 1 hour after, dusk and dawn during the respective bird survey season (i.e. winter, spring and autumn passage). We also plan to time surveys to cover different parts of the day and different flooding states where feasible, as well as provide commentary of birds landing and taking off within and adjacent to the development site.



Advice Sought from Natural England

We have designed our approach with consideration to the guidance sent to us as part of the DAS request (Annex B1 – LDV SPA component species June 2023 and Annex C Bird survey Guidance for Humber Estuary and Lower Derwent Valley FLL (Dec 2023) (1)). We propose the survey methods outlined above as they are proportionate and will provide a good representative example of the non-breeding bird assemblage across the site but would appreciate your opinion on the matter to ensure the survey effort is sufficient to support the planning application. We would welcome any feedback during our first meeting in October.

Yours sincerely

A black rectangular box redacting the signature of the Ecology Associate.

Ecology Associate

From: [REDACTED] <[\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk)>
Sent: 15 November 2024 14:39
To: [REDACTED] <[\[REDACTED\]@tylergrange.co.uk](mailto:[REDACTED]@tylergrange.co.uk)>
Cc: [REDACTED] <[\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk)>
Subject: Winter Bird Survey Approach advice

Dear [REDACTED]

Following the provision of the Winter Bird Survey Approach and the meeting 17th October, please see Natural England's advice on the proposals below, which I provide to assist in the undertaking of a Habitats Regulations Assessment. In addition to this there was a discussion in the meeting on whether Natural England would be able to discuss the tagging work that is currently being undertaken in Lower Derwent Valley NNR. The site manager for the NNR has confirmed that he is able to discuss the work on this, and thinks it might be best to discuss directly, his email address is [REDACTED] <[\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk)>.

We've also been consulted on the EIA scoping report and are currently progressing with our response to this.

Light Valley Solar Farm - Wintering Bird Survey Advice

This advice has been provided in response to the proposed survey methodology submitted 30.09.2024. Overall, we welcome the proposal to undertake wintering bird surveys for loss of functionally linked land, and advise that Site 1 is the principal sector of the development which should be under consideration for this impact pathway, due its proximity to Lower Derwent Valley SPA.

Natural England primarily recommends that wintering bird surveys should be undertaken in line with Annex C. Where this methodology is not followed, we recommend that justification on why the surveys undertaken will capture the required information should be provided within the subsequent HRA. Where transect surveys are used we would also recommend the routes taken should be mapped and provided within the HRA.

Natural England note that currently a single year of wintering surveys is proposed. As solar farms have big development footprints we recommend the use of two years of surveys to provide a robust understanding of the bird species which use the site, specifically in relation to Site 1. The proposed methodology also does not currently

propose surveys to be undertaken during the spring and autumn passage periods. We advise these should be taken along with the additional year of wintering surveys, however we would be agreeable to a single year of passage surveys being undertaken.

We note the DCO application will also include a cable route and the final location of this is still under consideration. Surveys of the cable route, for the sections which fall within the impact risk zone for Lower Derwent Valley SPA, are also recommended to understand the potential for temporary loss of functionally linked land, as well as noise and visual disturbance to adjacent functionally linked land. However the requirement for this is dependent on the construction methodology to be undertaken, as any impacts to functionally linked land due to work on these sections would be temporary where the cables are proposed to be buried. Therefore, if the wintering and passage periods were avoided for construction of the cable then this would be a reasonable method of avoiding impacts.

We advise it would also be beneficial to ensure the survey locations allow collection of survey data up to a buffer of 300m outwith the redline boundary, as there is potential for noise disturbance impacts during the construction period.

We would also advise that the surveys are supported by use of a desk study in the HRA. This should include;

- Consultation with the Council's Ecologist;
- Consultation with local bird groups and other organisations that may hold relevant information;
- A desk-based assessment - using aerial photography, mapping, habitat maps and relevant ecological literature – of the suitability for SPA birds of the habitats present on the proposed site and adjacent fields.
- Use of BTO WeBs data for the adjacent sections of the Lower Derwent Valley to determine peak months.

Kind regards



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From: [REDACTED]@naturalengland.org.uk>

Sent: 01 July 2025 16:50

To: [REDACTED]@avianecology.co.uk>

Cc: [REDACTED]@rjptownplanners.com>; [REDACTED]

<[REDACTED]@islandgp.com>; [REDACTED]

[REDACTED]@tylergrange.co.uk>

Subject: RE: Light Valley Solar PEIR

Hello [REDACTED]

Nice to hear from you, thank you for your email. We've received the consultation on the PIER and will be providing a statutory response.

In response to your statement on the methodology of surveys for the cable corridor I've provided the following advice.

Due to the temporary nature of impacts during construction of the cable corridor, and the topography of the landscape, we consider that surveys using the method outlined below are proportionate for this development. However, where our preferred Annex C methodology is not followed, we recommend justification on why the surveys undertaken will capture the required information should be provided within the subsequent HRA, as you have outlined below. If transect surveys are used, we recommend a 'look and observe' approach is taken prior to entry into fields in case of bird flushing, so if this has been used it should be highlighted in any method statement. We also advise the map of the routes taken should be provided within the HRA. All survey results should also be paired with a suitable desk study.

Kind regards

[REDACTED]

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Sent: 25 June 2025 09:48

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[REDACTED]@islandgp.com>; [REDACTED]

[REDACTED]@tylergrange.co.uk>

Subject: Light Valley Solar PEIR

Morning [REDACTED],

I hope you're doing well, and it was great to meet you in person last week. As you may be aware from the meeting, the Preliminary Environmental Information Report (PEIR) for the Light Valley Solar DCO project is scheduled for publication on 26 June 2025. The documents will be made available on the project webpage here: [Documents — Light Valley Solar](#).

As we discussed, we've completed the passage surveys along the cable corridor area (within the SSSI IRZ). These were conducted as walkover surveys rather than the inclusion of vantage point, as the flat topography made the walkover approach more practical and effective (a view shared by the survey team, including myself). Note that the Solar Development Sites included VPs. Please could you confirm this approach is acceptable from Natural England's perspective?

I'll send over the document relating to the one-year survey justification within the next week, and we can schedule a meeting in the following weeks to discuss it, along with the PEIR results.

Kind regards,

[REDACTED]

Principal Ornithologist



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A.6. One Year baseline approach

Light Valley Solar on behalf of Island Green Power
Rationale for One-Year Survey Approach Using a Mitigation Area
Quantification Framework



Document Control				
Project Name:		Light Valley Solar		
Report Title:		One-year rationale and methods		
Issue	Date	Notes	Prepared	Reviewed
1.0	02/07/2025	Natural England informative note		

This report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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1 INTRODUCTION

- 1.1.1 Following consultation with Natural England (NE) on Wednesday 16th April 2025, as part of the Discretionary Advice Service (DAS) for the Light Valley Solar development, it was agreed that a document would be prepared to support the use of one year's worth baseline data instead of the standard two years. This note outlines the rationale for basing non-breeding bird mitigation on a single year of baseline data (September to September), rather than the usual two-year period, supported by a robust evidence-based approach.
- 1.1.2 While multi-year datasets are typically used to account for natural variability in bird populations, a precautionary and evidence-led approach has been adopted to ensure that reliable and quantifiable sound conclusions can still be drawn from a single year of data.
- 1.1.3 Bird-day calculations were undertaken for waterbird species identified either as qualifying features or as part of the broader waterbird assemblage observed within the Proposed Development footprint during surveys. These calculations are based on peak monthly counts recorded during systematic fieldwork conducted between September and March, in line with Annex C guidance¹ and agreed with NE through the DAS process.
- 1.1.4 To account for potential inter-annual variability, the bird-day results have been buffered using a tiered multiplier system informed by long-term Wetland Bird Survey (WeBS) data from a comparable site, also known as the Lower Derwent Ings, part of the Lower Derwent Valley SPA and Ramsar. Monthly Coefficients of Variation (CV), representing the standard deviation relative to the mean, were used to assign buffer factors ranging from 1.25 to 2.0, with higher-variability months receiving proportionally greater uplifts.
- 1.1.5 This approach provides a precautionary, proportionate, and transparent estimate of the Proposed Development use by key species, ensuring that mitigation calculations remain robust in the absence of two to multi-year field survey data. The buffered bird-day values form the basis for estimating required mitigation area, as shown in the species-specific example below (Lapwing). Note that the example below will be used for the provisional final hectare calculation (Section 3).
- 1.1.6 It should be noted that the hectare figures provided in this document are provisional. A final figure will be confirmed once the full baseline data has been collected and therefore numbers are likely to change.
- 1.1.7 The mitigation area for the Proposed Development will be strategically located within Solar Development Site 1, which is the closest area to the Lower Derwent Valley SPA and the location where the highest concentrations of qualifying bird species have been recorded (see Section 1.3). This site will be specifically designed to support non-breeding bird populations through the implementation of wet grassland, scrapes, open sightlines, and predator fencing, all optimised through an iterative design approach based on the data collected.
- 1.1.8 Beyond its core objective, the mitigation area will also deliver high-quality habitat for breeding bird species, significantly strengthening the mitigation areas overall ornithological value.

1.2 Field data collection methods

- 1.2.1 Non-breeding bird surveys covered both wintering and passage periods (spring and autumn). Within the Solar Development Sites, each seasonal period included a combination of transect and vantage point surveys in line with Natural England guidance (Annex C) and covered both day and night.
- 1.2.2 It is important to note that data for spring passage is currently going through a quality assurance process and autumn passage surveys are likely to be completed by the end of September 2025 due to the evolution of the Proposed Development.

1.3 Survey results

- 1.3.1 Based on the surveys to date autumn passage (partial) and full wintering bird surveys of the Solar Development Sites, the following results have been obtained:
- Solar Development Site 1: Located closest to the Lower Derwent Valley SPA/Ramsar, this site recorded two qualifying species: golden plover (peak count 112; 2.8% of the national threshold) and teal (peak count 13; 0.3%). No Humber Estuary SPA/Ramsar qualifying species were recorded. Eleven species considered part of the waterbird assemblage were recorded, including lapwing (234 birds; 3.8%), common gull (118; 1.7%), and black-headed gull (259; 1.2%);
 - Solar Development Site 2 Primarily utilised by gull species, including black-headed gull (300; 1.4%) and common gull (47; 0.7%), with herring gulls also recorded. Diversity beyond gull species was lower in comparison to other Solar

¹ Natural England (2024) Environmental Impact Assessment Scoping Consultation response for the Grimsby to Walpole Project. Document Reference: EN020036-000104. [online] Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000104-Natural%20England.pdf> [Accessed 2 Jul. 2025].

Development Sites. Qualifying species recorded included golden plover (15; 0.4%) and lapwing (waterbird assemblage; 19; 0.3%);

- Solar Development Site 3: One qualifying species of the Lower Derwent Valley SPA/Ramsar (teal; peak count 2) was recorded. Waterbird assemblage species included black-headed gull, common gull, little egret, and mallard. Overall site use was very low and inconsistent;
- Solar Development Site 4: Three qualifying species were recorded: golden plover (peak count 1), teal (40; 0.9%), and wigeon (10; 0.2%). Sixteen waterbird assemblage species were recorded, including greylag goose (227 birds; 16.2%), lapwing (74; 1.2%), and multiple gull species, indicating high diversity and significant waterbird assemblage use;
- Solar Development Site 5 (now removed from the Proposed Development): Supported three qualifying species of the Lower Derwent Valley SPA/Ramsar: golden plover (112; 2.8%), teal (18; 0.4%), and wigeon (14; 0.3%). In addition, the Site appeared to support a range of species considered as part of the waterbird assemblage including lapwing (70 / 1.1%);
- Solar Development Site 6/7 – Showed very limited bird activity, with low counts across nearly all species. The highest peak count was four individuals (mallard). One Lower Derwent Valley SPA/Ramsar species (teal; peak count 3) was recorded. Species numbers ranged between 1 and four waterbird individuals' maximum. Solar Development Site 6 comprised of tilled land; and
- Solar Development Site 8 – Sporadic utilisation by Lower Derwent Valley SPA/Ramsar qualifying species was recorded, including golden plover (47; 1.2%), wigeon (16 / 0.4%), and teal (peak count 2). Other species, including waterbird assemblage species, were recorded in low numbers, ranging from 1 (lapwing) to 39 (black-headed gull).

2 **FRAMEWORK FOR MITIGATION AREA QUANTIFICATION**

- 2.1.1 This section outlines the methodology used to interpret and adjust bird survey data to data to inform robust mitigation design, see tables 2.1 to 2.3 for the approach.
- 2.1.2 Please note that all data collected during the field surveys across the Solar Development Sites will be used to inform the mitigation area calculations. This includes data from Solar Development Site 5, even though it has been removed from the Proposed Development footprint.

Table 2.1. Field data collected between September and March in line with Annex C guidance and in agreement with Natural England using the Discretionary Advice Service (DAS). Note that this is raw data without any analysis.

Species	September	October	November	December	January	February	March	Winter mean	Bird Days (212 days)/winter. Current use of Site (all habitats onsite)
Lapwing	106	234	126	32	212	128	31	124.1428571	26318
Total of Ha	26.32 required								

Table 2.2. An example of lapwing WeBS data for January as per the WeBS data for Lower Derwent Ings. This table is to show the variability in the counts across the years for one month (January) i.e. 161 (lowest) to 8127 (highest) from 2019 to 2023 which is the most up to date data available. These figures enabled the CV to be calculated and applied to the field survey data for each month.²

Lower Derwent Ings WeBS data - January Year	January Month Count
2023	262
2020	3728
2022	3838
2019	8127

2 Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

2.1.3 To ensure the one-year survey results still cover this natural variation, a buffer (a safety margin) was applied to our bird-use estimates. The size of the buffer depends on how much variation there was during the 5 years of WeBS data per month, using the following:

- Low variation (<30%): small buffer (1.25 times the field counts);
- Moderate variation (30–60%): medium buffer (1.5 times the field counts); and
- High variation (>60%): large buffer (2 times the field estimate).

Table 2.3. Field survey data and buffers applied in order to calculate the final number of bird-days (Lapwing)

Month	Peak Count (field survey peak counts)	Days p/month during the field surveys N=212 days	Buffer Factor/tier based on the WeBS data	Bird-days (prior to adjustment of buffer)	Bird days based on buffer applied based on WeBS data variation
September	106	30	1.25	3180	3975
October	234	31	1.25	7254	9067.5
November	126	30	1.5	3780	5670
December	32	31	1.5	992	1488
January	212	31	2	6572	13144
February	128	28	1.25	3584	4480
March	31	31	1.5	961	1441.5
				Total: 26,318 bird-days	Total: 39,266 bird-days
				26.32ha required	39.27ha required

2.1.4 Although the field survey data alone resulted in approximately 26,000 bird-days, the application of variability-based buffers increased the total to over 39,000 bird-days. This precautionary uplift ensures that bird use of the habitats within the Proposed Development footprint is not underestimated in years with higher levels of activity, which is without any habitat enhancement.

2.1.5 While collecting multiple years of bird survey data can help account for natural variation, this report demonstrates that a single season of non-breeding bird surveys when paired with a clear and precautionary method can provide a reliable basis for assessing site use and designing proportionate mitigation.

2.1.6 By applying buffers based on real-world variability from long-term national survey data (I.e. the WeBS data), we have taken a conservative approach that ensures the final bird-day totals are likely to reflect, or even exceed, levels of use seen in more variable years without any habitat enhancement which would also increase the carrying capacity of the area. This gives confidence that the mitigation proposals are robust, even though only one year of site-specific data has been collected.

2.1.7 In summary, this approach strikes a practical balance between evidence, precaution, and proportionality delivering sound mitigation without unnecessary delay or duplication of effort.

2.1.8 The below tables (Table 2.4 and 2.5) represent the two other species (Greylag goose and Golden plover) which were recorded during the field surveys and are listed as qualifying features and (or) considered as part of the wider waterbird assemblage. These species were recorded in significant numbers (high enough to perform the analysis and exceeded 1% thresholds).

2.1.9 It is important to note that golden plover and lapwing can be combined due to similar habitat utilisation and based on Natural England guidance when advising on the Cleeve-hill Solar Park development and East Yorkshire Solar Farm (see Table 2.6).^{3 4}

3 Cleve Hill Solar Park Ltd. (2018) Cleve Hill Solar Park Environmental Statement: Volume 4 - Technical Appendix A9.1 Ornithology Technical Appendix. Revision A. Document Reference: 6.4.9.1. [online] Available at: <https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN010085/documents> [Accessed 2 Jul. 2025].

4 East Yorkshire Solar Farm Ltd. (2024) EYSF Technical Note to NE: Further information for NE1. [PDF] East Yorkshire Solar Farm Ltd., 15 August. Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010143/EN010143-001012-EYSF%20Technical%20Note%20to%20NE_further%20information%20for%20NE1_20240815.pdf (Accessed: 3 July 2025).

Table 2.4. Golden plover

Month	Peak Count (field survey peak counts)	Days p/month during the field surveys N=212 days	Buffer Factor/tier based on the WeBS data	Bird-days (prior to adjustment of buffer)	Bird days based on buffer applied based on WeBS data variation
September	5	30	2	150	300
October	3	31	2	93	186
November	112	30	1.5	3360	5040
December	30	31	2	930	1860
January	112	31	1.5	3472	5208
February	47	28	2	1316	2632
March	1	31	2	31	62
				Total: 9352 bird-days	Total: 15,288 bird-days
				6 ha required	9.8 ha required

Table 2.5 Greylag goose

Month	Peak Count (field survey peak counts)	Days p/month during the field surveys N=212 days	Buffer Factor/tier based on the WeBS data	Bird-days (prior to adjustment of buffer)	Bird days based on buffer applied based on WeBS data variation
September	17	30	1.25	510	637.5
October	1	31	1.25	31	38.75
November	157	30	1.5	4710	7065
December	27	31	1.25	837	1046.25
January	32	31	1.25	992	1240
February	227	28	1.5	6356	9534
March	14	31	1.25	434	542.5
				Total: 13,870 bird-days	Total: 20,104 bird-days
				6 .16 ha required	8.94 ha required

Table 2.6. Lapwing and Golden plover combined based on shared habitat preferences

Species	Bird days based on buffer applied based on WeBS data variation	Bird days supported by each (ha)	Area of Mitigation Needed (ha)
Lapwing	39,266 bird-days		
Golden plover	15,288 bird-days		
Combined	54,554 bird days	2560	21.31ha required

3 TOTAL HECTARES OF LAND REQUIRED FOR MITIGATION AREA OF GRASSLAND (COMPENSATORY)

3.1.1 Based on the results above, the total area required to support the qualifying features, and the wider waterbird assemblage amounts to **30.2 hectares** to date (note that this is an estimate based on the current data to date):

- Lapwing and Golden plover= **21.31ha** (combined); and
- Greylag goose = **8.94ha**

4 CONCLUSION

4.1.1 There is no evidence to indicate that further surveys would identify additional species or substantially different levels of activity to such an extent that this could potentially alter the efficacy of the mitigation area calculation.

- 4.1.2 Based on this, it is our professional opinion that additional field surveys would not enhance the reliability of the mitigation design for the Proposed Development and would therefore be disproportionate to the potential ornithological impacts.
- 4.1.3 Accordingly, we do not intend to undertake further surveys, given the well-established understanding of the species present within and around the predominantly forested Proposed Development Site.

Date: 06 August 2025
Our ref: UDS-A015616
Your ref: EN0110012



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BY EMAIL ONLY

Dear [REDACTED]

Discretionary Advice Service (Charged Advice)

Development proposal: Light Valley Solar Farm Nationally Significant Infrastructure Project

Thank you for your consultation on the above dated 04 July 2025.

This advice is being provided as part of Natural England's Discretionary Advice Service, in accordance with the Quotation and Agreement dated 27 September 2024.

The following advice is based upon the information within;

1. Rationale for One-Year Survey Approach Using a Mitigation Area Quantification Framework, 02/07/2025, version 1.0.

Approach to Non-breeding Bird Surveys

Natural England have reviewed the proposal in the document 'Rationale for One-Year Survey Approach Using a Mitigation Area Quantification Framework', dated 02 July 2025, which outlines a proposal to undertake a single year of non-breeding bird surveys for the Light Valley Solar Farm NSIP application site, and the ecological justification for this approach. This is following previous advice provided by Natural England, dated 15/11/2024, in which we requested 2 years of surveys for 'Site 1' of the Application due to its proximity to Lower Derwent Valley SPA and Ramsar site.

Natural England considers each development application on a case-by-case basis, and have therefore considered the various factors which apply to this development and the survey approach. Where there is likely to be significant land take due to the large scale of a development our approach is generally to request 2 years of surveys for wintering and passage birds associated with European Sites, due to the potential for variability in annual bird numbers. When considering the location of the development boundary in relation to the Humber Estuary designated sites, along with the location of the majority of the panel sites (excluding 'Site 1') in relation to the Lower Derwent Valley designated sites, we are minded accept the proposed approach to determining mitigation requirements using one year of surveys in principle for this Application. However, further information and site-based evidence is required to ensure that the approach is suitably precautionary.

We also acknowledge that in the draft mitigation design for this project there has been application of buffers to the number of bird days to account for this variability, and this has been developed based on the variability of bird numbers shown on the British Trust for Ornithology's (BTO) Wetland Bird Survey (WeBS) data.

We have provided detailed advice on the further information required below.

Additional information required

Further information should be provided on the potential variability of bird usage in the area and whether the current survey results are considered representative of average usage. Although we note that some variability has been accounted for in the calculation of inter-year WeBS numbers, usage of functionally linked land (FLL) will also vary according to other factors in addition to number of birds within the LDV, including flood levels and cropping regime.

As the variability of bird numbers using FLL in proximity to Lower Derwent Valley designated sites is related to changes in flooding (i.e. higher FLL usage by waders when the LDV water levels are very high), it would be useful to consider the survey results alongside information on the River Derwent recorded flood levels. Comparisons with flood data from previous years represented by the WeBS data should also be made to contextualise the flood conditions the surveys were taken under. This will help inform whether the data range for variability covers a reasonable extent of flooding conditions, and amendments to the variability factor should be made accordingly, if determined to be required.

We also advise that information on the historic cropping regime of the development site ('Site 1') should be provided to understand the general suitability of the fields for bird use historically. This will also help demonstrate whether a representative survey year has been completed.

All desk study data should be taken into the assessment as previously advised to help inform the discussion of historic bird use. This should include the WeBS data which was used to inform the bird mitigation buffer calculation.

We note that the categories of variation have been given as <30%, 30-60%, and >60%. Clarification on how these variation categories were developed should be provided, i.e. whether it was based on the proportional distribution in variability data on WeBS. In particular, we advise that justification should be provided on the suitability of >60% variation to be used as the highest category. Where data can be retrieved, consideration of the variation levels found by other comparable developments which undertook surveys could also be used to further support the approach, and demonstrate whether sufficient mitigation land is being proposed by the proposed buffers.

We will provide our advice on the design of the mitigation area after the final survey results are provided, as we note the size and layout of the mitigation area is subject to change following the final results.

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours Sincerely



NSIP Senior Officer

Yorkshire and Northern Lincolnshire Area Team

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Light Valley Solar on behalf of Light Valley Solar Limited
Evaluation of Bird Usage Variability and Justification for One-Year
Survey Effort



Document Control				
Project Name:		Light Valley Solar		
Issue	Date	Notes	Prepared	Reviewed
V1	15/10/2025	First issue to Natural England		

This report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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Annex 1: Flood data

Annex 2: LDV WeBS Data Variability

Annex 3: bird data collected during field surveys- maximum peak counts per site, per month

ANNEX 4: solar development sites locations for context

ANNEX 5: changes to the proposed development order limits

ANNEX 6: statutory sites and SSSI impact risk zone proximity

Annex 7: flood days (%) vs field (2024/24) and webs data (2019-2024) (logarithmic scale used due to high webs counts)

1 INTRODUCTION

- 1.1.1 A document was submitted on behalf of the Applicant (Light Valley Solar Limited) to Natural England [Document: **Rationale for One-Year Survey Approach Using a Mitigation Area Quantification Framework**] on 4th July 2025, seeking Natural England's formal opinion on the use of a one-year baseline of data in place of the standard two-year baseline. This proposal based on survey rationale, coupled with the analysis of the Lower Derwent Valley Wetland Bird Survey (WeBS).
- 1.1.2 Natural England (NE) responded to the document on 06th August 2025 [**Document references: UDS-A015616 / EN0110012**], accepting the analysis and the one-year rationale in principle, on the condition that the analysis was supported by the following clarifications, if considered necessary to the assessment:
- (1) The inclusion of flooding data for the River Derwent to compare to the previous years of bird data from the BTO Wetland Bird Survey (WeBS);
 - (2) Historic cropping regime for Solar Development Site 1;
 - (3) Clarification based on the variation categories used in the provisional analysis put forwards to Natural England, as well as comparing other developments for the rationale; and
 - (4) The design of the Mitigation Area (within Solar Development Site 1) and details.
- 1.1.3 The objective of this report is to address points (1) to (4) above and therefore enable NE to confirm acceptance of one-year of baseline survey data and the approach to mitigation and Mitigation Area proposed.
- 1.1.4 The focus of this assessment is on Solar Development Site 1 as this is the closest area to the Lower Derwent Valley and Humber Estuary SPA and Ramsar sites (HE) and sits within the Sites of Special Scientific Interest Impact Risk Zone (SSSI IRZ). The remaining Solar Development Sites (2,3,4,6/7 and 8) within the Proposed Development Order Limits do not. See **Annex 6** which illustrates the above.

1.2 Background of Solar Development Site 1

- 1.2.1 Solar Development Site 1 is approximately 415 ha in size (Note that this is an approximate, evolving figure based on the Proposed Development area presented in the Preliminary Environmental Information Report (PEIR)). The design continues to evolve in response to feedback received and the findings of surveys and assessments and is located within 2.8 km of the Lower Derwent Valley Special Protection Area (SPA) and Ramsar site.
- 1.2.2 The majority of Solar Development Site 1 is currently used for agricultural purposes and comprises subgrade 3b (181.2 ha), subgrade 3b (165.9 ha) and Grade 2 (62.7 ha) land. It is important to note that most of the area which is classed as Grade 2 quality is to be retained or enhanced as part of the development design i.e. no panels within the area, or forms part of the mitigation area south of Solar Development Site 1 (**Appendix 5.1 Agricultural Land Classification**).
- 1.2.3 Solar Development Site 1 is also located within 16.3 km of the Humber Estuary SPA.

1.3 Evolution of the Proposed Development Order Limits

- 1.3.1 Whilst the document sent to NE on 4th July 2025 included data from the surveys of Solar Development Site 5 for contextual purposes, Solar Site 5 remains excluded from Proposed Development Site Order Limits (OL). Site 5 did not form part of the development that the Applicant consulted on in the summer. Since the publication of the PEIR, the southern extent of Solar Development Site 4 and the northern extent of Solar Development Site 1 are now proposed to be excluded from the Proposed Development

as of October 2025. See **Annex 5** which presents the proposed changes of the Proposed Development OL within Solar Development Sites 1 and 4. This intention remains within the project team currently and is still to be communicated to other parties / public.

- 1.3.2 Solar Development Site 5 has not been included as part of this document due to the above, however south of Solar Development Site 4 and north of Development Site 1 have been retained as part of this assessment and analysis exercise due to the close proximity of the Proposed Development (i.e. proposed placement of the solar panels) to these areas and potential pathways that could potentially impact qualifying species of the Lower Derwent Valley and Humber Estuary (see Section 1.5 for further detail) as highlighted in Natural England's Section 42 response (**response reference: S42 ID 195**).

1.4 Survey Effort and Representativeness

- 1.4.1 Baseline ornithology surveys were completed between September 2024 and September 2025 (excluding June and July).
- 1.4.2 Surveys were completed in line with Annex C¹ and were advised through consultation with Natural England (NE) on an email dated 15th November 2024 as part of the Discretionary Advice Service (DAS).
- 1.4.3 In accordance with Annex C, the surveys included two walk overs during the day (covering various times) per month, one nocturnal visit and one Vantage Pont Survey (3 hours per VP) per month during autumn/spring passage (mid-August to September, inclusive / March to mid-May, inclusive) to capture the higher turnover of species during migration.
- 1.4.4 During the core wintering period (October-March, inclusive), surveys consisted of one walk over during the day, one nocturnal and one Vantage Point survey.

1.5 Lower Derwent Valley WeBS and Field Survey Data

- 1.5.1 The following section presents species accounts based on field surveys undertaken by the Applicant. The species discussed are qualifying features or part of the wider bird assemblage of the Lower Derwent Valley and/or Humber Estuary SPA and Ramsar sites. Given the dynamic nature and ornithological overlap between the qualifying species and the wider waterbird assemblage that form the citations for both Lower Derwent Valley and Humber Estuary SPA^{2 3} and Ramsar sites^{4 5}, all waterbird species exceeding or are equal to the relevant Lower Derwent Valley monthly WeBS $\geq 1\%$ monthly thresholds (provided by the BTO) are considered in detail. Species that did not meet these thresholds are not discussed further. The approach of focusing on species exceeding the monthly $\geq 1\%$ threshold aligns with NE's comments provided in the Section 42 response (**response reference: S42 ID 195**). However, this approach is exercised with caution throughout this document, and the assessment does also take into account waterbird species that are vulnerable to decline, for which the $\geq 1\%$ threshold criterion may be exempted e.g., whooper swan, if considered applicable.

¹ Planning Inspectorate. (n.d.) Natural England Submission – Document EN020036-000104. [online] Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000104-Natural%20England.pdf> [Accessed 14 Oct. 2025].

² Natural England (no date) Lower Derwent Valley SPA. Available at: <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006092> (Accessed: 15 October 2025).

³ Natural England (no date) Site detail: Humber Estuary SPA (UK9006111). Available at: <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006111> (Accessed: 15 October 2025).

⁴ Natural England (no date) Site detail: Lower Derwent Valley (UK11037). Available at: <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11037> (Accessed: 15 October 2025).

⁵ Natural England (no date) Site detail: Humber Estuary (UK11031). Available at: <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11031> (Accessed: 15 October 2025)

- 1.5.2 Furthermore, where geese and species which are known to commute greater distances (i.e. up to 20km) are further considered, the Humber Estuary SPA WeBS count sector is also considered alongside the Lower Derwent Valley WeBS data and the field data (**Annex 3**).⁶
- 1.5.3 A full list of relevant waterbird species (*qualifying species and waterbird assemblage) and maximum peak counts collected during the field surveys can be found in **Annex 3**.
- 1.5.4 Gull species are excluded from the assessment as they are not designated for non-breeding within the citations for the Humber Estuary or Lower Derwent Valley SPA and Ramsar sites. Deep-diving duck species are also excluded due to unsuitable habitat across the Proposed Development OL.
- 1.5.5 The data presented in this document covers Solar Development Sites 1, 2, 3, 4, 6/7 (combined due to survey buffer overlap), and 8 (see **Annex 4** for context of Solar Development Site locations). Although certain areas within Sites 1 and 4 are now excluded from the development (as highlighted in Section 1.3 and **Annex 5**), these sites are still included in the assessment to account for potential indirect effects, specifically, the possible reduction in the suitability of adjacent land for birds resulting from the disruption of open vistas and the connectivity of feeding and roosting areas, as highlighted in Natural England's Section 42 response (**response reference: S42 ID 195**).
- 1.5.6 It is also important to note that September 2024 and 2025 was surveyed (excluding June and July), however no species that are considered qualifying features of the European sites were recorded during 2025 and therefore, this month/year is not included in this document but will be included for completeness within the submitted documents.

Lapwing (assemblage species-LDV SPA and Humber Estuary SPA)

- 1.5.7 Lapwing use of Proposed Development OL was concentrated in Solar Development Site 1, with regular exceedances of the 1% threshold from October through February. This confirms the presence of functionally linked land (FLL) supporting habitat for the Lower Derwent Valley (LDV) Lapwing populations.
- 1.5.8 While other surveyed Sites contributed only small numbers, the pattern of repeated exceedance and winter persistence, particularly in Solar Development Site (SDS) 1 indicates that the area forms part of a wider network of valuable feeding and roosting habitat used during the non-breeding season.
- 1.5.9 The 1% threshold was exceeded in Solar Development Sites 2, 4 and 8. Numbers appeared variable, sporadic, transient and low (<9 individuals- SDS 2 and 8) when compared to Solar Development Site 1, where there is a clear and continuous trend. The exceedances in these sites were during March and April only. However variable exceedances did occur within Solar Development Site 4.
- 1.5.10 Mitigation is proposed for this species within Solar Development Site 1 through the retention and enhancement of grasslands, wet features (creation of scrapes and backwaters from retained ditches) and muddy margins aimed at increasing foraging and roosting opportunities. It is also likely that this species will benefit from mitigation area within Solar Development Site 1 for breeding purposes.

Table 1.1. Lapwing peak counts during the field surveys and threshold exceedances.

Lapwing	Sep-	Oct-	Nov-	Dec-	Jan-	Feb-	Mar-	Apr-	May-	Aug-
Annual 5 year mean of peaks: 6013	24	24	24	24	25	25	25	25	25	25
WeBS 5-year monthly average (LDV)	NC	1221	4480	4130	3838	7417	851	208	NC	NC

⁶ NatureScot. (2022). Assessing connectivity with Special Protection Areas. [online] Available at: <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed 22 Oct. 2025].

1% threshold	-	12.1	44.8 0	41.30	38.3 8	74.1 7	8.51	2.08	-	-
Site 1	106	234	126	32	212	128	12	6	6	0
Site 2	0	0	0	2	2	18	19	2	2	0
Site 3	0	0	0	0	0	0	0	0	0	0
Site 4	0	2	74	19	50	5	4	6	9	35
Site 6/7	0	0	0	0	2	0	2	0	0	0
Site 8	0	0	0	0	0	0	9	2	0	0

Golden plover (qualifying feature species- LDV Ramsar/SPA and Humber Estuary Ramsar/SPA)

- 1.5.11 Golden plover were recorded intermittently across the Proposed Development OL during 2024/25 field surveys, with notable activity concentrated in January and February. The species exceeded the LDV SPA 1% population threshold (based on WeBS data) in January (112 birds; threshold 17.60), February (47 birds; threshold 40.30), and December (30 birds; threshold 42), indicating periodic functional use of the Proposed Development OL by flocks. Peak numbers occurred at Site 1 (January: 112, February: 42) and Site 8 (January: 45, February: 47), confirming that these locations supported the majority of records. Other sites (Sites 2 and 4) held only sporadic and small numbers (<15 individuals).
- 1.5.12 Overall, golden plover use of the Proposed Development OL was sporadic but included several months where counts exceeded 1% of the relevant SPA/Ramsar population, highlighting the potential for occasional functionally linked (FLL) habitat use, particularly within Sites 1 and 8 during mid-winter.
- 1.5.13 Mitigation is proposed for this species within Solar Development Site 1 through the retention and enhancement of grasslands, wet features (creation of scrapes and backwaters from retained ditches), muddy margins by increasing foraging and roosting opportunities.

Table 1.2. Golden plover peak counts during the field surveys and threshold exceedances.

Golden plover Annual 5 year mean of peaks: 2901	Sep- 24	Oct- 24	Nov- 24	Dec- 24	Jan- 25	Feb- 25	Mar- 25	Apr- 25	May- 25	Aug- 25
WeBS 5-year monthly average (LDV)	NC	201	2130	4200	1760	4030	109	0	NC	NC
1% threshold	-	2.01	21.3 0	42	17.6 0	40.3 0	1.09	0	-	-
Site 1	0	2	9	0	112	42	1	0	0	0
Site 2	5	0	1	0	15	0	0	9	0	0
Site 3	0	0	0	0	0	0	0	0	0	0
Site 4	1	1	0	0	0	0	0	0	0	0
Site 6/7	0	0	0	0	0	0	0	0	0	0
Site 8	0	0	0	30	45	47	0	0	0	0

Greylag goose (assemblage species- LDV SPA and Humber Estuary SPA)

- 1.5.14 Greylag geese were recorded sporadically across the 2024/25 field survey period, with the highest activity between November and February. The species exceeded the 1% population threshold in November (157 birds; threshold 32.44), January (32; threshold 22.71), and February (227; threshold 8.27), with additional counts in December (27; threshold 30.26) and March (14; threshold 4.76). The largest flocks were consistently recorded at Site 4 (up to 227 birds). Survey results confirm this area is the principal location of greylag goose activity, likely associated with the watercourse along the southern boundary of Solar Development Site 4 (River Aire), which is to be retained.

- 1.5.15 The highest counts of this species (up to approximately 400 individuals) were recorded outside the Proposed Development Site (up to 1 km away from the Proposed Development Site boundary), close to the River Aire. Retention of the southern extent will therefore ensure that this key area of activity is not affected (indirectly), as adjacent fields to the hotspots supporting higher concentrations of greylag will remain intact acting like a buffer zone to avoid any alteration or compromise to the surrounding landscape function for this species.
- 1.5.16 However, the applicability of the 1% threshold to this species is limited. Greylag goose populations within the Humber Estuary and Lower Derwent Valley include a significant proportion of feral birds, alongside re-established native individuals that have expanded through natural recolonisation. Therefore, distinguishing between resident and wild individuals (if present at all) is not possible during field surveys.
- 1.5.17 Consequently, the recorded exceedances presented in Table 1.3 appears to reflect the same winter concentration pattern in the Lower Derwent Valley SPA WeBS counts, peaking between November and January, whereas the Humber Estuary SPA appears to be a continual stronghold site for greylag goose all year round (Table 1.3). This indicates Solar Development Site 4 and potentially 8 form part of the same seasonal network, used predominantly during mid-winter after birds move inland from the Humber Estuary SPA and Ramsar site.
- 1.5.18 Mitigation is proposed for this species within Solar Development Site 1. The retention and creation of scrapes, backwaters and grassland within the mitigation area will provide valuable foraging, roosting, and breeding habitat for greylag geese. Together, these features enhance habitat diversity, increase food availability, and promote site use throughout the year.

Table 1.3. Greylag goose peak counts during the field surveys and threshold exceedances.

Greylag goose Annual 5 year mean of peaks: 2642	Sep- 24	Oct- 24	Nov- 24	Dec- 24	Jan- 25	Feb- 25	Mar- 25	Apr- 25	May- 25	Aug- 25
WeBS 5-year monthly average (LDV)	NC	1417	3244	3026	2271	827	476	234	NC	NC
WeBS 5-year monthly average (Humber Estuary SPA)	1670	2569	1618	1513	1192	814	522	412	769	2224
1% threshold LDV	0	14.17	32.44	30.26	22.71	8.27	4.76	2.34	0	0
Site 1	0	0	0	0	0	0	0	12	4	0
Site 2	0	0	0	0	0	0	0	0	0	0
Site 3	0	0	0	0	0	0	0	0	0	0
Site 4	17	0	157	0	32	227	2	25	8	4
Site 6/7	0	0	0	0	0	0	0	10	0	0
Site 8	0	0	0	27	0	40	14	16	0	0

Mallard (assemblage species- LDV Ramsar and Humber Estuary SPA)

- 1.5.19 Mallard were recorded regularly and widely across the Proposed Development OL during 2024/25, with small flocks present on most visits and across multiple sites. Peak counts were modest, ranging from single figures to low double figures, with the highest counts recorded at Site 1 (16 in March; threshold 8.66) and Site 4 (14 in April; threshold 3.77 and 9; threshold 9.76 in February). Although the 1% thresholds derived from WeBS data are numerically low (e.g. 2.8–22.47 individuals), these values are not considered ecologically realistic for assessing site importance, given that Mallard is a common

and widespread species across the region/country (675,000 estimated during winter⁷) and often under-recorded during general non-breeding bird surveys.

- 1.5.20 The species is abundant throughout lowland farmland and wetland habitats, and the birds observed are likely to represent locally resident or feral populations, rather than individuals associated with SPA/Ramsar qualifying assemblages. Consequently, while Mallard were present in moderate numbers across several of the Solar Development Sites, their occurrence does not indicate any functional linkage with the nearby designated sites, and the 1% threshold is not a suitable measure of significance for this species.
- 1.5.21 Mitigation is not proposed for this species, as impacts to mallard are anticipated to be de minimis. The retention of wet features (such as ditches and backwater creation) and the ecological enhancements incorporated within and throughout the Proposed Development Order Limits, including the designated mitigation area within Solar Development Site 1 are expected to provide beneficial conditions for this species.
- 1.5.22 It is also likely that this species will benefit from mitigation area within Solar Development Site 1 for breeding purposes.

Table 1.4. Mallard peak counts during the field surveys and threshold exceedances.

Mallard Annual 5 year mean of peaks: 1594	Sep- 24	Oct- 24	Nov- 24	Dec- 24	Jan- 25	Feb- 25	Mar- 25	Apr- 25	May- 25	Aug- 25
WeBS threshold	NC	280	1437	1365	2247	976	866	377	NC	NC
1% threshold	-	2.8	14.3 7	13.65	22.4 7	9.76	8.66	3.77	-	-
Site 1	0	11	9	0	6	6	16	6	10	0
Site 2	5	0	2	3	2	0	2	2	1	0
Site 3	0	0	0	0	0	0	0	6	5	0
Site 4	7	0	0	7	0	9	5	14	3	0
Site 6/7	0	0	0	0	4	4	2	6	3	0
Site 8	0	0	0	0	0	0	8	2	0	0

Snipe (assemblage species)

- 1.5.23 Snipe were recorded regularly but in modest numbers across the 2024/25 surveys, with peak counts observed in February (50 birds) and March (67 birds), both at Site 4 and Site 1 respectively. Lower numbers were recorded more widely, including occasional individuals at Sites 2, 6/7, and 8, indicating scattered use across the survey area. Several monthly peaks (e.g. February and March) exceeded the nominal 1% thresholds (ranging from 2.9-19.9 individuals), though this metric is not considered a meaningful indicator of significance for this species.
- 1.5.24 Snipe are common and widespread in the UK, with an estimated winter population of approximately 1.1 million individuals (BTO 2004/05⁸). The species is also highly cryptic and often under-recorded during general walkover surveys, meaning actual abundance is likely higher than recorded.

⁷ Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020) Population estimates of birds in Great Britain and the United Kingdom – APEP 4. [online] British Trust for Ornithology. Available at: <https://www.bto.org/sites/default/files/publications/apep4-population-estimates-birds-great-britain-uk-2020.pdf> [Accessed 14 Oct. 2025].

⁸ Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020) APEP 4 – Population estimates of birds in Great Britain and the United Kingdom. *British Birds*, 113(3), pp. 69–104. [online] Available at: <https://www.bto.org/sites/default/files/publications/apep4-population-estimates-birds-great-britain-uk-2020.pdf> [Accessed 14 Oct. 2025]

Consequently, while Snipe were frequently present across the Proposed Development OL, the 1% WeBS threshold is unrealistic for assessing local importance. Records are instead interpreted as evidence of the area providing suitable and commonly used winter foraging and roosting habitat, typical of agricultural and low-lying wetland landscapes.

- 1.5.25 Mitigation is not proposed for this species, as impacts to snipe are anticipated to be de minimis. The retention of wet features (such as ditches and backwater creation) and the ecological enhancements incorporated within and throughout the Proposed Development Order Limits, including the designated mitigation area within Solar Development Site 1, are expected to provide beneficial conditions for this species.

Table 1.5. Snipe peak counts during the field surveys and threshold exceedances.

Snipe Annual 5 year mean of peaks: 999	Sep- 24	Oct- 24	Nov- 24	Dec- 24	Jan- 25	Feb- 25	Mar- 25	Apr- 25	May- 25	Aug- 25
LDV WeBS threshold	NC	315	290	461	498	1990	796	1011	NC	NC
1% threshold	-	3.15	2.90	4.61	4.98	19.9	7.96	10.1 1	-	-
Site 1	0	2	11	8	19	23	67	11	0	0
Site 2	1	0	2	0	0	0	2	0	0	0
Site 3										
Site 4	1	4	4	8	2	50	6	0	0	0
Site 6/7	0	0	3	1	3	2	0	0	0	0
Site 8	0	1	0	2	0	1	1	0	0	0

Gadwall (qualifying species- LDV Ramsar and assemblage species-LDV SPA)

- 1.5.26 Gadwall were recorded on two occasions during the field surveys within Solar Development Site 1 (5 individuals; threshold -no counts and 2 individuals; threshold 3.98) and Solar Development Site 4, which were of two and of single birds below the LDV monthly mean 1% threshold.
- 1.5.27 Mitigation is not proposed for this species, as impacts to gadwall are anticipated to be de minimis. The retention of wet features (such as ditches and backwater creation) and the ecological enhancements incorporated within and throughout the Proposed Development Order Limits, including the designated mitigation area within Solar Development Site 1, are expected to provide beneficial conditions for this species.

Shelduck (qualifying species- Humber Estuary SPA and Ramsar)

- 1.5.28 Similar to Gadwall, this species was recorded on one occasion during the field surveys, January 2024 (two individuals; WeBS threshold 1.32). Due to the species irregular and low use of the Proposed Development Site OL and Lower Derwent Valley SPA WeBS data i.e. the average number of species recorded within the WeBS dataset across five years does not exceed 124.
- 1.5.29 Mitigation is not proposed for this species, as impacts to shelduck are anticipated to be de minimis. The retention of wet features (such as ditches and backwater creation) and the ecological enhancements incorporated within and throughout the Proposed Development Order Limits, including the designated mitigation area within Solar Development Site 1, are expected to provide beneficial conditions for this species.

Curlew (assemblage species- Humber Estuary SPA)

- 1.5.30 Curlew were recorded infrequently during 2024/25, with two birds at Site 2 in December (LDV 1% threshold 0.21; Humber Estuary threshold 21.04), four at Site 8 in February (LDV threshold 0.7;

Humber Estuary threshold 24.37), and one at Site 8 in April (LDV threshold 1.27; Humber Estuary 8.97). While these values exceed the 1% threshold, such thresholds are unrealistically low and are not indicative of functional significance. The limited and scattered records suggest occasional foraging use only. However, it is important to note that the Humber Estuary monthly WeBS 1% were significantly higher, which reflects that populations importance (1% threshold ranges 2.31-24.37 birds).

- 1.5.31 Based on the above, mitigation is not proposed for this species based on the low numbers and sporadic presence. However, this species will benefit from the habitat enhancements that are proposed within Solar Development Site 1, through the implementation of scrapes and backwaters (discussed in Section 1.12) to create soft soils and prey availability, thus increasing foraging capability, which in turn will increase the local population.

Little Egret (assemblage species- Humber Estuary SPA).

- 1.5.32 Little Egret were recorded occasionally within the Proposed Development OL, mostly as single birds with one record of two individuals. The WeBS five-year monthly mean for this species is approximately one individual, meaning that the derived 1 % threshold (0.01-0.31) is not ecologically meaningful. Given the species' widespread and increasing distribution in the region, these isolated records are considered to represent incidental local use rather than functionally significant use by the qualifying SPA/Ramsar population.
- 1.5.33 Mitigation is not proposed for this species as impacts to this species is considered de minimis. However, through the habitat enhancements proposed within Solar Development Site 1, this species is likely to benefit.

Oystercatcher (assemblage species- Humber Estuary SPA)

- 1.5.34 Oystercatcher were recorded in March and April only which is likely related to birds passing through the Proposed Development OL. Between two to four birds were recorded within Solar Development Site 1 and Solar Development Site 4. A peak count of 11 individuals were recorded within Solar Development Site 8.
- 1.5.35 Although this species is not listed as part of the Lower Derwent Valley SPA/Ramsar sites citations, the counts of this species and months they were recorded are comparable to the Lower Derwent Valley SPA WeBS data, where counts are recorded from February to April (maximum count of 21 individuals-April). However, it is important to note that this species did not exceed the Humber Estuary SPA monthly 1% threshold throughout the survey period.
- 1.5.36 Mitigation is not proposed for this species as the impacts to this species are considered de minimis. However, like other species assessed above, which are not considered for mitigation, this species will benefit from the habitat and wet feature enhancements throughout the Proposed Development OL, as an opportunity for supplementary foraging. It is also likely that this species will benefit from mitigation area within Solar Development Site 1 for breeding purposes.

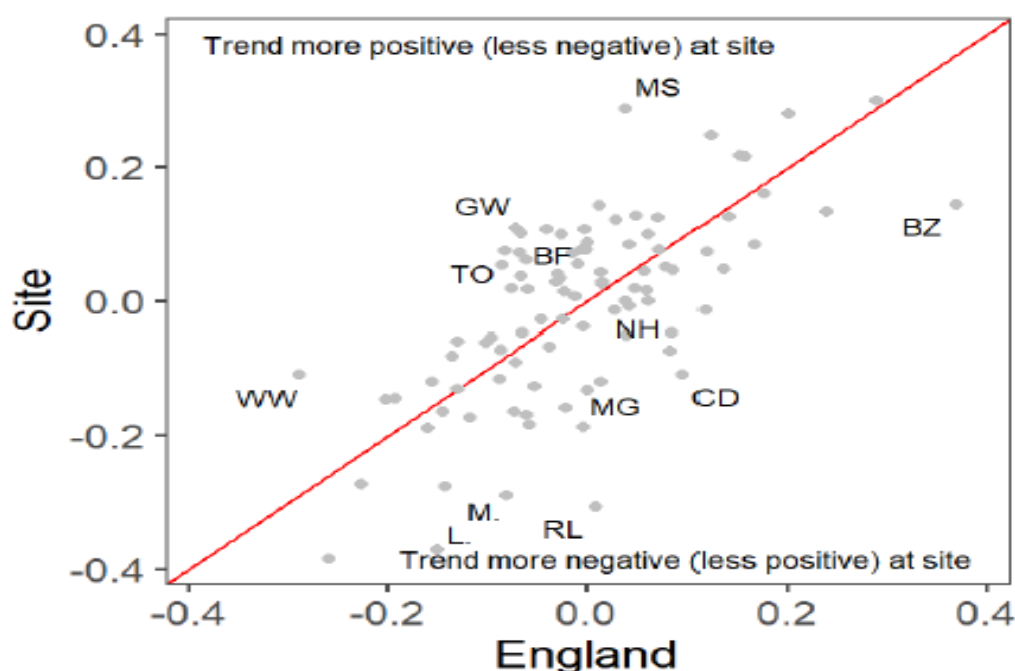
1.6 Desk Study Data

- 1.6.1 The BTO Data report⁹ (provided as a supporting document) highlights that the wintering abundance of greylag geese are notable at/near to the site in comparison to the rest of England and are positively increasing in relative abundance (1.3%).

⁹ The BTO Data Report collates and analyses comprehensive (2007–2011) and contemporary (2021-2025) bird data relating to the grid squares spanned by the site: 33 1-km squares, 15 tetrads and three 10-km squares. For contextual analyses, data from these relevant squares are related to equivalent data from two vice-counties, one county, one region, one country and the UK to assess species' importance in the vicinity of the site to help inform delivery of habitat mitigation, enhancement and biodiversity net gain.

- 1.6.2 Conversely, lapwing is the only non-breeding waterbird (of 10 species) which is considered to be declining more (or increasing less) at/near the Proposed Development Site OL compared to the rest of England (-0.2%), including regionally, county and vice county scales (**Figure 1.1**).
- 1.6.3 Golden plover is also considered notable for winter abundance at a county scale (North Yorkshire) when compared within or near to the Proposed Development Site OL (9.1%).
- 1.6.4 Although some species such as greylag goose and golden plover occur in notable numbers at a County (golden plover) and National (greylag goose) scale, the BTO Data report indicates that the Proposed Development Site OL does not support concentrations of birds approaching international population-level significance. The presence of widespread and increasing species, such as greylag goose, largely reflects the expansion of feral and re-established populations rather than the occurrence of discrete, internationally important groups. Overall, these findings demonstrate that while the Proposed Development OL lies within a wider landscape used by wintering waterbirds, the area is not considered to support significant assemblages or exceed thresholds indicative of functional population international and national importance.

Figure 1.1. Relative abundance changes for the site and its vicinity compared to the rest of England. Species above the line of equality have more positive/less negative trends at/near the site compared to the country. L.-Lapwing. Note that this figure is taken directly out of the BTO Report and is attached as a supplementary document.



Source: BTO Data Report – Light Valley Solar

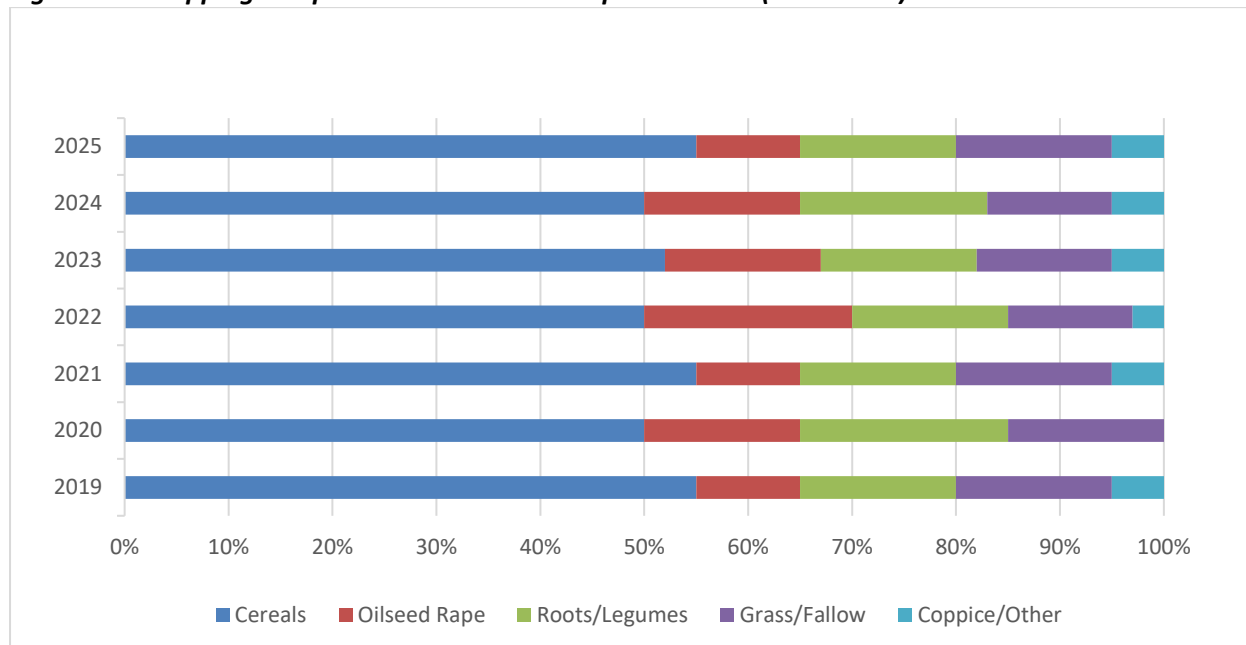
WW- willow warbler, M.- mistle thrush, Red-Legged partridge, MG- magpie, collared dove, NH- nuthatch, BF- bullfinch, TO- tawny owl, GW- garden warbler, BZ- buzzard, MS- mute swan.

1.7 Influence of Cropping Regime

- 1.7.1 Analysis of cropping records for Solar Development Site 1 between 2019 and 2025 shows a stable and consistent arable rotation. Winter cereals (wheat, barley, rye, oats) are the dominant crop group, occupying approximately 50–55% of the area each year. Oilseed rape typically makes up 10–20% of the rotation, with root crops and legumes (beetroot, potatoes, peas, beans, carrots) accounting for around 15–20%. Grass (both temporary and permanent), fallow, and agri-environment (SFI) areas together contribute about 10–15% annually, with small pockets of coppice or turf (**Figure 1.2** below).

1.7.2 The analysis of the cropping data across Site 1, suggest that the regime used across the past five years has been stable, and the 2024/25 field survey year was representative of this long-term pattern. The balance of cereals, root crops, oilseed rape, and grass/fallow provides a typical range of habitats used by waders and wildfowl. This supports the conclusion that bird usage recorded in 2024/25 surveys can be considered representative of average site conditions, and not simply the result of an unusual cropping pattern.

Figure 1.2. Cropping composition at Solar Development Site 1 (2019-2025)



Note: Short rotation coppice fields are perennial and therefore do not appear in all annual cropping returns. The apparent absence of coppice in 2020 reflects a reporting gap rather than an absence of this land cover type. Coppice areas were present throughout the assessment period but remain of low ecological relevance to waterbirds.

1.8 Influence of Flood Data

1.8.1 The hydrological regime of the Lower Derwent Valley SPA and Ramsar site exerts a critical influence on the distribution, abundance, and habitat use of waterbird species. Periodic inundation of the floodplain supports the wet grassland and shallow-water habitats on which many qualifying and assemblage species depend for foraging and roosting. Understanding the frequency and extent of flooding is therefore necessary to interpreting patterns observed in WeBS data and assessing the representativeness of bird use across seasons and years. To evaluate these relationships, river level data from five Environment Agency gauging stations (**Table 1.6**) within and adjacent to the SPA were analysed to quantify the number and proportion of flood days between 2019 and 2024 compared to raw counts of waterbirds (those relevant to the Proposed Development) within the Lower Derwent Valley WeBS data across five years.

Table 1.6. five gauging stations within and adjacent to the Lower Derwent Valley SPA and Ramsar that were used to assess the number of flood days throughout 2019-2024.

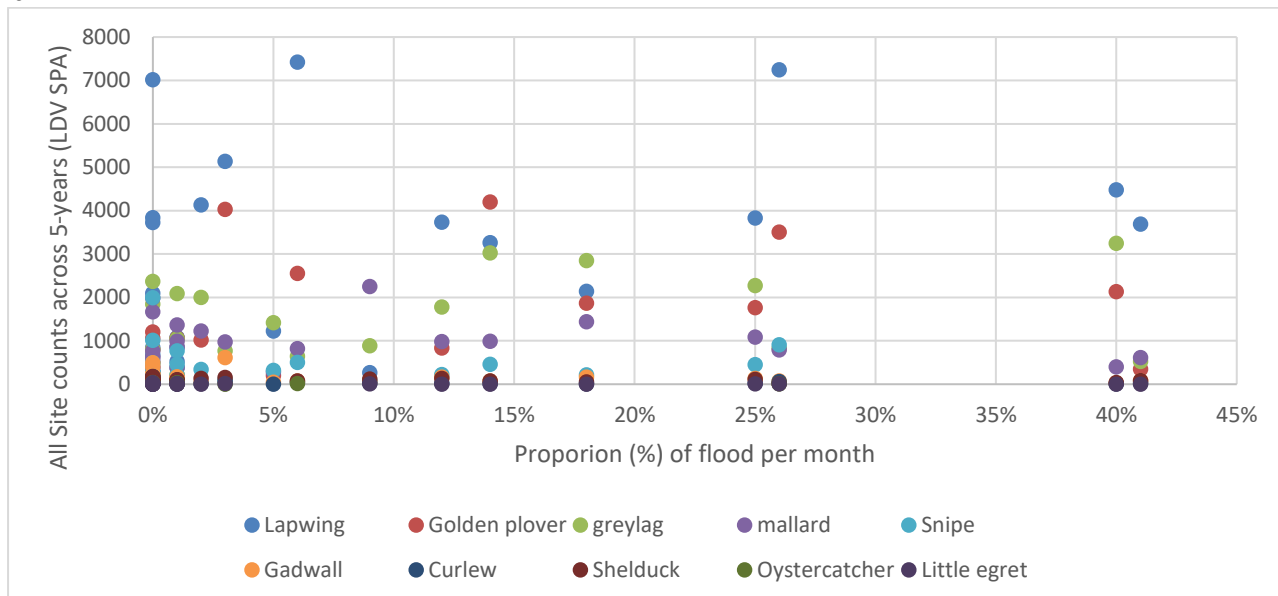
River	Role in Floodplain Dynamics
Stamford Bridge	Upstream control, reflects incoming Derwent flows before the floodplain begins.
Elvington Beck & Sluices	Mid-valley points, respond rapidly to flooding; good indicators of water spreading into low-lying land.
Bubwith Bridge	Downstream end of the SPA, integrates effects of upstream events; widely used reference.
Bielby Beck	Small tributary gauge, indicates local flood contributions and drainage response.

- 1.8.2 River level data for 2019–2025 were obtained from the Environment Agency’s (EA) Hydrology Data Explorer¹⁰ and Check for Flooding database¹¹ for five gauges within and adjacent to the Lower Derwent Valley SPA (Stamford Bridge, Elvington Beck, Elvington Sluices, Bubwith Bridge, and Bielby Beck–Melbourne). Daily maximum levels were analysed to calculate the number of days exceeding the EA’s “low-lying land flooding possible” threshold. Monthly exceedance totals were averaged across gauges and normalised by the number of days per month to determine the proportion of flood days (%), providing a consistent hydrological index for comparison with monthly bird count data.
- 1.8.3 Monthly exceedance analysis indicates that flood conditions across the Lower Derwent Valley SPA and surrounding area were typical, with inundation occurring on 20–30 % of days in November–February 2024. Flooding declined sharply from March onwards, consistent with the seasonal pattern observed in other recent years (2021–2023). See **Annex 1** for full data.
- 1.8.4 SPA qualifying species which are considered in Section 1.5 were assessed against the monthly proportion (%) of flooding per month across 2019–2024. This was done by extracting the total raw monthly counts of each species collected within the Lower Derwent Valley SPA WeBS count sector between 2019 and 2024 (see Annex 1 and Figure 1.3).
- 1.8.5 Analysis of monthly bird counts against the proportion of flood days between 2019 and 2024 indicates a slight positive correlation between flood frequency and waterbird abundance within the Lower Derwent Valley SPA WeBS count sector. Periods with greater floodplain inundation (>20% flood days) consistently correspond with marked increases in lapwing, golden plover, and greylag goose numbers, confirming that water availability is one of the confounding factors of site use (but not limited to)..
- 1.8.6 Counts for lapwing and golden plover show the strongest positive response, with peak numbers recorded during months exceeding 20–25% flood days (up to 7,000+ individuals). Greylag goose and mallard also increase substantially under wetter conditions, while snipe exhibit a moderate but consistent positive response. In contrast, gadwall, curlew, shelduck, oystercatcher, and little egret (expected) occur at lower densities, showing weaker or irregular associations with flooding, reflecting more specific habitat requirements or limited local populations.
- 1.8.7 Overall, these findings demonstrate that monthly and inter-annual fluctuations in bird abundance are hydrologically driven (but not limited to), underscoring the importance of maintaining and enhancing wet features within the mitigation area (see Section 1.12).

¹⁰ Environment Agency (no date) Hydrology Data Explorer. Available at: <https://environment.data.gov.uk/hydrology/landing> (Accessed: 15 October 2025).

¹¹ Environment Agency (no date) Check for flooding. Available at: <https://check-for-flooding.service.gov.uk/> (Accessed: 15 October 2025).

Figure 1.3. WeBS bird counts per month and year (2019-2025) compared to the proportion (%) flood days per month.



1.8.8

Comparison of the Proposed Development Site data (2024/25) with the Lower Derwent Valley WeBS dataset (2019–2024) indicates that both follow similar directional patterns in response to flooding, with higher bird counts generally associated with increased flood activity particularly positive peak responses are evidenced in lapwing, golden plover, greylag goose and snipe (**Annex 7**). However, absolute numbers recorded at the Proposed Development Site OL are substantially lower than those within the WeBS survey area (expected), reflecting the much smaller spatial extent and more limited habitat diversity (and suitability) of the Proposed Development Site OL compared to the SPA.

1.8.9 Across the 2019–2024 WeBS record, the proportion of flood days varied between 0 % and 42 %, with a consistent seasonal pattern of inundation between November and February. Years alternated between low/moderate and high flood conditions (e.g. moderate 2019, wet 2021, drier 2022, wet 2023, moderate 2024, wet 2025), indicating natural inter-annual variability typical of the Lower Derwent Valley. Flood conditions during 2024/25 during the field survey period were relatively modest, ranging between 0 % and 14 % flood days (limited to the first half of the year only) consistent with the drier phase following a wetter preceding winter, and therefore within the typical flood cycle that the Lower Derwent Valley SPA experiences.

1.8.10 The 2024/25 site data show the expected assemblage and flood-response is evident from long-term monitoring (WeBS), with species such as those mentioned in paragraph 1.8.8 displaying increased presence/abundance during short inundation events (**Annex 7**)- however the correlation is not as strong, which is likely due to significantly less access to wet features in comparison to the LDV SPA. This pattern confirms that the 2024/25 dataset is representative of local conditions under low-to-moderate flooding patterns, forming part of the normal inter-annual cycle rather than an anomalously dry year.

1.8.11 Consequently, the data provide a robust and proportionate basis for assessing site use and potential effects, with the application of precautionary buffers ensuring coverage of likely variability during wetter years. The data also shows that with enhanced habitats and wet features; numbers are very likely to increase due to optimal habitat availability (i.e. greater access to wetter features).

1.9 Bird-Day Calculation

1.9.1 Understanding and accounting for natural year-to-year fluctuations in non-breeding bird populations is essential when translating a single season of field survey data into robust estimates of site use. Waterbird assemblage numbers can vary substantially between winters due to differences in weather conditions, cropping patterns, hydrological conditions, and broader migratory dynamics- which is

demonstrated in Natural England document **Annex B1: Lower Derwent Valley Special Protection Area: non-breeding waterbird assemblage (Version 1.1, June 2023)**¹². To ensure the assessment remains precautionary and representative of typical ornithological variation, quantitative buffer multipliers have been applied to field-derived records of abundance. These multipliers are grounded in long-term WeBS data (2019-2024) for the Lower Derwent Valley SPA and reflect the degree of observed variability across multiple years for each month through January to December. See **Annex 2** for full data.

Variability

- 1.9.2 To ensure that single-season field survey results adequately reflect natural inter-annual fluctuations in bird use, precautionary buffer multipliers were applied to the field-derived monthly counts of non-breeding bird abundance.
- 1.9.3 These buffers account for the inherent variability in bird numbers associated with differences in weather, cropping regimes, and wider migratory behaviour between winters, but not limited to. The below variations were derived by the Lower Derwent SPA WeBS data (all raw counts across five years, per month; see annex 2):
- Low variation (<30%): x1.25
 - Moderate variation (30–60%): x1.5
 - High variation (>60%): x2.0
- 1.9.4 The coefficients of variation derived from the monthly raw counts across five years for Lower Derwent Valley SPA (annex 2) indicated that most species vary between 40% to 60% year to year, with golden plover and greylag goose can spike between 70% to 160%, capturing the moderate to high categories.
- 1.9.5 These thresholds reflect standard statistical interpretations of population variability, where lower coefficients of variation (CV) indicate greater stability and higher CVs denote increased inter-annual fluctuation. For this assessment, variability has been categorised as stable/low variation (CV < 30 %), moderate (CV 30–60 %), or high (CV > 60 %).
- 1.9.6 Although no formal U.K. standard defines these specific CV ranges, they are consistent with precautionary approaches used in ecological monitoring and ornithological assessment (e.g. NatureScot¹³, Norman *et al.*, 2011¹⁴). This framework provides a transparent and proportionate means of incorporating expected annual variation without inflating population estimates. Application of these thresholds and associated buffers is evidenced in Section 1.10.

1.10 Evidence from Comparable Developments

- 1.10.1 Substantial inter-annual variation in non-breeding bird numbers has been demonstrated in recent large-scale renewable energy assessments, supporting the use of quantitative buffers as presented above.

¹² Annex B1: Lower Derwent Valley Special Protection Area: non-breeding waterbird assemblage (Version 1.1, June 2023). Natural England publication.

¹³ NatureScot (2022). Recommended Survey Methods for Assessing Marine Bird Populations at Sea. NatureScot, Inverness.

¹⁴ Norman, D., Harris, R. J., & Newson, S. E. (2011). Producing regional estimates of population size for common and widespread breeding birds from national monitoring data. *Bird Study*, 59(1), 10–21.

<https://doi.org/10.1080/00063657.2011.623766>

1.10.2 East Yorkshire Solar Farm (East Yorkshire Solar Farm Limited, 2024¹⁵):

1.10.3 Two consecutive years of non-breeding bird surveys (2022/23 and 2023/24) recorded pronounced year-to-year differences across several key species.

(1) Lapwing peak monthly means increased almost three-fold (from 27 to 78 individuals).

(2) Golden plover increased more than thirty-fold (from an intra-annual mean of 12 to 425 individuals).

(3) Greylag and pink-footed geese similarly varied by up to five-fold between winters (from 26.7 to 502 individuals).

1.10.4 These magnitudes of change correspond to coefficients of variation well above 60%, confirming that a x2.0 buffer for high-variation conditions is proportionate and precautionary.

1.10.5 Helios Renewable Energy Project (Enso Green Holdings D Limited, 2024¹⁶):

1.10.6 Non-breeding bird surveys recorded multiple flocks of lapwing (up to 92 individuals) and pink-footed geese (up to 250 individuals) in 2021/22, followed by no target (waterbird) species recorded in 2022/23.

1.10.7 This represents a complete absence of qualifying species in one year following measurable use the previous winter, which is equivalent to a year-to-year change exceeding 100% and highlighting the highly dynamic nature of non-breeding bird distributions in arable landscapes.

1.10.8 Together, these examples demonstrate that inter-annual variation can occur in either direction, with some non-breeding periods supporting substantially higher numbers and others considerably lower use. To ensure that such natural fluctuations are fully captured, the applied buffers represent the upper range of observed variation only, providing a precautionary allowance for years of higher site use.

1.10.9 The adopted buffer multipliers of 1.25x, 1.5x, and 2.0x therefore provide an empirically justified, transparent, and proportionate method of incorporating natural inter-annual variation into bird-use estimates. A default buffer is also applied where no comparable data is available.

1.11 Bird-day Calculations

1.11.1 Bird-day calculations have been undertaken for lapwing, greylag goose, and golden plover, as these species are supported by established literature and are commonly used as a baseline when determining the appropriate size of mitigation areas for non-breeding birds. The Applicant is not aware of any published evidence to support the use of bird-day metrics for species such as mallard, gadwall, and snipe.

1.11.2 Nevertheless, wet features within the development will be retained and enhanced to maintain and increase habitat quality/betterment and connectivity and provide suitable conditions for a wider assemblage of waterbirds, detailed in Section 1.12. Within the mitigation area (Solar Development

¹⁵ Planning Inspectorate. (2024) EYSF Technical Note to NE – Further Information for NE1. [online] Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010143-001012-EYSF%20Technical%20Note%20to%20NE_further%20information%20for%20NE1_20240815.pdf [Accessed 14 Oct. 2025].

¹⁶ Planning Inspectorate. (2024) *Environmental Statement Appendix 8.2 – Ornithological Survey Report*. [online] Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010140-000392-6.3%20Environmental%20Statement%20Appendix%208.2%20-%20Ornithological%20Survey%20Report.pdf> [Accessed 14 Oct. 2025].

Site 1), the extent and quality of wetland habitats will be increased, ensuring that species not considered further as part of this assessment, such as wigeon and teal, but not limited to will also derive ecological benefit from the proposed habitat enhancements.

- 1.11.3 Gillings *et al.* (2007¹⁷) reported mean winter densities of approximately 1,560 bird-days per hectare (ha) for Golden Plover and 1,000 bird-days per ha for Lapwing on mixed arable farmland. In accordance with the approach agreed in consultation with Natural England during the Cleve Hill Solar Farm Development Consent Order (DCO), these figures are applied here as a precautionary worst-case, acknowledging that permanent grassland typically supports higher soil-invertebrate biomass and therefore greater foraging potential.
- 1.11.4 This approach follows the precedent established during the Cleve Hill Solar Park Development Consent Order (DCO) Examination, where the Applicant's assessment for lapwing and golden plover was based on Gillings *et al.* (2007). In that case, Dr Gillings confirmed that the carrying capacities for lapwing and golden plover could be combined to derive a total "plover-days" value reflecting their overlapping habitat utilisation, which is similar to that presented in this document (i.e. Solar Development Site 1-section 1.5), whereby large counts of both species exploit the same area. NE agreed that the combined assessment was appropriate and concluded that this method provided a sufficiently precautionary basis for evaluating habitat requirements and mitigation area sufficiency. Accordingly, the combined bird-day approach is applied here to assess the foraging capacity and habitat adequacy for both species within the Proposed Development OL (Table 1.8).
- 1.11.5 Pink-footed and greylag geese share similar diets and foraging behaviour, both feeding predominantly on improved grassland, stubble and arable root crops (Owen, 1980¹⁸; Owen & Black, 1990¹⁹). Given this ornithological overlap, bird-day rates and habitat requirements derived for pink-footed geese are considered applicable to greylag goose within this assessment, consistent with the approach adopted for the East Yorkshire Solar Farm i.e. 2,000.²⁰
- 1.11.6 Where insufficient WeBS 5-year data were available for the Lower Derwent Valley SPA, or where WeBS records were zero, but the species were recorded during field surveys, a precautionary default buffer of x1.25 has been applied. This approach ensures that potential under-representation in the long-term dataset is accounted for conservatively, representing a worst-case scenario in the assessment (Table 1.7 and 1.8).

¹⁷ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.

¹⁸ Owen, M. (1980). *Wild Geese of the World: Their Life History and Ecology*. Batsford, London

¹⁹ Owen, M. and Black, J.M. (1990). *Waterfowl Ecology*. Blackie, Glasgow and London.

²⁰ Planning Inspectorate. (2024) EYSF Technical Note to NE – Further Information for NE1. [online] Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010143-001012-EYSF%20Technical%20Note%20to%20NE_further%20information%20for%20NE1_20240815.pdf [Accessed 14 Oct. 2025].

Table 1.7 Bird-Day Calculations prior to and post applied buffers based on the LDV WeBS count variation per month. NC- no count. Note that lapwing and golden plover are not combined here for transparency, the combination of the two species are presented in Table 1.8.

Lapwing							
Month	Site with Peak	Maximum Lapwing Count (field data)	Days of each month	CV % based on the monthly average WeBS data (LDV)	Buffer Factor/tier	Bird-days prior to adjustment	Bird days based on buffer applied based on WeBS data variation
Sep-24	Site 1	106	30	NC	1.25	3180	3975
Oct-24	Site 1	234	31	Insufficient data	1.25	7254	9,067.5
Nov-24	Site 1	126	30	53%	1.5	3780	5670
Dec-24	Site 1	32	31	50%	1.5	992	1488
Jan-25	Site 1	212	31	59%	1.5	6572	9858
Feb-25	Site 1	128	28	15%	1.25	3584	4480
Mar-25	Site 2	19	31	38%	1.5	589	883.5
Apr-25	Site 4	6	30	51%	1.5	180	270
May-25	Site 4	9	31	NC	1.25	279	348.75
Aug-25	Site 4	35	31	NC	1.25	1085	1,356.25
						Bird-days total	37397
						Total Ha required	37.397
Golden plover							
Month	Site with Peak	Maximum Golden Plover Count (field data)	Days of each month	CV % based on the monthly average WeBS data (LDV)	Buffer Factor/tier	Bird-days prior to adjustment	Bird days based on buffer applied based on WeBS data variation
Sep-24	Site 2	5	30	NC	1.25	150	187.5
Oct-24	Site 1	2	31	Insufficient data- one count 2019- 201	1.25	62	77.5
Nov-24	Site 1	9	30	41.40%	1.5	270	405
Dec-24	Site 8	30	31	94%	2	930	1,860
Jan-25	Site 1	112	31	75%	2	3472	6,944

Feb-25	Site 8	47	28	65.30%	2	1316	2632
Mar-25	Site 1	1	31	160%	2	31	62
Apr-25	Site 2	9	30	NC	1.5	270	405
May-25	-	0	31	NC	-	0	-
Aug-25	-	0	31	NC	-	0	-
						Bird-days total	12,573
						Total Ha required	8.059
Greylag goose							
Month	Site with Peak	Maximum Greylag goose Count (field data)	Days of each month	CV % based on the monthly average WeBS data (LDV)	Buffer Factor/tier	Bird-days prior to adjustment	Bird days based on buffer applied based on WeBS data variation
Sep-24	Site 4	17	30	0%	1.25	510	637.5
Oct-24	-	0	31	Insufficient data- one count 2019- 1417	1.25	0	0
Nov-24	Site 4	157	30	40%	1.5	4710	7065
Dec-24	Site 8	27	31	50%	1.5	837	1,255.5
Jan-25	Site 4	32	31	49%	1.5	992	1488
Feb-25	Site 4	227	28	46%	1.5	6356	9534
Mar-25	Site 8	14	31	53%	1.5	434	651
Apr-25	Site 4	25	30	12%	1.25	750	937.5
May-25	Site 4	8	31	-	1.25	248	310
Aug-25	Site 4	4	31	-	1.25	124	155
						Bird-days total	22,033.5
						Total Ha required	11.016

Table 1.8. Final hectares required to support the following species. Note that these numbers are to be utilised to act as a foundation towards the mitigation area within SDS1.

Species	Bird-days	Bird days supported by literature	Ha
Lapwing	37397	1000	37.397
Golden plover	12573	1560	8.059
Lapwing and golden plover combined “plover days”	49970	2560	19.519
Greylag goose	22033.5	2000	11.016
Total hectares required (Lapwing and Golden plover combined and Greylag)			30.5ha

1.12 The Mitigation Area (Solar Development Site 1)

Overview

- 1.12.1 The Mitigation Area, located within the southern extent of Solar Development Site 1, is currently subject to iterative design refinement. The total area available currently measures approximately 64 hectares, of which around 60 hectares could function as active mitigation land following the implementation of a 50-metre offset from existing fence lines and hedgerow boundaries. This offset zone will provide transitional habitat and reduce edge effects between the mitigation area and surrounding farmland.
- 1.12.2 The total area available at present is therefore substantially greater (up to 50%) than the precautionary habitat requirement (with applied buffers) calculated from combined bird-day estimates for lapwing and golden plover and greylag goose (see Section 1.11), ensuring a robust level of ecological provision to ensure these species will benefit from the habitat mitigation and enhancements defined below. Furthermore, the provision of the larger area will aid to accommodate other qualifying species with ecological overlap that are not included in the overall Bird-day calculations. This approach also provides capacity for potential population growth resulting from habitat betterment and area expansion, particularly for non-breeding birds and other qualifying species.
- 1.12.3 It is also important to note that the bird-day estimates provided in this document (Tables 1.7 and 1.8) are derived from unenhanced arable and (or) grassland habitat (i.e. like for like); The proposed mitigation within the Mitigation Area is anticipated to include hydrological enhancements and the establishment of species-rich grassland and pasture. These measures are expected to facilitate the redistribution of bird species currently recorded within the solar development area and to increase the overall carrying capacity beyond the baseline assumptions used in the present calculations.
- 1.12.4 Based on the analysis of the data and taking into account the proposed habitat betterment and mitigation as part of the Mitigation Area, it is the Applicant's position that the Proposed Development will not result in any adverse effects on the integrity of the European site(s). The conservation objectives of the designated sites will be at least maintained and are likely to be further supported through delivery of the Mitigation Area. It is also considered that the one year of survey data collected and presented herein provides a robust and proportionate evidence base for these conclusions, and that a further year of survey would not materially alter or improve the assessment outcomes.
- 1.12.5 It is further the Applicant's position when properly implemented and managed, the proposed mitigation measures will deliver ecological and ornithological betterment, providing a net enhancement for SPA and Ramsar qualifying features and associated waterbird assemblage species for up to 60 years, securing the longevity and continuation of the conservation objectives of the European sites.

Non-breeding bird mitigation

- 1.12.6 The primary mitigation objective of the area is to support wintering wader and wildfowl assemblages, particularly lapwing, golden plover, greylag goose and curlew, but not limited to. Although some species within this document are to be directly mitigated for, it is important to note that habitat mitigation provided within the Mitigation Area (detailed below; 1.12.9) and throughout the Proposed Development OL, will also be beneficial and have a positive indirect impact on the wider waterbird assemblage due to habitat and species requirements overlap.
- 1.12.7 As demonstrated by the flood data analysis in Section 1.8, the presence and persistence of wet features are one of the key drivers of waterbird abundance within the Lower Derwent Valley SPA and Ramsar site. The analysis confirms that periods of greater inundation correspond with higher counts of lapwing, golden plover, and snipe. Enhancing and retaining wet features within the mitigation area,

as part of the mitigation design will therefore be particularly beneficial for lapwing, whose local populations are in decline, as identified in Section 1.6 by improving foraging conditions and supporting their continued use of the wider landscape.

1.12.8 Mitigation is intended to be achieved through:

- (1) Delivery of an area to accommodate all qualifying bird species and those part of the wider waterbird assemblage (within and outside of the bird-day calculations scope);
- (2) Retention and enhancement of existing wet features, including the two main ditches, with the addition of backwaters and connecting channels to promote natural flood dynamics and retain seasonal surface water;
- (3) Creation of a network of shallow scrapes and islands to deliver invertebrate-rich foraging areas and muddy margins;
- (4) Enhanced grassland through species rich planting to further support higher soil invertebrate biomass, and which is managed for the benefit of European site species;
- (5) Establishment of open sightlines through the removal of selected internal hedgerows to minimise visual disturbance and optimise suitability for flocking species sensitive to visual obstruction;
- (6) Fencing from the Solar Array Development Site;
- (7) Exclusion of public access via diversion of the existing Public Right of Way (PRoW) to remove and divert disturbance, supported by fencing and controlled management access; and
- (8) On-going dynamic management of the Mitigation Area for nature conservation during the operational phase. Targets for the measurement of success and mechanisms for remedial actions in the event that targets are not achieved will be included in a specific plan included in the Landscape and Ecological Management Plan (see 1.12.11)

Indirect benefits as a result of the Mitigation Area, Wider Engagement and Indirect Connectivity Opportunities

1.12.9 While wintering bird mitigation is the principal objective, management of the Mitigation Area will also support breeding ground-nesting birds, including skylark, lapwing and other ground nesting species, by maintaining a species-rich grassland/pasture of varied sward with a late-summer cutting regime (typically post-July) and low-intensity aftermath grazing. These measures will ensure suitable nesting and chick-rearing conditions, with variable sward height and high invertebrate availability throughout the breeding season.

1.12.10 Furthermore, the Mitigation Area is also likely to provide opportunities for broader biodiversity benefits that compliment regional and international conservation priorities and objectives. Wider opportunities are likely to improve connectivity to bird species beyond the Proposed Development Site boundary as an indirect result of the establishment of the Mitigation Area. These are likely to include the following:

- (1) Integration with the breeding corncrake project, subject to engagement and further consultation with local stakeholders and statutory agencies (active engagement is currently on going with 'Friends of Lower Derwent Valley and the current senior reserve manager');
- (2) Enhancement of habitat connectivity between Wheldrake Ings for breeding corncrake (as above) through the habitats provided within the Mitigation Area to enable a form of functional linkage;

- (3) The strengthening of habitat connectivity (FLL) and carrying capacity between the Lower Derwent Valley SPA/Ramsar site (not limited to) and adjacent agricultural land through the restoration of ditch networks and species rich margins and other ecological enhancements provided throughout the Proposed Development Site;
- (4) The potential establishment of a bird observation hide at the northern boundary to support community engagement and monitoring without increasing disturbance risk.

Management and Responsibilities

1.12.11 The Mitigation Area is proposed to be managed in accordance with a detailed section within the Landscape and Ecological Management Plan. An outline version will be submitted alongside the Environmental Statement as part of the DCO application to secure the commitments contained within. A requirement will be included in the DCO to ensure that this plan will be developed and submitted to the local planning authority (LPA) for approval prior to construction and in consultation with NE, the LPA and relevant stakeholders (if necessary) and may include the following (but not limited to):

- (1) Defined responsibilities for establishment, ongoing maintenance, ecological and ornithological monitoring;
- (2) Annual monitoring reviews during the initial five years of operation, with the frequency subsequently adapted in response to performance; and
- (3) Adaptive management provisions to refine techniques (and including remedial measures) based on monitoring results.

1.12.12 The Applicant or an appointed management body will be given responsibility for ensuring that the Mitigation Area continues to function as intended, supporting both mitigation and enhancement objectives over the lifetime of the Proposed Development.

2 CONCLUSION

- 2.1.1 Based on the analysis and assessment presented in this document, it is the Applicant's professional opinion that there is no evidence to suggest that further surveys would identify additional species or substantially different levels of activity and (or) numbers that could alter the efficacy of the Mitigation Area design.
- 2.1.2 Accordingly, it is considered that undertaking additional field surveys would not enhance the reliability of the mitigation proposals for the Proposed Development and would therefore be disproportionate to the scale and nature of the potential ornithological impacts.
- 2.1.3 The bird-days calculation derived within this document will be considered as baseline and all qualifying species will be considered through the implementation of the Mitigation Area as well as habitat betterment.

ANNEX 1: FLOOD DATA AND RAW WEBS COUNTS WITHIN THE LOWER DERWENT SPA COUNT SECTOR (2019/24) AND THE SITE DATA COLLECTED DURING THE FIELD SURVEYS 2024/25.

Year	Month	% Flood Days	Dataset	Lapwing	Golden plover	Greylag	mallard	Snipe	Gadwall	Curlew	Shelduck	Oystercatcher	Little egret
2019	Jan	0	WeBS										
	Feb	2	WeBS										
	Mar	1	WeBS										
	Apr	0	WeBS										
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	0	WeBS										
	Oct	5	WeBS	1221	201	1417	280	315	44	2			
	Nov	18	WeBS	2140	1870	2851	1437	211	161	9	52		1
	Dec	12	WeBS	3730	834	1780	983	218	165	21	131		1
2020	Jan	0	WeBS	3728	1062	1847	1986	167	398	34	132		9
	Feb	3	WeBS	5132	4030	768	976	111	611	68	154	3	13
	Mar	0	WeBS	677	0	187	765	286	172	178	87	34	12
	Apr	0	WeBS										
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	0	WeBS										
	Oct	0	WeBS										
	Nov	0	WeBS	2097	800	2367	526	290	42	1	57		1
	Dec	14	WeBS	3260	4200	3026	988	460	74	12	76		2
2021	Jan	42	WeBS										
	Feb	30	WeBS										

	Mar	0	WeBS	278		476	399	288	98	168	173	26	7
	Apr	0	WeBS	208		234	377	1011	231	127	136	21	31
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	0	WeBS										
	Oct	3	WeBS										
	Nov	1	WeBS	1078	1060	1050	988	206	46	3	4		
	Dec	2	WeBS	4130	1020	2000	1223	336	39	13	131		3
2022	Jan	0	WeBS	3838	1200	805	1667	498	157	24	86		2
	Feb	6	WeBS	7417	2553	641	817	500	76	44	76	13	
	Mar	1	WeBS	525	36	224	385	769	172	93	65	26	13
	Apr	0	WeBS	98		197	289		194	38	113	15	26
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	0	WeBS										
	Oct	0	WeBS										
	Nov	12	WeBS										
	Dec	1	WeBS	376	65	2088	1365	461	23	18	100		2
2023	Jan	9	WeBS	262		885	2247	82	54	25	117		5
	Feb	0	WeBS	7018	215	215	603	1990	495	70	115	7	3
	Mar	0	WeBS	851	109	244	632	80	247	115	170	14	
	Apr	1	WeBS										
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	1	WeBS										
	Oct	9	WeBS										
	Nov	40	WeBS	4480	2130	3244	396		29	6	35		1
	Dec	41	WeBS	3686	347	522	615		79	19	83		3
2024	Jan	25	WeBS	3825	1760	2271	1083	453	133	23	114		6

	Feb	26	WeBS	7240	3506	827	788	911	74	57	14	9	4
	Mar	1	WeBS	847		125	866		137	64	81	28	13
	Apr	3	WeBS										
	May	0	WeBS										
	Aug	0	WeBS										
	Sep	0	Site	106	5	17	7	1	5	0	0	0	1
	Oct	3	Site	234	2	0	11	4	0	0	0	0	1
	Nov	1	Site	126	9	157	9	2	0	0	0	0	1
	Dec	14	Site	32	30	27	7	8	0	2	0	0	2
	Jan	13.5	Site	212	112	32	6	19	2	0	2	0	1
2025	Feb	0	Site	128	47	227	9	50	0	0	0	0	1
	Mar	0	Site	19	1	14	16	67	0	1	0	11	1
	Apr	0	Site	6	9	25	14	11	0	1	0	4	0
	May	0	Site	9	0	8	10	0	0	0	0	2	1
	Aug	0	Site	35	0	4	0	0	0	0	0	0	0

ANNEX 2: LDV WEBS DATA VARIABILITY

Species	Month	Mean	Standard deviation (SD)	Variability - Coefficient of Variation (CV)
Golden plover	January	1005.5	754.5	75%
	February	2,576	1682	65.30%
	March	29	46.5	160%
	April	0	0	0
	May	0	0	0
	August	0	0	0
	September	0	0	0
	October	Insufficient data- one count 2019- 201		
	November	1,465	605.8	41.40%
	December	1,693	1589	94%
Lapwing	January	2,913	1,724	59.20%
	February	6,702	998	15%
	March	636	242	38%
	April	153	78	51%
	May	0	0	0%
	August	0	0	0%
	September	0	0	0%
	October	Insufficient data- one count 2019- 1221		
	November	2,449	1,291	53%
	December	3,036	1,517	50%
Greylag goose	January	1,452	713	49%
	February	613	279	46%
	March	251	132	53%
	April	216	26	12%

	May	0	0	0
	August	0	0	0%
	September	0	0	0%
	October	Insufficient data- one count 2019- 1417		
	November	2378	957	40%
	December	1,883	944	50%

ANNEX 3: BIRD DATA COLLECTED DURING FIELD SURVEYS- MAXIMUM PEAK COUNTS PER SITE, PER MONTH

note that the below includes waterbirds only from the field survey data, those with an asterisk are considered qualifying features or part of the wider waterbird assemblage of the Humber estuary and the Lower Derwent Valley SPA and Ramsar sites. Five-year peak monthly counts of each species are displayed in a separate tables below for both the Humber Estuary and Lower Derwent Valley SPA.

Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Aug-25	Sep-25
Site 1											
Lapwing*	106	234	126	32	212	128	12	6	6	0	0
Golden plover*	0	2	9	0	112	42	1	0	0	0	0
Greylag goose*	0	0	0	0	0	0	0	12	4	0	0
Teal*	0	0	12	2	9	13	4	0	0	0	0
Mallard*	0	11	9	0	6	6	16	6	10	0	0
Snipe	0	2	11	8	19	23	67	11	0	0	0
Gadwall*	5	0	0	0	2	0	0	0	0	0	0
Oystercatcher*	0	0	0	0	0	0	4	2	2	0	0
Site 2											
Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Aug-25	Sep-25
Lapwing*	0	0	0	2	2	18	19	2	2	0	0
Golden plover*	5	0	1	0	15	0	0	9	0	0	0
Greylag goose*	0	0	0	0	0	0	0	0	0	0	0
Mallard*	5	0	2	3	2	0	2	2	1	0	0
Little egret*	1	1	0	1	0	1	0	0	0	0	0
Curlew*	0	0	0	2	0	0	0	0	0	0	0
Snipe	1	0	2	0	0	0	2	0	0	0	0
Site 3											
Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Aug-25	Sep-25
Lapwing*	0	0	0	0	0	0	0	0	0	0	0
Golden plover*	0	0	0	0	0	0	0	0	0	0	0
Greylag goose*	0	0	0	0	0	0	0	0	0	0	0
Little egret*	1	0	0	0	0	1	0	0	0	0	0
Teal*	0	0	0	0	2	0	0	0	0	0	0

Mallard*	0	0	0	0	0	0	0	6	5	0	0
Site 4											
Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Aug-25	Sep-25
Lapwing*	0	2	74	19	50	5	4	6	9	35	0
Gadwall*	0	0	0	0	0	0	2	1	0	0	0
Golden plover*	1	1	0	0	0	0	0	0	0	0	0
Greylag goose*	17	0	157	0	32	227	2	25	8	4	0
Mallard*	7	0	0	7	0	9	5	14	3	0	0
Teal *	0	11	0	14	0	8	40	0	0	0	0
Pink-footed goose*	0	0	2	0	0	0	0	0	0	0	0
Little egret*	1	0	1	2	1	1	0	0	1	0	0
Snipe	1	4	4	8	2	50	6	0	0	0	0
Shelduck*	0	0	0	0	2	0	0	0	0	0	0
Mute swan	0	0	1	0	0	0	0	0	0	0	0
Little ringed plover	0	0	0	0	0	0	0	3	0	0	0
Oystercatcher*	0	0	0	0	0	0	0	4	1	0	0
Site 6/7											
Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Aug-25	Sep-25
Lapwing*	0	0	0	0	2	0	2	0	0	0	0
Golden plover*	0	0	0	0	0	0	0	0	0	0	0
Greylag goose*	0	0	0	0	0	0	0	10	0	0	0
Little egret*	0	0	1	0		0	1	0	0	0	0
Snipe	0	0	3	1	3	2	0	0	0	0	0
Mallard*	0	0	0	0	4	4	2	6	3	0	2
Teal*	0	0	0	0	0	1	3	0	0	0	0
Site 8											
Species	Sep-24	Oct-24	Nov-24	Dec-24	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Aug-24	Sep-25
Lapwing*	0	0	0	0	0	0	9	2	0	0	0
Golden plover*	0	0	0	30	45	47	0	0	0	0	0
Greylag goose*	0	0	0	27	0	40	14	16	0	0	0
Snipe	0	1	0	2	0	1	1	0	0	0	0
Curlew*	0	0	0	0	0	4	1	1	0	0	0

Teal*	0	0	0	4	0	1	2	0	0	0	0
Wigeon*	0	0	0	0	0	16	0	0	0	0	0
Little ringed plover	0	0	0	0	0	0	0	2	0	0	0
Mallard*	0	0	0	0	0	0	8	2	0	0	0
Oystercatcher*	0	0	0	0	0	0	11	1	0	0	0
Redshank*	0	0	0	0	0	0	2	0	0	0	0

Five-year peak monthly counts of each species extracted from the BTO WeBS Core Request Report for Lower Derwent Valley SPA and Ramsar site. NC- no count

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Greylag Goose (British/Irish)	NC	NC	NC	1417	3244	3036	2271	827	476	234	NC	NC
1%	0	0	0	14.17	32.44	30.26	22.71	8.27	4.76	2.34	0	0
Pink-footed Goose	NC	NC	NC	61	1735	557	928	301	436	0	NC	NC
1%	0	0	0	0.61	17.35	5.57	9.28	3.01	4.36	0	0	0
Shelduck	NC	NC	NC	0	57	131	132	154	173	136	NC	NC
1%	0	0	0	0	0.57	1.31	1.32	1.54	1.73	1.36	0	
Gadwall	NC	NC	NC	44	161	165	398	611	247	231	NC	NC
1%	0	0	0	0.44	1.61	1.65	3.98	6.11	2.47	2.31	0	0
Wigeon	NC	NC	NC	1868	7300	9268	12127	9152	13154	866	NC	NC
1%	0	0	0	18.68	73	92.68	121.27	91.52	131.54	8.66	0	0
Mallard	NC	NC	NC	280	1437	1365	2247	976	866	377	NC	NC
1%	0	0	0	2.8	14.37	13.65	22.47	9.76	8.66	3.77	0	0
Little Egret	NC	NC	NC	0	1	3	9	13	13	31	NC	NC
1%	0	0	0	0	0.01	0.03	0.09	0.13	0.13	0.31	0	0
Oystercatcher	NC	NC	NC	0	0	0	0	13	34	21	NC	NC
1%	0	0	0	0	0	0	0	0.13	0.34	0.21	0	0
Lapwing	NC	NC	NC	1221	4480	4130	3838	7417	851	208	NC	NC
1%	0	0	0	12.21	44.80	41.3	38.38	74.17	8.51	2.08	0	0
Golden Plover	NC	NC	NC	201	2130	4200	1760	4030	109	0	NC	NC
1%	0	0	0	2.01	21.3	42	17.60	40.3	1.09	0	0	0
Curlew	NC	NC	NC	2	9	21	34	70	178	127	NC	NC

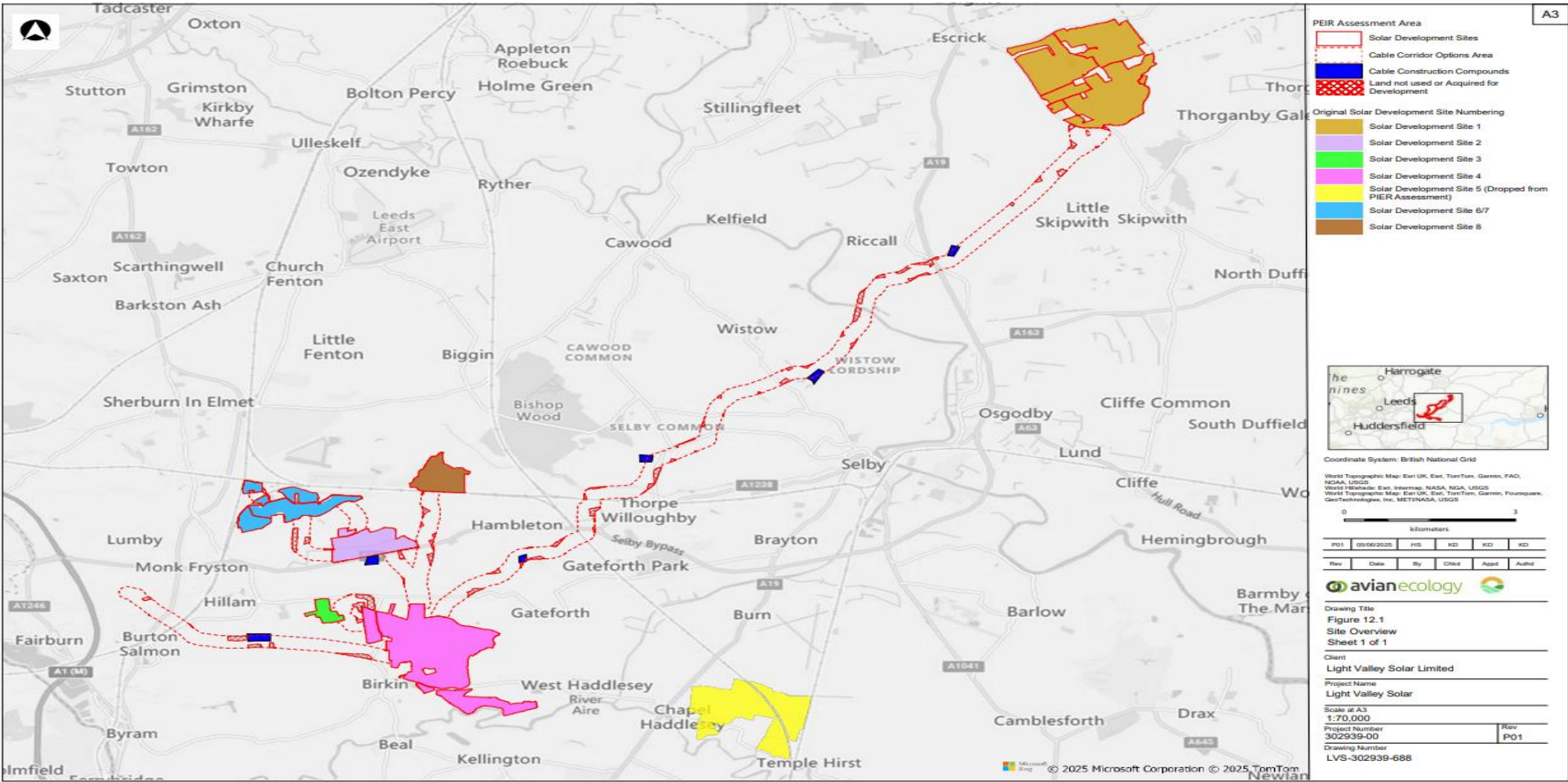
	1%	0	0	0	0.02	0.09	0.21	0.34	0.7	1.78	1.27	0	0
Snipe		NC	NC	NC	315	290	461	498	1990	769	1011	NC	NC
	1%	0	0	0	3.15	2.9	4.61	4.98	19.9	7.69	10.11	0	0

Five-year peak monthly counts of each species extracted from the BTO WeBS Core Request Report for the Humber Estuary SPA and Ramsar site. NC- no count

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Greylag Goose (British/Irish)	1028	2224	1670	2569	1618	1513	1192	814	522	412	769	1159
Pink-footed Goose	0	1	4751	42409	11362	10928	6965	4816	213	60	3	5
Shelduck	13012	9783	4839	4371	3672	2851	2166	2601	2122	1531	1063	1239
Gadwall	57	361	446	191	419	365	328	258	389	128	164	243
Wigeon	9	42	928	2772	3570	4281	6452	5960	2626	84	24	17
Mallard	727	1085	1459	1096	1150	1327	1268	1050	878	464	467	739
Little Egret	251	269	309	241	114	71	99	118	75	120	93	194
Oystercatcher	3077	6449	8570	10069	9517	7421	9139	8860	4688	3219	1828	2516
Lapwing	737	605	497	2869	10161	12877	14728	7555	426	94	87	220
Golden Plover	346	5214	4520	7831	13904	21623	9858	13249	3500	449	16	46
Curlew	1934	2473	2041	2108	1623	2104	2272	2437	2011	897	288	231
Snipe	20	39	70	66	127	166	43	121	138	36	1	3

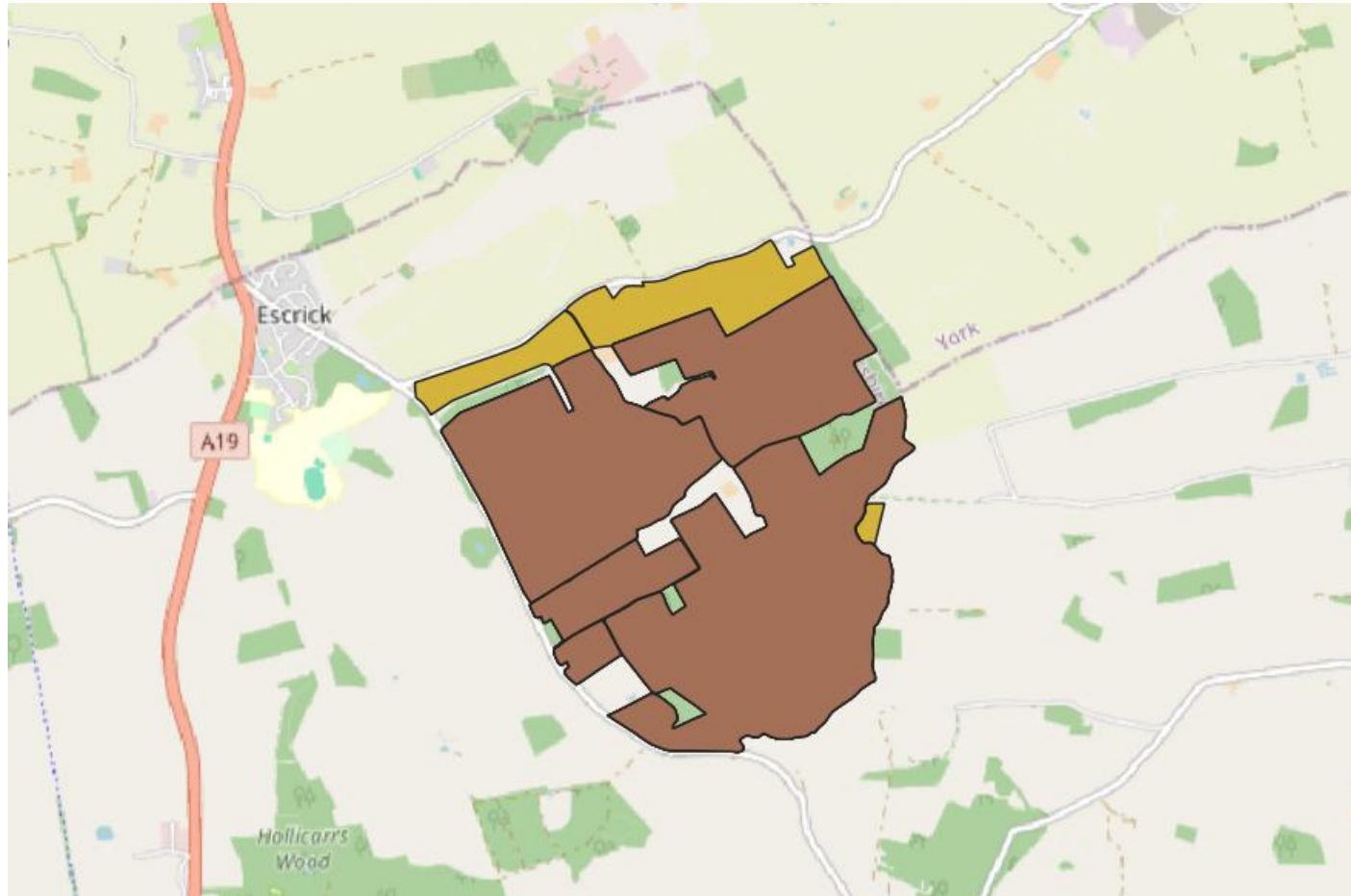
ANNEX 4: SOLAR DEVELOPMENT SITES LOCATIONS FOR CONTEXT

Note: The figure below includes the locations of all Solar Development Sites for ease of reference. Areas within Solar Development Sites 1 and 4 that have been excluded from the Proposed Development Order Limits are not shown as excluded in this figure, as it is necessary for the purposes of this document to retain them within the assessment boundary. These areas are therefore still considered as part of the overall assessment. Solar Development Site 5, however, is clearly identified in the legend as having been removed from the Order Limits, which is now a permanent removal and has not been considered as part of the assessment in this document.

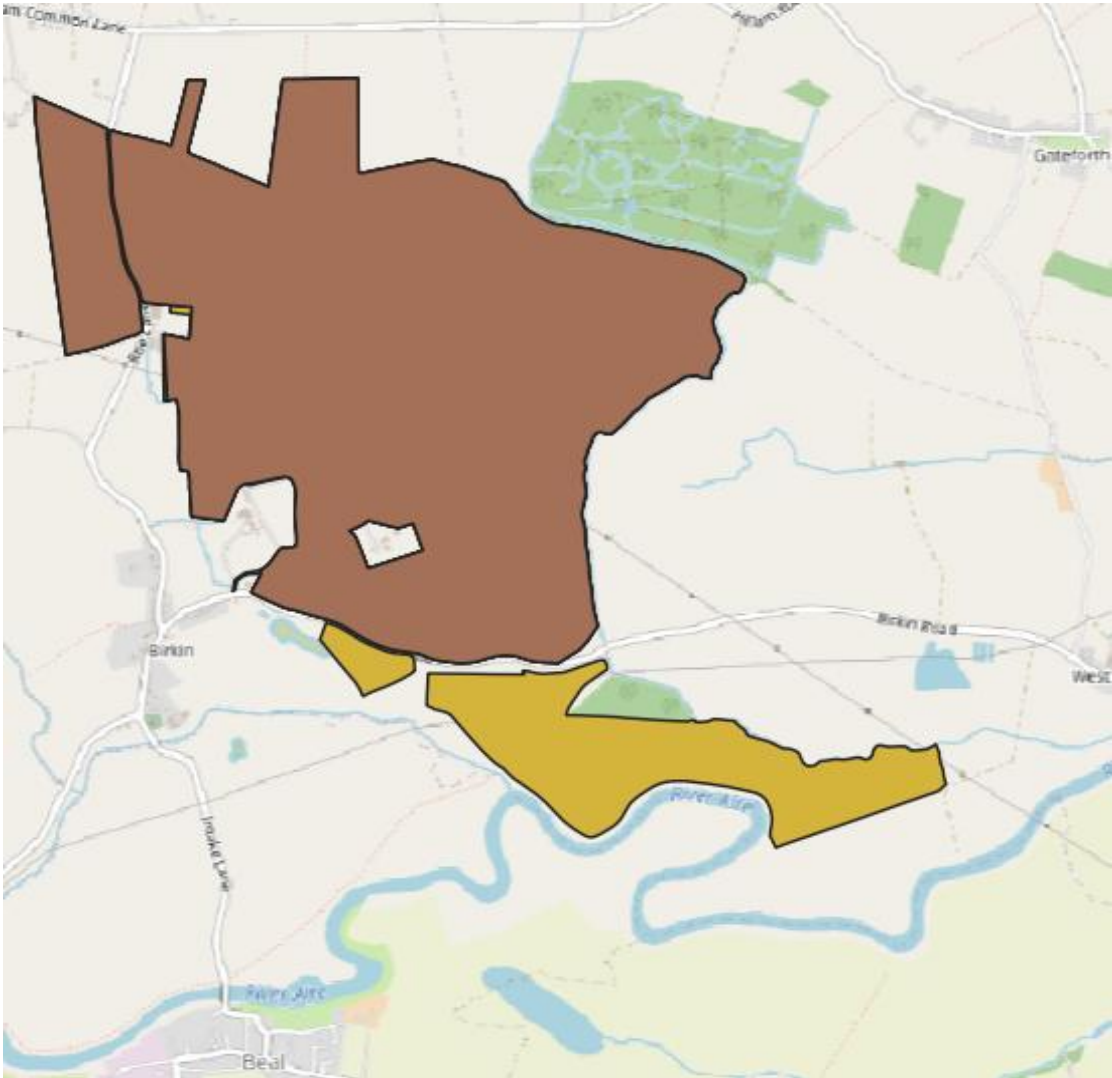


ANNEX 5: CHANGES TO THE PROPOSED DEVELOPMENT ORDER LIMITS

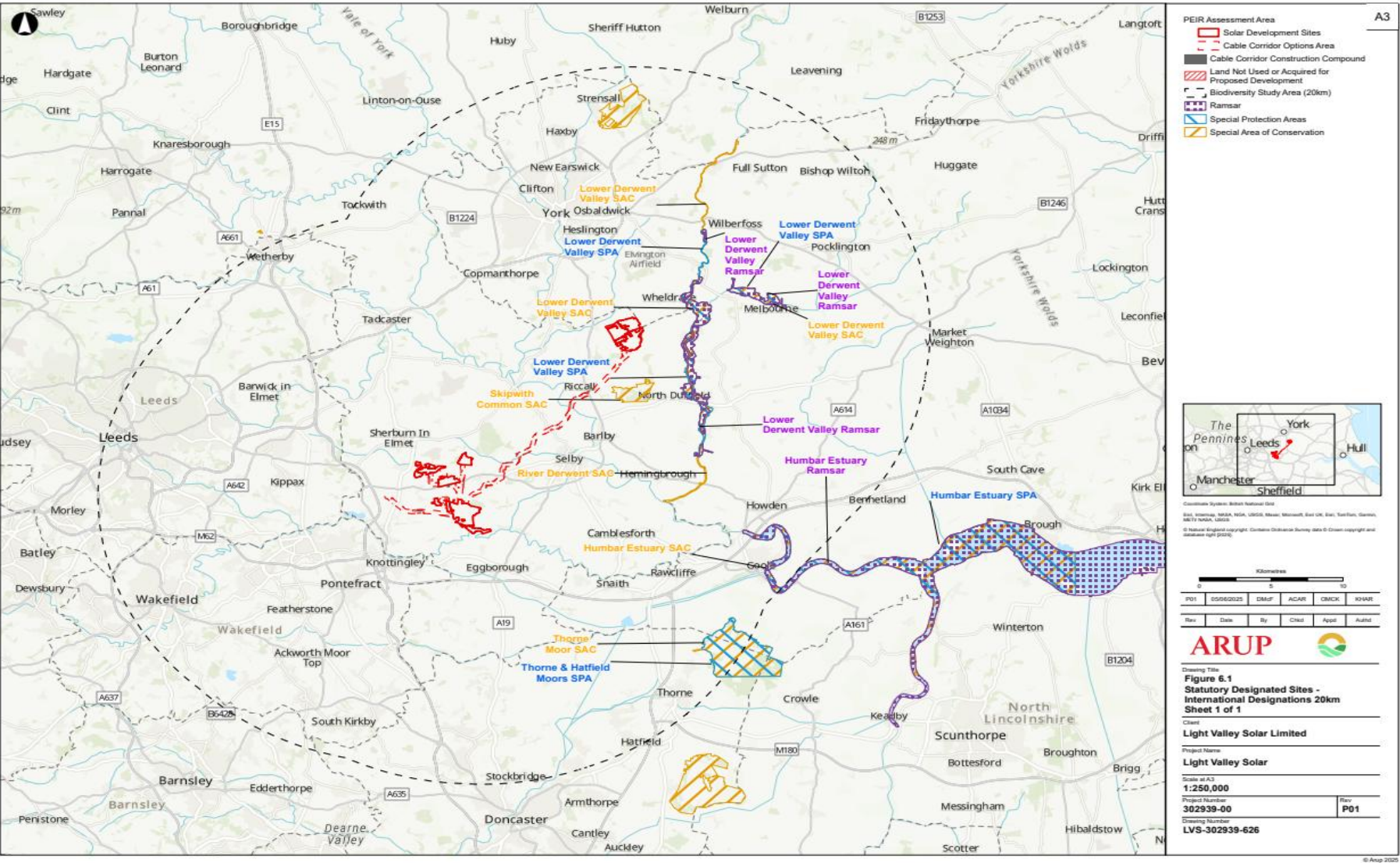
Changes to the Solar Development Site 1 Order Limits; yellow denotes excluded areas; brown denotes areas retained within the Order Limits.

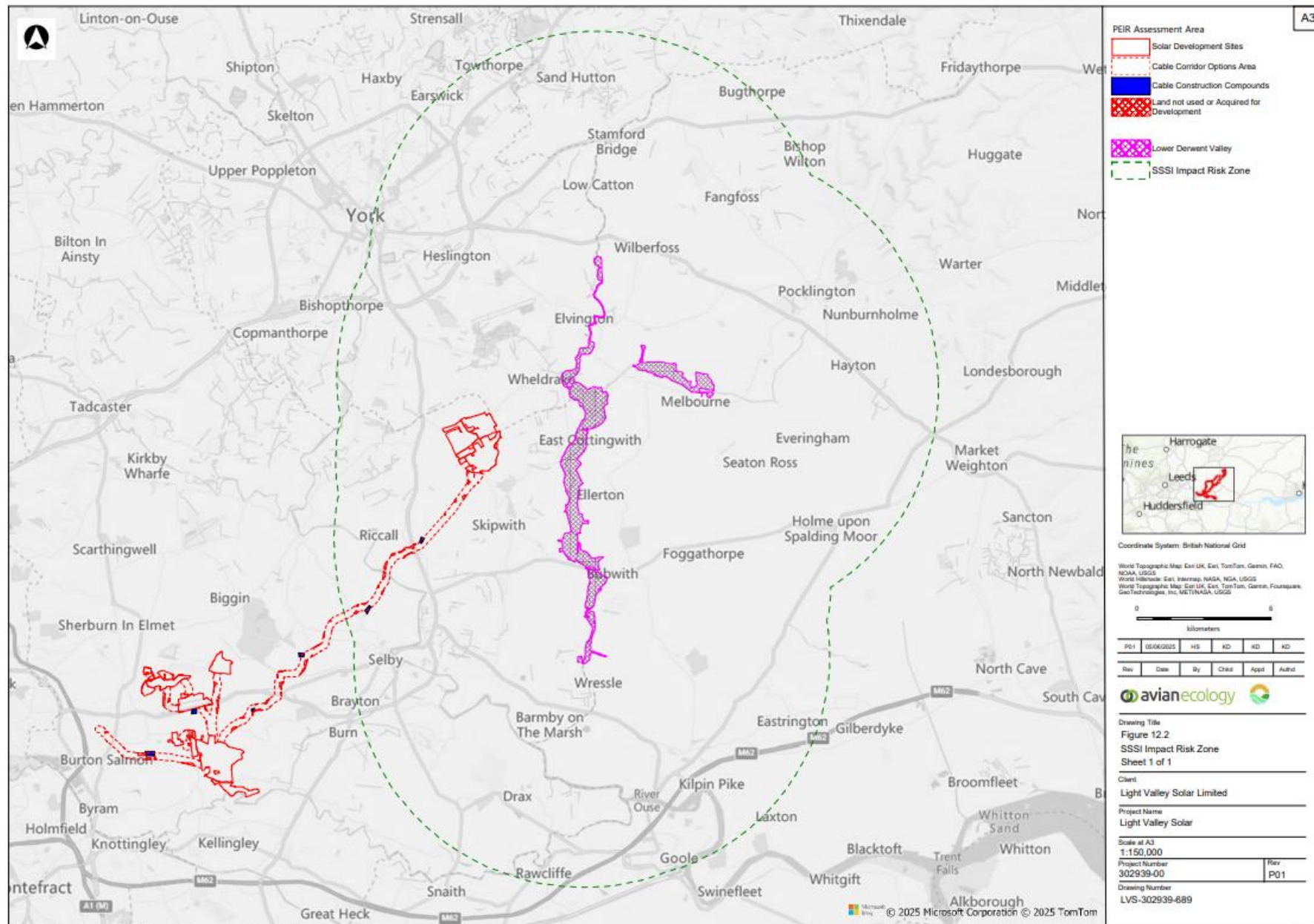


Changes to the Solar Development Site 4 Order Limits; yellow denotes excluded areas; brown denotes areas retained within the Order Limits.

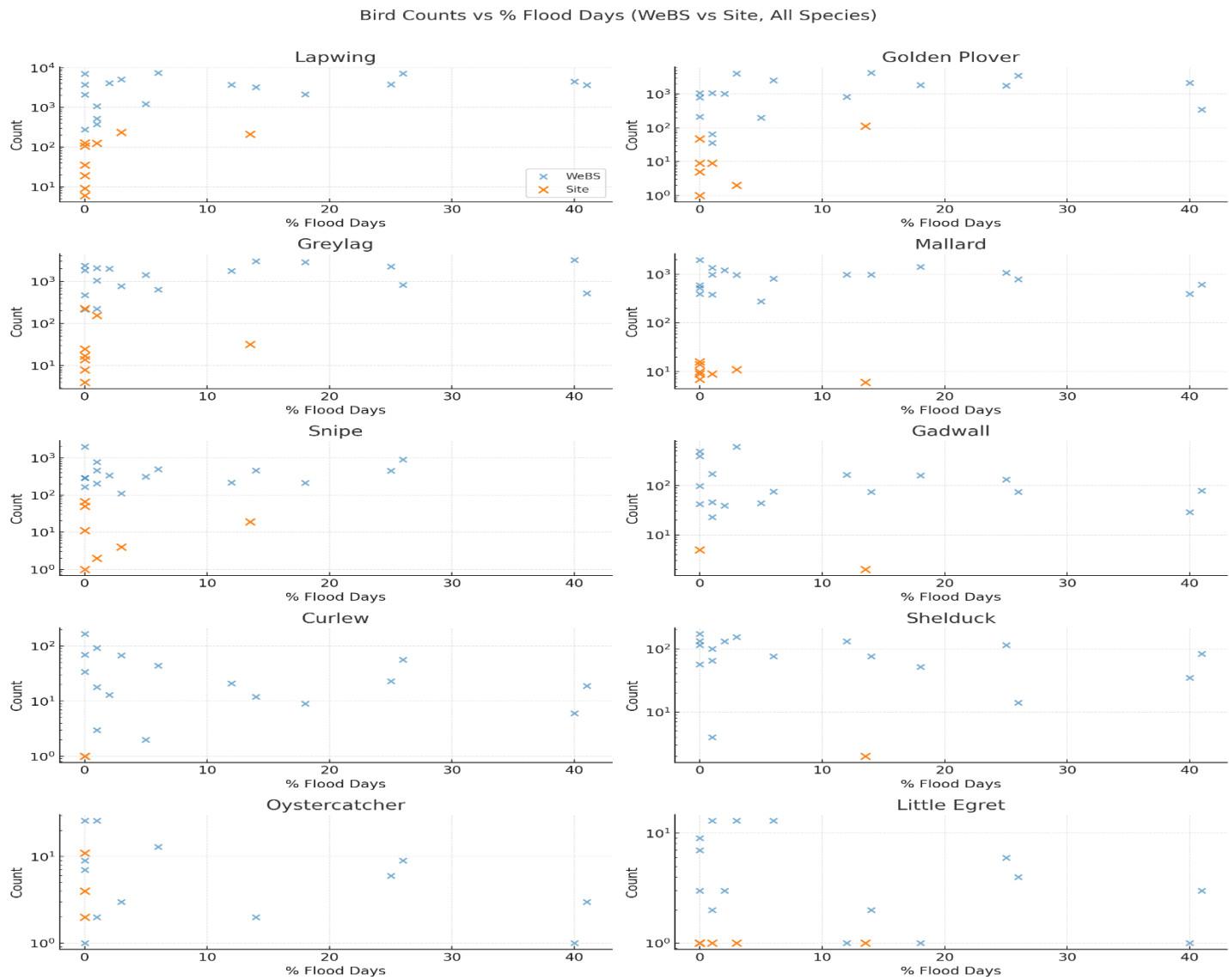


ANNEX 6: STATUTORY SITES AND SSSI IMPACT RISK ZONE PROXIMITY





ANNEX 7: FLOOD DAYS (%) VS FIELD (2024/24) AND WEBS DATA (2019-2024) (LOGARITHMIC SCALE USED DUE TO HIGH WEBS COUNTS)



Date: 19 December 2025
Our ref: UDS-A015616
Your ref: Light Valley Solar



Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

BY EMAIL ONLY

Dear [REDACTED]

Discretionary Advice Service (Charged Advice)

Development proposal: Light Valley Solar Farm Nationally Significant Infrastructure Project

Thank you for your consultation on the above dated 28 October 2025.

This advice is being provided as part of Natural England's Discretionary Advice Service, in accordance with the Quotation and Agreement dated 27 September 2024.

The following advice is based upon the information within;

Evaluation of Bird Usage Variability and Justification for One-Year Survey Effort

Mitigation Area Size Justification

Natural England acknowledges the justification of bird-days in section 1.9 1.11 and table 1.8. We would advise that it may not be suitable to take the approach which was agreed to for Cleve Hill as part of the justification as this was advised under specific circumstances for that project. Although we agree that lapwings and golden plovers will share habitat it must be ensured that there is sufficient space and forage resource available for them to coexist. However, considering the significantly larger habitat area available as part of this application, we acknowledge this is unlikely to change the outcome on the suitability of the mitigation area and can be used as just one part of the evidence. The bird days calculations should also be used in conjunction with ecological knowledge of the carrying capacity of different habitat types. We acknowledge the statement that the wet grassland design with scrapes will have a greater carrying capacity than an arable design, as stated in paragraph 1.12.3. We also acknowledge the location, increased openness, and reductions in disturbance included as part of the design, and this should all be included as part of the HRA justification.

Mitigation design

Natural England welcomes the proposed inclusion of scrapes and islands within the mitigation area.

We advise that water level management of the proposed grassland areas should be considered in the scheme design, and we recommend assessing the existing drainage regime to determine the ability of the fields to hold sufficient water. This should include assessment of current under field drainage, and the potential for this to be blocked, or boundary ditch water raised through use of sluices. In the absence of hydrological studies or assessment prior to construction, a precautionary

approach is needed.

Natural England advise that there needs to be confidence that the mitigation measures assessed in the HRA are deliverable. If hydrological studies are not completed at this stage, we advise that the HRA should include a detailed assessment of the potential alternative approaches to mitigation. This should include an assessment of whether the absence of scrapes would reduce the carrying capacity/suitability of the area for the relevant bird species and therefore determine whether a larger area of mitigation would be required under the alternative scenarios.

We recommend that scrapes should be created at the same time as the ground is prepared for sward establishment. We recommend that the surface of scrapes should be disturbed every two years, in order to prevent over-vegetation. This can be achieved through use of rotovating or discing machinery, with an open/even finish in the margins.

Approach to Surveys

Natural England acknowledges the justification of the approach to survey design. However, further information is required to justify the suitability of a 2X buffer when the current examples provided in section 1.10.3 show cases with variation of 3X and 30X+. It should be considered whether the 2X buffer is large enough where there is a variation that significant. It may be appropriate to use evidence on frequency of use, where this can be determined, as this will advise whether the site forage resource can be considered sufficient. Where there is requirement for extended use by large numbers of birds this may reduce potential for the mitigation site to support sufficient birds.

We also welcome the inclusion of flood data and the assessment of it's influence on bird survey results, alongside the historic cropping regime of the site. We're satisfied this evidence demonstrates that for these factors a representative year was used for the surveys.

Mitigation Area Design

Natural England note and welcome the inclusion of the diversion of the existing Public Right of Way (PRoW) to remove and divert disturbance from within the middle of the mitigation area, supported by fencing and controlled management access as stated in section 1.12.8. For application submission the type of fencing should be specified, as we would advise this should secure against dog encroachment onto the mitigation area.

However in principle, Natural England also welcomes the design management of the proposed mitigation area as set out in section 1.12.8, namely:

Retention and enhancement of existing wet features, including the two main ditches, with the addition of backwaters and connecting channels to promote natural flood dynamics and retain seasonal surface water;

Creation of a network of shallow scrapes and islands to deliver invertebrate-rich foraging areas and muddy margins;

Enhanced grassland through species rich planting to further support higher soil invertebrate biomass, and which is managed for the benefit of European site species;

Establishment of open sightlines through the removal of selected internal hedgerows to minimise visual disturbance and optimise suitability for flocking species sensitive to visual obstruction;

On-going dynamic management of the Mitigation Area for nature conservation during the operational phase. Targets for the measurement of success and mechanisms for remedial actions in the event that targets are not achieved will be included in a specific plan included

We also welcome the indirect benefits of the mitigation proposals which are outlined in paragraphs 1.12.9 and 1.12.10.

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours Sincerely



Yorkshire and Northern Lincolnshire Area Team

Cc commercialservices@naturalengland.org.uk

Annex 1

European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's ['How to get a licence'](#) publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's [guidance](#) on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on [Natural England's website](#).

From: [REDACTED]@naturalengland.org.uk>

Sent: 14 January 2026 13:55

To: [REDACTED]@avianecology.co.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: RE: response to EN0110012/UDS-A015616

Hello [REDACTED]

Sorry, I meant to reply earlier

Yes we can confirm we are happy with a one year survey approach provided our raised point are addressed

Thank you

[REDACTED]
Sustainable Development
Yorkshire and Northern Lincolnshire
Natural England
Lateral
8 City Walk
Leeds LS11 9AT
Mobile: [REDACTED]

www.gov.uk/natural-england



From: [REDACTED]@avianecology.co.uk>

Sent: 09 January 2026 11:46

To: [REDACTED]@naturalengland.org.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: RE: response to EN0110012/UDS-A015616

Hi [REDACTED],

Hope you had a good Christmas and New Year and thank you for the detailed response.

We would be grateful if Natural England could confirm our understanding of the comments regarding survey duration (Section "Approach to Surveys"). In particular, we note that the flood data and historic cropping regime are considered to demonstrate that a representative year was used for the surveys.

On this basis, can you please confirm that, for this site and these survey factors, Natural England is satisfied that a one-year survey baseline is appropriate, and that no additional survey years are required?

We look forward to your response.

Kind regards,

[REDACTED]

Principal Ornithologist



Main Office: Walnut Tree Farm | Northwich Road | Lower Stretton | WA4 4PG

Scotland Office: 272 Bath Street | Glasgow | G2 4JR

t: 0843 506 5116 | m: [REDACTED] [REDACTED]@avianecology.co.uk

w: www.avianecology.co.uk | [twitter](#) | [linkedin](#)



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From: [REDACTED]@naturalengland.org.uk>

Sent: 19 December 2025 15:34

To: [REDACTED]@avianecology.co.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: Re: response to EN0110012/UDS-A015616

Hello [REDACTED]

Please see Natural England's response attached to this email

Cheers

[REDACTED]
Sustainable Development

Yorkshire and Northern Lincolnshire

Natural England
Lateral

8 City Walk

Leeds LS11 9AT

Mobile: [REDACTED]

www.gov.uk/natural-england



From: [REDACTED]@avianecology.co.uk>

Sent: Monday, December 8, 2025 12:27 PM

To: [REDACTED]@naturalengland.org.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: RE: response to EN0110012/UDS-A015616

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Thank you for the update, [REDACTED], really appreciate it.

Please let me know if there's anything else you need from me in the meantime.

Kind regards,

[REDACTED]

Principal Ornithologist



Main Office: Walnut Tree Farm | Northwich Road | Lower Stretton | WA4 4PG

Scotland Office: 272 Bath Street | Glasgow | G2 4JR

t: 0843 506 5116 | m: [REDACTED] I [REDACTED]

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From: [REDACTED]@naturalengland.org.uk>

Sent: 08 December 2025 12:09

To: [REDACTED]@avianecology.co.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: RE: response to EN0110012/UDS-A015616

Hi [REDACTED]

Sorry I was supposed to provide a timescale update sooner but we have been very busy recently

We are aiming for a deadline of before the end of next week, but will hopefully be ready before then

Cheers

[REDACTED]

Sustainable Development

Yorkshire and Northern Lincolnshire

Natural England
Lateral

8 City Walk

Leeds LS11 9AT

Mobile: [REDACTED]

www.gov.uk/natural-england



From: [REDACTED]@avianecology.co.uk>

Sent: 08 December 2025 10:18

To: [REDACTED]@naturalengland.org.uk>; [REDACTED]
[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>

Subject: RE: response to EN0110012/UDS-A015616

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Hi [REDACTED],

I hope you're both well.

Could you please provide an update on the current timescales?

Kind regards,

[REDACTED]

Principal Ornithologist



Main Office: Walnut Tree Farm | Northwich Road | Lower Stretton | WA4 4PG

Scotland Office: 272 Bath Street | Glasgow | G2 4JR

t: 0843 506 5116 | **m:** [REDACTED] I [REDACTED]@avianecology.co.uk

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From: [REDACTED]

Sent: 21 November 2025 13:12

To: [REDACTED]@naturalengland.org.uk>; [REDACTED]

[REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>; [REDACTED]

[REDACTED]@avianecology.co.uk>

Subject: RE: response to EN0110012/UDS-A015616

Hi [REDACTED] and [REDACTED],

I hope you're both well.

Please find attached the latest version of the Overall Environmental Masterplan. The plans continue to be refined, including the size and positioning of the scrapes. Notwithstanding these ongoing revisions, this version provides an indicative representation of the Applicant's intentions.

Could you please provide an update on the response and expected timeline?

Kind regards,

[REDACTED]

Principal Ornithologist



Main Office: Walnut Tree Farm | Northwich Road | Lower Stretton | WA4 4PG

Scotland Office: 272 Bath Street | Glasgow | G2 4JR

t: 0843 506 5116 | **m:** [REDACTED] | **i:** [REDACTED]

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recommends that you perform your own virus checks on any attachment before opening.

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From: [REDACTED] <[\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk)>

Sent: 27 October 2025 13:43

To: [REDACTED] <[\[REDACTED\]@avianecology.co.uk](mailto:[REDACTED]@avianecology.co.uk)>; [REDACTED]
[REDACTED] <[\[REDACTED\]@naturalengland.org.uk](mailto:[REDACTED]@naturalengland.org.uk)>

Cc: [REDACTED] <[\[REDACTED\]@islandgp.com](mailto:[REDACTED]@islandgp.com)>; [REDACTED]
[REDACTED] <[\[REDACTED\]@avianecology.co.uk](mailto:[REDACTED]@avianecology.co.uk)>

Subject: RE: response to EN0110012/UDS-A015616

Hi [REDACTED]

Thank you for this. I have cc'd in [REDACTED] who will be working with me on this project as [REDACTED] has now left the organisation. We will start the review with what you have sent so far and will consider realistic timelines for response when the final masterplan design is provided.

We'll let you know if there are any questions.

Kind regards

[REDACTED]

NSIP Senior Officer

Yorkshire and Northern Lincolnshire Area Team

Natural England

Foss House,

Kings Pool,

1-2 Peasholme Green,

York,

Y01 7PX

[REDACTED]@naturalengland.org.uk

www.gov.uk/natural-england

From: [REDACTED]@avianecology.co.uk>

Sent: 27 October 2025 13:35

To: [REDACTED]@naturalengland.org.uk>

Cc: [REDACTED]@islandgp.com>; [REDACTED]

[REDACTED]@avianecology.co.uk>

Subject: response to EN0110012/UDS-A015616

Hi [REDACTED],

I hope you're doing well.

Please find attached the follow-up document in response to EN0110012/UDS-A015616: Evaluation of Bird Usage Variability and Justification for One-Year Survey Effort, along with a supplementary data report from the BTO.

We are currently finalising the masterplan designs for the Mitigation Area within Solar Development Site 1 and will share these with you as soon as possible to accompany this document. However, written details of this are presented in the document.

Please note that the Order Limits design evolution and associated changes referenced within the document remain internal at this stage and have not yet been shared with external parties or the public.

Look forwards to hearing from you and let me know if you need any further information.

Kind regards,

[REDACTED] [REDACTED]

Principal Ornithologist



Main Office: Walnut Tree Farm | Northwich Road | Lower Stretton | WA4 4PG

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t: 0843 506 5116 | **m:** [REDACTED] | [REDACTED] [@avianecology.co.uk](mailto:[REDACTED]@avianecology.co.uk)

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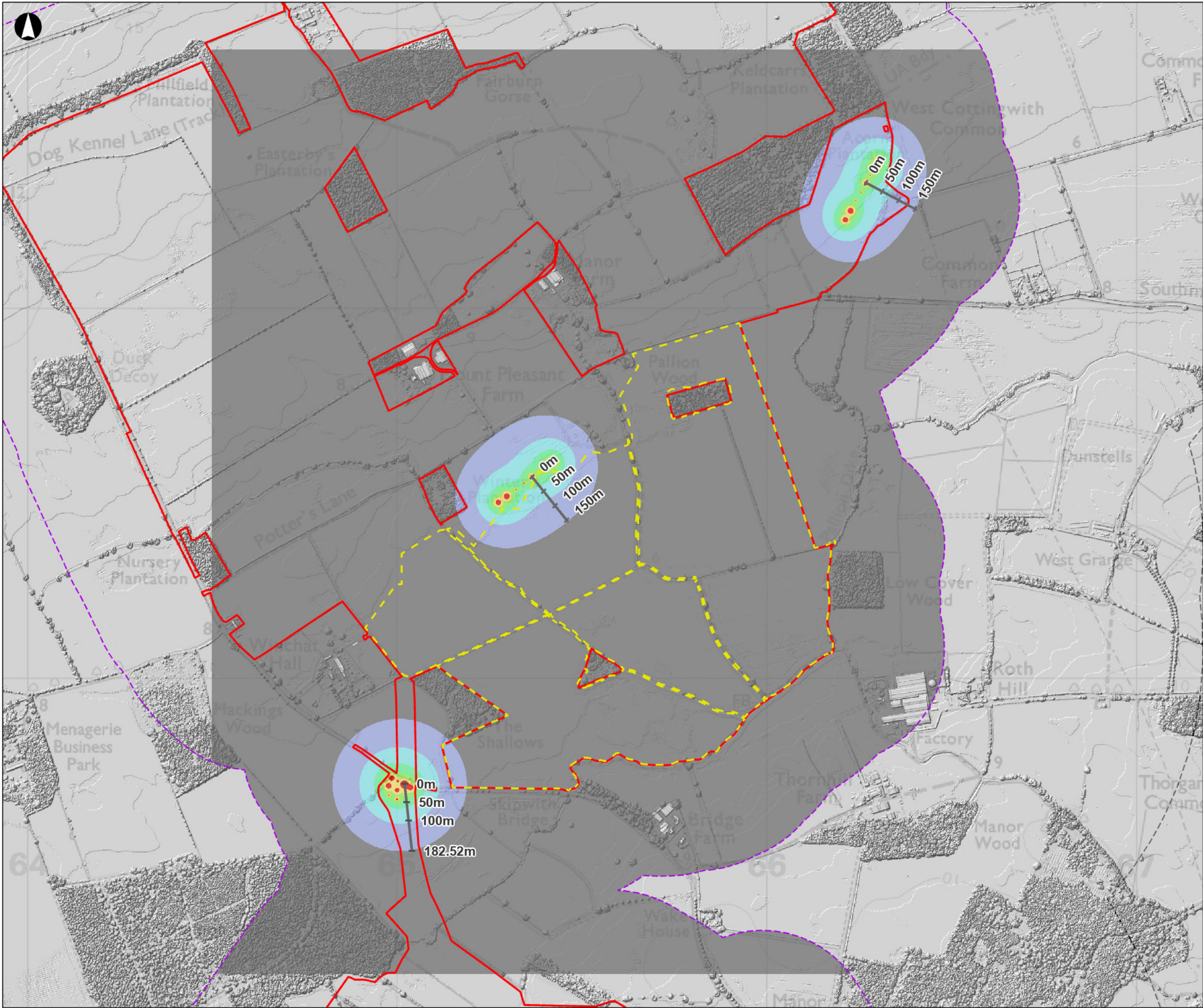
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A.7. Predicted Construction Noise Levels at Solar Development Site 1 (Figure 1)



Order Limits
Study Area (1km)
Construction Noise Study Area (300m)
Bird Mitigation Area
Measurement of Noise Attenuation (m)

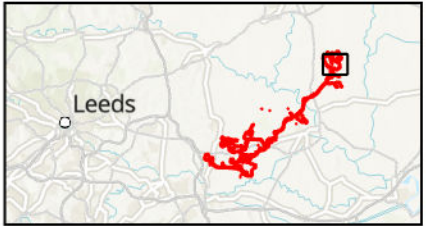
Bird Construction Site Noise Levels (dB)

- < 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

Coordinate System: British National Grid

Esri, CGIAR, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community. Contains OS data © Crown Copyright and database right 2026. Contains data from OS Zoomstack

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right [2025].



0 500 Metres

P01	30/06/2026	ACAR	CESL	CBUS	KDON
Rev	Date	By	Chkd	Appd	Authd



Drawing Title
**Figure 1 HRA
Predicted Construction Noise Levels at
SDS 1**

Client
Light Valley Solar Limited

Project Name
Light Valley Solar

Scale at A3
1:10,000

Project Number 302939-00	Rev P01
------------------------------------	-------------------

Drawing Number
Figure 1 HRA



Light Valley
Solar

W: Lightvalleysolar.co.uk
E: info@lightvalleysolar.co.uk