



Dean Moor Solar Farm

Environmental Statement: Appendix 8.7 – Shadow Habitats Regulation Assessment on behalf of FVS Dean Moor Limited

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**DEAN MOOR SOLAR FARM
ENVIRONMENTAL STATEMENT
APPENDIX 8.7 – SHADOW HABITATS REGULATIONS ASSESSMENT
PLANNING INSPECTORATE REFERENCE EN010155
PREPARED ON BEHALF OF FVS DEAN MOOR LIMITED**

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
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1 Introduction

1.1 Overview

1.1.1 This report presents the results of a shadow Habitats Regulations Assessment ('sHRA') for the Dean Moor Solar Farm (the 'Proposed Development'), commissioned by FVS Dean Moor Limited. This report forms Appendix 8.7 **[REF: 6.3]** of ES Chapter 8 – Biodiversity for the Proposed Development **[REF: 6.1]**.

1.1.2 This sHRA is intended to provide the information necessary for the Secretary of State (advised by the Planning Inspectorate) to make their assessment of the Proposed Development as the Competent Authority.

1.1.3 This chapter is supported by the following figures. Where an insert of a figure is included within the text, the full figure is also provided at the end of the report.

- Figure 2.1: Process of HRA; and
- Figure 8.1: Statutory Designated Sites **[REF: 6.2]**;

1.2 Site Location

1.2.1 The Proposed Development will be located on approximately 276.5 hectares ('ha') of land between the villages of Gilgarran and Branthwaite in West Cumbria (the 'Site'), which is situated within the administrative boundary of Cumberland Council (the 'Council').

1.2.2 The Site Location Plan is shown in ES Chapter 1 – Introduction **[REF: 6.1]**, Figure 1.1. The Order Limits for the Proposed Development constitute the maximum area of land potentially required for the construction, operation and decommissioning of the Proposed Development and show how the Site is divided into four main areas (Areas A, B, C, and D). These areas are shown in Chapter 3 – Site and Proposed Development Description **[REF: 6.1]**, Figure 3.1 of the ES.

1.3 Proposed Development

- 1.3.1 The maximum extent of the Proposed Development and a description is available from ES Chapter 3 – Site and Proposed Development Description. Chapter 3 provides the parameters of the Proposed Development which have been used to determine impacts to European Sites or their qualifying features both on and off Site.
- 1.3.2 The Proposed Development comprises the construction, operation, and decommissioning of a solar photovoltaic ('PV') energy generating station with a total capacity exceeding 50MW comprising solar PV arrays, grid connection infrastructure, associated infrastructure, and green infrastructure.
- 1.3.3 The Proposed Development will include the following key elements of infrastructure:
- Solar PV panels;
 - Solar PV array mounting structures;
 - Power Conversion System ('PCS') Units in the form of Inverters and Transformers;
 - Grid Connection Infrastructure comprising Customer and DNO Substation Buildings and external electrical equipment and ancillary infrastructure within a Security Fence;
 - Perimeter Fencing, Gates, CCTV cameras, electrical cabling, and other associated infrastructure;
 - Access from the highway and internal access tracks; and
 - Green infrastructure including landscape planting and ecological enhancements.
- 1.3.4 The earliest construction of the Proposed Development could commence in 2026 and for the purposes of the ES assessment, construction would span a period of approximately 18 months.

1.4 Report Objectives

- 1.4.1 The objectives of this report are to:
- Outline the approach taken within the sHRA;
 - Identify Likely Significant Effects ('LSE') to European Sites; and
 - Outline mitigation measures which will be used to avoid LSE.

1.5 Legislative Context

- 1.5.1 The 'Conservation of Habitats and Species Regulations 2017 (as amended)¹, (hereafter referred to as 'the Habitats Regulations') transposed certain aspects of 'the Habitats Directive' (Council Directive 92/43/EEC)² and 'the Wild Birds Directive'³ (Directive 2009/147/EC) (together known as the 'Nature Directives') (including various amendments) into domestic law.
- 1.5.2 To make such legislation operable following the UK departure from the European Union (i.e., from 1st January 2021), changes have been made to the Conservation of Habitats and Species Regulations 2017 (as amended) by the 'Conservation of Habitats and Species (Amendment) (EU Exit) Regulations⁴, 2019'. Most of these changes relate to the transfer of functions from the European Commission to the relevant domestic authorities, with all other processes and terms remaining unchanged, such that the strict protection afforded to sites, habitats and species, including wild birds, continues through the Conservation of Habitats and Species Regulations 2017 (as amended).
- 1.5.3 Of relevance to HRA, the Habitats Regulations 2017 (as amended), with changes made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019, provides for the designation and protection of important ecological sites already designated under the Nature Directives, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and any further sites designated under these Regulations (together forming a new 'National Site Network' in the UK), as well as Ramsar sites (which do not form part of the National Site Network, but remain protected in the same way as SAC and SPA).
- 1.5.4 Where there is risk of a project resulting in adverse effects on European Sites, there is also a requirement (in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), for

¹ HM Government (2017) The Conservation of Habitats and Species Regulations (2017) No. 1012

² Council Directive 92/43/EEC. 1992 No. 43. on the Conservation of natural habitats and of wild fauna and flora ('The Habitats Directive, 1992').

³ Directive 2009/147/EC. 2009 No. 147. of the European Parliament and of the Council on the Conservation of Wild Birds ('The Birds Directive, 2009').

⁴ HM Government (2019). The Conservation of habitats and Species (Amendment) (EU Exit) Regulations 2019. No. 579

the Competent Authority to make an 'Appropriate Assessment' of the implications of that project on a European Site in view of that European Site's Conservation Objectives, i.e., to undertake a HRA. The HRA process involves the completion of an initial 'Screening' stage, followed by an 'Appropriate Assessment' if the project is considered likely to have a significant impact on a European Site.

- 1.5.5 In accordance with Paragraph 181 of the National Planning Policy Framework ('NPPF')⁵, potential SPAs and candidate SACs ('cSACs'), listed or proposed Ramsar sites, and sites identified, or required, as compensatory measures for adverse effects on identified sites, are provided the same protection as SAC and SPA, and are therefore also considered in this report accordingly, where appropriate.

1.6 Planning Context

- 1.6.1 The Proposed Development is classed as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008⁶ and as such, requires a Development Consent Order (DCO) to proceed. In addition to the HRA, the application is underpinned by an Environmental Impact Assessment (EIA) which is set out in an Environmental Statement (ES) and includes an assessment on Biodiversity (Chapter 8), associated Figures (ES Figures 8.1 and 8.2) and Appendices (Appendices 8.1 to 8.8) [REF: 6.3]. EIA is a separate and standalone requirement from the HRA.

National Planning Policy

- 1.6.2 The National Policy Statement (NPS) for Energy (EN-1)⁷ states that:
- '4.2.19 Where, following Appropriate Assessment, CNP Infrastructure has residual adverse impacts on the integrity of sites forming part of the UK national site network, either alone or in combination with other plans or projects, the Secretary of State will consider making a derogation under the Habitats Regulations'.*
- 1.6.3 Crucially for an HRA derogation, the SoS will consider the particular circumstances of any plan or project, but starting from the position that

⁵ HM Government (2024). Ministry of Housing, Communities and Local Government National Planning Policy Framework

⁶ HM Government (2008). Planning Act 2008 c. 29

⁷ HM Government (2024). Department for Energy Security & Net Zero (DESNZ). Overarching National Policy Statement for Energy (EN-1)

energy security and decarbonising the power sector to combat climate change:

'4.2.21 Requires a significant number of deliverable locations for CNP Infrastructure and for each location to maximise its capacity. This NPS imposes no limit on the number of CNP infrastructure projects that may be consented. Therefore, the fact that there are other potential plans or projects deliverable in different locations to meet the need for CNP Infrastructure is unlikely to be treated as an alternative solution. Further, the existence of another way of developing the proposed plan or project which results in a significantly lower generation capacity is unlikely to meet the objectives and therefore be treated as an alternative solution; and

Are capable of amounting to imperative reasons of overriding public interest (IROPI) for HRAs, and, for MCZ assessments, the benefit to the public is capable of outweighing the risk of environmental damage, for CNP Infrastructure'.

1.6.4 NPS EN-1 goes on to state that:

'4.2.22 For HRAs, where an applicant has shown there are no deliverable alternative solutions, and that there are IROPI, compensatory measures must be secured by the Secretary of State as the competent authority, to offset the adverse effects to site integrity as part of a derogation.'

1.6.5 The Applicant Assessment for the Habitat Regulations sets out how the applicant should seek the advice of the Statutory Nature Conservation Body (SNCB) and provide the SoS with information they may require to make this assessment. This detail is set out in Sections 5.4.25 to 5.4.31.

1.6.6 NPS EN-1, also sets out the sites which are protected by international conventions and which an HRA will be required, in addition to Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) but also:

'(a) Potential Special Protection Areas and possible Special Areas of Conservation;

(b) Listed or proposed Ramsar sites; and

(c) Sites identified, or required, as compensatory measures for adverse effects on any of the other sites covered by this paragraph'.

1.6.7 Further in Section 5.4.49 the SoS decision making, with regards to Habitats Regulations states that:

'The Secretary of State must consider whether the project is likely to have a significant effect on a protected site which is part of the National Site Network (a habitat site), a protected marine site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects'

- 1.6.8 NPS ('EN-3')⁸ provides an approach for the SoS to HRA derogations for Critical National Priority ('CNP') Infrastructure from Section 3.8.17 to 3.8.20. and which reflect those set out in EN-1.

1.7 Purpose of HRA

- 1.7.1 As outlined previously, in accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is the duty of the Competent Authority, in this case the SoS, to determine whether the Proposed Development will have a significant effect on a European Site (whether alone or 'in-combination' with other plans or projects), in view of that European Site's 'Conservation Objectives', i.e., to undertake a HRA.
- 1.7.2 'Conservation Objectives' provide a framework which should inform any HRA (which may include an Appropriate Assessment) that a Competent Authority may be required to make under the legislation. In addition, they can be used to inform any measure necessary to conserve or restore the European Site and/or to prevent the deterioration or significant disturbance of its qualifying features.
- 1.7.3 This report is intended to provide the information necessary for Secretary of State (advised by the Planning Inspectorate) to make their assessment of the Proposed Development as the Competent Authority.

⁸ HM Government (2024). DESNZ. National Policy Statement for Renewable Energy Infrastructure (EN-3)

2 Methods

2.1 Overview

- 2.1.1 There is no clear guidance on which European Sites should be taken into consideration in the HRA for a plan or project. Where a European Site includes mobile species as qualifying interests, it is necessary to consider potential LSEs that could occur in areas used by these species outside the boundary of the European Site. As such, areas of land outside a European Site, which contribute to the status of its qualifying interests and Conservation Objectives, may also require consideration. This is described as the 'Zone of Influence' (Zol).
- 2.1.2 The Zol was established as 10km which is deemed to be sufficient in the context of potential impacts from the Proposed Development. A desk study was carried out to identify the presence of European Sites within this the Zol and is included in Chapter 8 – Biodiversity.

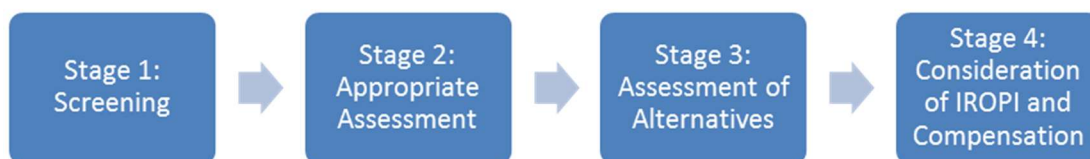
2.2 Habitat Regulations Assessment Approach

- 2.2.1 This document has been prepared based on the methodology for HRA set out in 'The HRA Handbook⁹'. The HRA Handbook provides a regularly updated source of guidance on the understanding and interpretation of the Habitats Regulations and consistency in applying the requirements of the legislation. It is considered that this is the best practice methodology currently available for HRA. The HRA Handbook sets out a four-stage approach to HRA (as illustrated in Figure 2.1) and emphasises the iterative nature of the process.
- 2.2.2 Due consideration of UK Government Guidance¹⁰ has also been made.

⁹ The HRA Handbook. DTA Publications Ltd

¹⁰ HM Government (2024). Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments

Figure 2.1: Process of HRA



2.3 HRA Stages

Stage 1: Screening

- 2.3.1 The Screening stage involves the determination of the European Sites, (including Ramsar Sites)¹¹, which could potentially be affected by the Proposed Development and their determining interests; and whether the Proposed Development could result in a LSE, either alone or in combination with other plans and projects.
- 2.3.2 HRA case law (the “Dilly Lane” case, 2008¹²) determined that mitigation measures that were *‘incorporated into the project’* or which *‘formed part of the project’* could be taken into account at the screening *‘likely significant effect’* test stage of HRA (as long as they were effective). The ruling judge accepted that certain facets of a project, which are intended to avoid or reduce negative impacts on a European site (i.e. mitigation), can still be regarded as *‘incorporated into the project’* if they are promoted that way by the developer.
- 2.3.3 However, another ruling (Court of Justice of the European Union (“CJEU”) People Over Wind and Sweetman v Coillte Teoranta (C-323/17))¹³ concluded that mitigation measures intended to avoid or reduce impacts on a European site could not be regarded as part of the *‘Project’* and thus should not be taken into account at the Screening Stage of HRA when judging whether likely significant effects on the integrity of a European Site could occur.

¹¹ For the avoidance of doubt, the European Sites considered within this HRA report include the following, in accordance with the Habitats Regulations and the NPPF: Special Protection Areas (including Marine Components), potential Special Protection Areas, Special Areas of Conservation (including Marine Components), candidate Special Areas of Conservation, listed or proposed Ramsar sites.

¹² EWHC 1204 (2008) R (Hart District Council v ((1) The Secretary of State for Communities and Local Government (2) Luckmore Ltd (3) Barrat Homes Ltd) v ((1) Taylor Wimpey Developments Ltd (2) Natural England Interested Parties

¹³ Judgement of the Court (seventh Chamber) 12 April 2018 Case C-323/17

- 2.3.4 It is considered reasonable, in the light of the second ruling, that any measures inherently part of the Proposed Development (described as 'embedded mitigation' in this report) which are not specifically incorporated into the scheme for ecological reasons, but reduce ecological effects, can be considered at the HRA screening stage. If there is reliance on mitigation measures as part of the Proposed Development, that would not have been put in place without the presence of a European site, an Appropriate Assessment is required. This approach is supported by articles in the Habitats Regulations Assessment Journal¹⁴.

Stage 2: Appropriate Assessment

- 2.3.5 In the event that LSEs are identified at the Screening Stage, on the basis of objective information, or uncertainty remains, the Competent Authority should proceed to the next stage of assessment. During Stage 2 (Appropriate Assessment) an assessment of whether there will be an adverse effect on the integrity¹⁵ of the European Site concerned, and the consideration of measures to address this effect, is required. The Precautionary Principle should be applied, with the focus being on objectively demonstrating, with supporting evidence, that there will be no adverse effects on the integrity of the European Site. Where this is not possible, adverse effects must be assumed.
- 2.3.6 The 'Precautionary Principle'¹⁶ provides that where the threat of serious or irreversible environmental damage exists, a lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- 2.3.7 Only where appropriate measures can be put in place and the Competent Authority considers that the Proposed Development, alone or in combination with other projects or plans, will not adversely affect the integrity of the European Site, can consent be granted.

¹⁴ The Habitats Regulations Assessment Handbook (2019) DTA Publications.

¹⁵ For the purpose of this assessment, 'site integrity' of a European Site is defined as being 'the coherence of its ecological structure and function across its whole area which enables it to sustain the habitats, complex of habitats and/or population levels of the species for which it was classified (or designated)' (UK Government, 2019).

¹⁶ HM Government (2023). Department for Environment, Food & Rural Affairs (DEFRA). Environmental Principles Policy statement (updated January 2023)

- 2.3.8 Where it is not possible to identify suitable measures to address the identified effects (such that there remains the potential for an adverse effect on the integrity of the European Site), or uncertainty remains, consideration of Stage 3 (Assessment of Alternatives) and Stage 4 (Consideration of Imperative Reasons of Overriding Public Interest 'IROPI'), as shown on Figure 2.1, is required.

Stage 3: Assessment of Alternatives

- 2.3.9 The assessment should identify and assess alternatives that have been considered. Alternative solutions could include a project of a different scale, a different location, and an option of not having the scheme at all (the 'do nothing' approach).

Stage 4: Consideration of Imperative Reasons for Overriding Public Interest (IROPI)

- 2.3.10 Where it can be demonstrated that there are no alternative solutions to the project, that would have a lesser effect or avoid an adverse effect on the integrity of the European / Ramsar Site, the project may still be carried out if the competent authority is satisfied that the scheme must be carried out for IROPI.

2.4 HRA Approach and Rationale

- 2.4.1 In section 3 of this report, the relevant European Sites are identified, their features of interest documented, along with potential pressures or threats, and their Conservation Objectives. This provides a baseline from which to consider potential impacts and impact pathways.
- 2.4.2 Section 4 presents the Stage 1 Screening Assessment which assesses the threats or pressures to the Europeans Sites where, and on the basis of objective information, an assessment of whether there will be Likely Significant Effects to the European Site.

- 2.4.3 Given that this Proposed Development is a NSIP, HRA Screening matrix tables according with Government Guidance¹⁷ are also completed.
- 2.4.4 The approach for the in-combination assessment is such that where no impact pathways are identified and / or there is no appreciable effect¹⁸ resulting from the Proposed Development, then there is no mechanism by which perceivable in-combination effects with other projects or plans could occur. Where impact pathways or appreciable effects are identified, the potential for LSE in-combination with other projects or plans is considered. Conclusions are then drawn as to whether LSE on the identified European Sites are anticipated.
- 2.4.5 Section 5 presents the Stage 2 Appropriate Assessment where LSEs on European Sites identified during Screening cannot be ruled out, either alone or 'in-combination'. It outlines further detail relating to the specific nature of the impact, the mitigation to be implemented and the resultant effect on the integrity of the European Site, in light of that mitigation. Where there is potential for in combination effects, further detail has also been provided.
- 2.4.6 Only where appropriate measures can be put in place and the Competent Authority considers that the Proposed Development will not adversely affect the integrity of the European Site, can consent be granted.
- 2.4.7 If Natural England (NE), as the statutory advisor on terrestrial nature conservation issues, advise the Competent Authority that the Proposed Development is likely to affect the integrity of one or more of the European Sites, the Proposed Development will then have to demonstrate that there are no viable alternatives (Stage 3), and that the Proposed Development is required for imperative reasons of overriding public interest (IROPI) (Stage 4).
- 2.4.8 Appropriate compensation to address the 'loss', is needed for these latter stages, if consent is to be granted.

¹⁷ HM Government (2024). Planning Inspectorate. Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments.

¹⁸ An 'appreciable effect' is an effect resulting in noticeable changes to a receptor.

2.5 Evidence Gathering

- 2.5.1 Data to inform this sHRA was derived from desk study data presented in Chapter 8 Biodiversity as well as consultation with Joint Nature Conservation Committee (JNCC) website for both SACs¹⁹ and SPAs²⁰ and Natura 2000 – Standard Data Forms and the Allerdale Borough Council Local Plan. Further assessment of threats was derived from Site Improvement Plans (SIPS)²¹ for each of the SAC's identified.
- 2.5.2 To further inform the sHRA and understand implications to the qualifying species of the Solway Firth SPA and whether there are any functional linkages between the SPA and the Site, a series of wintering bird surveys were carried out at the Site between September 2023 and March 2024 to cover both the passage and main winter period. The results of these surveys are included as Chapter 8: Appendix 8.6.
- 2.5.3 Wintering bird data from September 2024 to December 2024 was also provided by the ecology team working on Lostrigg Solar with which an assessment of in-combination effects was undertaken. This data set was incomplete as bird surveys were in progress at the time. Nonetheless, the data accounts for seven Site visits so are considered sufficient for this part of the assessment.
- 2.5.4 On completion of the desk study and bird surveys, and accounting for the Parameter Plan and Works Numbers set out in ES Chapter 3 – Site and Proposed Development Description, the Proposed Development was subject to the HRA Process.

2.6 Consultation

- 2.6.1 Consultation was undertaken with NE as part of the EIA Scoping, PEIR and ES process for the Proposed Development. This included identifying and agreeing the proposed scope of wintering bird surveys at the Site to

¹⁹ Joint Nature Conservation Committee. SACs in England Available at <https://sac.jncc.gov.uk/site/england> Accessed November 2024

²⁰ Joint Nature Conservation Committee. Special Protections Areas (SPAs) List of Sites <https://jncc.gov.uk/our-work/list-of-spas/#england> Accessed November 2024

²¹ Natural England Site Improvement Plans: North West. <https://publications.naturalengland.org.uk/category/6329101765836800> Accessed November 2024

determine the presence of any qualifying features of the Solway Firth SPA.

The response from NE on 28 September 2023 was as follows:

'The methodology proposed for passage and wintering birds is suitable for the majority of bird species however a more specific survey will be required to assess the hen harrier usage of the area, as well as by other raptors. Ideally these surveys should be vantage point surveys every 2 weeks across the full winter season. Dusk surveys will be required usually commencing 45 minutes before sunset until it is dark and should be sited where there is suitable habitat to provide shelter, protection, and food. Bog or wet pastures with scattered scrub and rush are often favoured by hen harrier.'

2.6.2 Additional correspondence was carried out with NE on 2 December 2024 through their Discretionary Advice Service (DAS) and in accordance with agreement (DCO EN010155) for the Proposed Development.

2.6.3 The responses from Statutory Consultees on the need for a HRA following submission of the PEIR and what it should include is included in Table 2.1. This sHRA has assessed the potential for the LSE on qualifying features of European Sites.

Table 2.1: Statutory Consultee Response with reference to HRA and qualifying features. Responses are those provided at the time and have not been updated.

Ref	Source and Date	Summary of Consultation Response	Response to Consultee
PEIR Chapter 8; Section 8.3.25	Natural England 16.5.24	<i>Natural England advise that a shadow Habitats Regulations Assessment will be needed to assess potential impacts on the River Derwent and Bassenthwaite Lake Special Area of Conservation (SAC). Potential disturbance impacts on otters should also be assessed in the HRA based on further survey work.</i>	This sHRA assesses the potential for likely significant impacts to the SAC qualifying features.
PEIR Chapter 8; Section 8.3.26	Natural England 16.5.24	<i>The shadow HRA may also need to assess impacts on Solway Firth SPA birds dependent on the survey results.</i>	This sHRA assesses impacts to the SPA and its qualifying species.
PEIR Chapter 8; Section 8.4.50	Natural England 16.5.24	<i>As above – impacts on otter will need to be assessed in a shadow HRA as they are a designated feature of the River Derwent & Bassenthwaite Lake SAC.</i>	Otters are considered as part of this sHRA.
PEIR Chapter 8; Section 8.5.4	Natural England 16.5.24	<i>Pollution to designated sites during operation and maintenance should be scoped into the HRA.</i>	This sHRA assesses pollution to designated sites.
PEIR Chapter 8;	Natural England	<i>Further assessment will be required in the shadow HRA on construction phase</i>	This sHRA assesses

Ref	Source and Date	Summary of Consultation Response	Response to Consultee
Section 8.5.6	16.5.24	<i>[with respect to Statutory Designated Areas].</i>	construction effects on Statutory Designated Areas.
PEIR Chapter 8; Section 8.5.21	Natural England 16.5.24	<i>Construction phase impacts on otters will need to be assessed in the shadow HRA.</i>	Otters are considered as part of this sHRA.
PEIR Chapter 8; Section 8.5.26	Natural England 16.5.24	<i>Further assessment will also be required in the shadow HRA for any SPA qualifying species.</i>	This sHRA assesses SPA qualifying species.
PEIR Chapter 8; Section 8.5.42	Natural England 16.5.24	<i>Further assessment will be required in the shadow HRA [with respect to otter].</i>	Otters are considered as part of this sHRA.
PEIR Chapter 8; Section 8.5.45	Natural England 16.5.24	<i>Further assessment will be required in the shadow HRA for any SPA qualifying species recorded on Site.</i>	This sHRA assesses SPA qualifying species recorded on-Site.
PEIR Chapter 8; Section 8.6.3 and 8.6.4	Natural England 16.5.24	<i>These mitigation measures should be included in the shadow HRA [with respect to Statutory Designated Areas].</i>	Mitigation measures for Statutory Designated Areas are considered within this sHRA.
PEIR; Chapter 8.5,	Cumberland Council 19.4.24	<i>Regarding Likely Significant Effects – this section talks of embedded mitigation. Please note that embedded or best practice mitigation is not to be taken into account when conducting the screening stage of the HRA. Therefore, it is highly likely that the HRA will at least proceed to the Appropriate Assessment Stage, where the embedded mitigation can be discussed.</i>	The screening stage of the sHRA has been undertaken within this report. Appropriate Assessment has been included where necessary.
PEIR; Chapter 8, Scoping Opinion	Cumberland Council 19.4.24	<i>Section 3.4 for Biodiversity and ID 3.4.2 – this suggests that a HRA is not required. I would argue that a full HRA is undertaken for a development of this size before impacts to internationally designated sites can be scoped out.</i>	The sHRA has been undertaken.

2.6.4 The Scoping Opinion received on 14 September 2023 from the Planning Inspectorate included a response from the Environment Agency (EA) which also suggested the presence of other species (included as part of the citation

for the River Derwent and Tributaries SAC and SSSI) which could be affected by the Proposed Development, specifically:

- Atlantic salmon;
- River lamprey;
- Brook lamprey, and;
- Otter.

2.6.5 The Scoping Opinion adopted by the Planning Inspectorate on behalf of the Secretary of State received on 14 September 2023 made the following comments when assessing biodiversity with specific reference to HRA and designated areas.

Table 2.2: Statutory Consultee Response with reference to HRA and qualifying features during Scoping.

ID	REF	Applicant's proposed matters to scope out	Inspectorate's comments
3.4.1	Paragraph 8.7.3	Potential effects on designated sites and notable habitats due to a reduction in air quality from increased traffic exhaust emissions	Provided that the ES description of development includes sufficient detail to demonstrate that construction and operational traffic movements will not exceed the IAQM criteria and given the temporary nature of the movements, the Inspectorate agrees that this matter may be scoped out of further assessment.
3.4.8	Paragraph 8.2.1	Study area	The Scoping Report states that a 10km radius from the site boundary for internationally designated sites would be applied, to be extended beyond this radius where any hydrological pathways from the site to the designated site are known to occur. The ES should ensure the study area reflects the project's Zone of Influence (ZOI) rather than being based on a fixed distance. The ES should consider the potential for effects to occur beyond 10km, particularly where designated sites are designated for mobile species such as birds and bats. Effort should be made to agree the study area(s) with relevant consultation bodies.

2.6.6 Comments from the EA on the EIA Scoping Report (ES Appendix 2.1) [REF: 6.3] with reference to HRA were as follows:

'Please note that some of the species included as part of the citation for the River Derwent & Tributaries SSSI could potentially be present within the proposed development site or affected by works within the site:

- *Atlantic Salmon*
- *River lamprey*
- *Brook lamprey*
- *Otter Lutra*

2.6.7 Natural England's advice on EIA Scoping with reference to Designated Sites, and only with regards to the River Derwent and Bassenthwaite Lake SAC and River Derwent and Tributaries Site of special Scientific Interest (SSSI) was as follows:

'The site is 6km upstream of the River Marron (part of the River Derwent and Bassenthwaite Lake SAC) with a direct hydrological connection via Lostrigg Beck. The potential for polluted run-off entering the beck at both the construction and operational phases of the development needs to be fully assessed within a Habitats Regulations Assessment and appropriate mitigation implemented. Potential disturbance impacts on Otters should also be assessed in the HRA based on further survey work. Impacts on the SAC should be assessed against the European Site Conservation Objectives'.

2.6.8 With regards to European Sites and to understand impacts to qualifying species of the Solway Firth SPA, the Applicant issued a working draft of 'Appendix 8.6 Dean Moor Wintering Bird and Hen Harrier Survey Report' to NE on 22 November 2024 for comment. An online meeting was then held between NE and the Applicant on 2 December 2024. During this meeting the Applicant discussed the results of the wintering bird survey.

2.6.9 Details of flocks of SPA qualifying features was passed to NE on 3 December 2024 and a draft of the sHRA provided on 12 December 2024 for consideration. A response was received on 23 January 2025, the details of which have been indicated within the relevant sections of this report.

3 Site Details

3.1 Overview

- 3.1.1 In this section the relevant European Sites are identified, their features of interest documented, along with potential pressures or threats, and the Conservation Objectives of the Site. This provides a baseline from which to consider potential impacts and impact pathways.
- 3.1.2 Where a European Site includes mobile species as qualifying interests, it is necessary to consider potential LSE that could occur in areas used by these species outside the boundary of the European Site, referred to as Functionally Linked Land (FLL). As such, areas of land outside a European Site, which contribute to the status of its qualifying interests and Conservation Objectives, may also require consideration.

Functionally Linked Land

- 3.1.3 In this report, FLL is used in the context of a published report submitted to NE²²:

'... the term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status.'

3.2 Zone of Influence

- 3.2.1 Based on the information provided in ES Chapter 8 – Biodiversity, and for this sHRA, the Zol has been identified as 10km for European Sites. The Sites considered are shown in Figure 3.1 below and summarised in Table 3.1 along with their Site Code obtained from the JNCC website for SACs²³ and SPAs²⁴, distance from the Proposed Development and reason for

²² Chapman, C. & Tyldesley, D. (2016). Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number 207

²³ Joint Nature Conservation Committee. SACs in England Available at <https://sac.jncc.gov.uk/site/england> Accessed November 2024

²⁴ Joint Nature Conservation Committee. Special Protections Areas (SPAs) List of Sites <https://jncc.gov.uk/our-work/list-of-spas/#england> Accessed November 2024

designation. Full details of their designation and any component Site of Special Scientific Interest ('SSSI') is also provided within Appendix A.

Figure 3.1: Statutory Designated Sites (Extract of ES Figure 8.1)

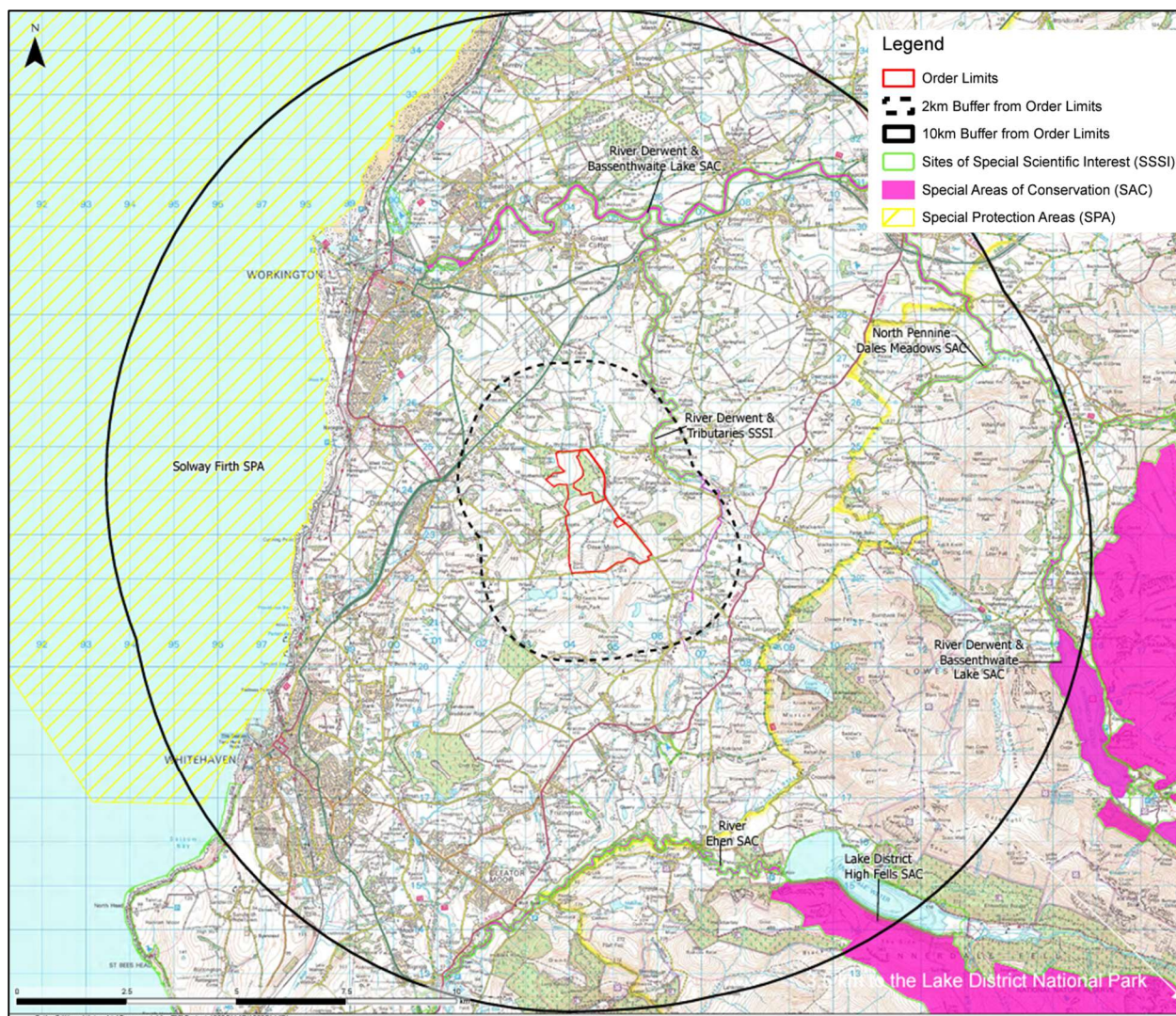


Table 3.1: European Designated Sites Present within 10km of the Site

Site Name	JNCC Site Code	Approximate Distance and Direction from Site	Reason for Designation
River Derwent & Bassenthwaite Lake SAC	UK0030032	1.2km to the east (and hydrologically connected to the Site via watercourses)	Designated for aquatic habitats and species which the River Derwent and Bassenthwaite Lake support, including lamprey species, Atlantic salmon, otter, marsh fritillary butterfly, and floating water plantain.

Site Name	JNCC Site Code	Approximate Distance and Direction from Site	Reason for Designation
Solway Firth SPA	UK9005012	5km to the west	Designated due to its importance during winter for non-breeding waterfowl and non-breeding gulls.
River Ehen SAC	UK0030057	6.1km to the south	Designated for the presence of freshwater pearl mussel and Atlantic salmon.
Lake District High Fells SAC	UK0012960	8km to the southeast	Designated for a range of upland habitats including heathland, tarns (waterbodies), grassland, bogs, scree, woodland, and tall herb communities.
North Pennine and Dales Meadows SAC	UK0014775	8.9km to the east	Designated due to the presence of mountain hay meadows and <i>Molinia</i> meadows.

3.2.2 A summary of the relevant Conservation Objectives published by NE and threats which affect site integrity are presented in Appendix B. The threats for each of the European Sites is shown in Table 3.2 as identified through the JNCC Standard Forms and the emerging Local Plan for Allerdale Borough Council (ABC), where relevant²⁵.

3.2.3 In addition, NE's SIPS provide a high-level overview of the issues (both current and predicted) affecting the condition of the interest features of the European Sites and outline the priority measures required to improve the condition of the features. They do not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

3.2.4 Table 3.3 then considers whether there are any conceivable impact pathways by which the Proposed Development could give rise to the threats / pressures for which the European Sites are identified to be at risk. Only sites where the risk applies are specifically named.

²⁵ Allerdale Borough Council (2019) Habitat Regulations Assessment: Local Plan Site Allocations.

Table 3.2: Threats and Pressures for the Identified European Sites

Identified Pressure or Threat (from Standard Form and SIPS)	River Derwent & Bassenthwaite Lake SAC	Solway Firth SPA	River Ehen SAC	Lake District High Fells SAC	North Pennine Dales Meadows SAC
Invasive non-native species	X			X*	X*
Pollution to groundwater (point sources and diffuse sources)	X		X		
Human induced changes in hydraulic conditions	X		X		
Siltation*	X		X		
Changes in Species Distributions*	X				X
Changes in biotic conditions			X	X	
Air pollution, air-borne pollutants				X	X
Grazing		X		X	
Outdoor sports and leisure activities, recreational activities		X		X	
Utility and service lines		X			
Pollution to surface waters (limnic & terrestrial, marine & brackish)		X			
Renewable abiotic energy use		X			
Changes in abiotic conditions		X			
Fishing and harvesting aquatic resources		X			
Other ecosystem modifications		X			
Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)		X			
Hunting, fishing or collecting activities not listed above		X			
Shipping lanes, ports, marine constructions		X			
Exploration and extraction of oil or gas		X			

Identified Pressure or Threat (from Standard Form and SIPS)	River Derwent & Bassenthwaite Lake SAC	Solway Firth SPA	River Ehen SAC	Lake District High Fells SAC	North Pennine Dales Meadows SAC
Marine water pollution		X			
Discharges		X			
Problematic native species				X	
Modification of cultivation practices					X
Mowing / cutting of grassland					X
Fertilisation					X
* From SIPS					

Table 3.3: Rationale for Identified Potential Threats and Pressures on European Site Qualifying Features Arising from the Proposed Development

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from Proposed Development	Conclusion on LSE
Invasive non-native species	Given the Proposed Development is a solar development and separated from River Derwent and Bassenthwaite Lake SAC by 1.2km of intervening land then it is considered there will be no effects caused by this water borne INNS. The site is intensively grazed pasture, and no INNS were identified during PEA, albeit rhododendron was off-site. No soil is being imported to Site, so risk of contamination is unlikely. Proposed Development is far from Lake District High Fells SAC and North Pennine Dales Meadows SAC so proposed Development will not cause spread of INNS to these sites.	None
Pollution to groundwater (point sources and diffuse sources)	The River Derwent and Bassenthwaite Lake SAC is hydrologically linked to the Proposed Development by watercourses which run south to north through the Site and converge with the River Marron in the village of Bridgefoot before flowing into the River Derwent approximately 6.3km downstream. The River Ehen is not hydrologically linked to the Site and lies in a different catchment to the south, flowing south-westwards where it eventually converges with the River Calder before entering the Irish sea southwest of Sellafield. This threat also does not apply to any of the other sites.	Only for River Derwent and Bassenthwaite Lake SAC
Human induced changes in hydraulic conditions	There will be no direct changes in hydraulic conditions to either the River Derwent and Bassenthwaite Lake SAC as the Proposed Development is located over 1.2km and 6.1km away respectively. This threat also does not apply to any of the other sites.	None

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from Proposed Development	Conclusion on LSE
Siltation	SIPS identified impacts to River Derwent and Bassenthwaite Lake SAC and River Ehen SAC. Works has potential to mobilise soil during construction of site compounds. No impacts to River Ehen as in different catchment, not to any other Site.	Only for River Derwent and Bassenthwaite Lake SAC
Changes in species distributions	Works could affect water course indirectly by pollutions which could impact on aquatic species of River Derwent and Bassenthwaite Lake (i.e. otter, lamprey and salmon). Floating water-plantain and marsh fritillary butterfly are not present on-Site and habitat for former not present so impacts unlikely. River Ehen in different catchment so no impacts anticipated, nor to any other European Site.	Only for River Derwent and Bassenthwaite Lake SAC
Changes in biotic conditions	The River Ehen is not hydrologically linked to the Site, while the Lake District High Fells SAC is 8km to the south east and separated by intervening land. The nature of the Proposed Development which necessitates the erection of solar panels wont impact any receptors on these sites. This threat also does not apply to any of the other sites.	None
Air pollution, air-borne pollutants	As set out in the EIA Scoping Report (ES Appendix 2.1), and agreed through the EIA Scoping Opinion, anticipated changes to traffic are well below the thresholds Natural England ²⁶ suggests as a benchmark below which significant effects from air quality to designated sites can be screened out. Therefore, there is no mechanism for potential effects due to a reduction in air quality (during the Proposed Development's construction, operation and decommissioning).	None
Grazing	The Proposed Development will adopt a grazing management plan which will be confined to the DCO limits and be used to promote the restoration and enhancement of existing habitats. There will be no impact on the Solway Firth SPA or Lake District High Fells SAC. This threat also does not apply to any of the other sites.	None
Outdoor sports and leisure activities, recreational activities	The Proposed Development does not involve any outdoor sports or leisure or recreational activities which could otherwise have an effect on the Solway Firth SPA or Lake District High Fells SAC. While there will be upgrades to the permissive path around the western boundary of the Proposed Development, all users will be confined to within the Site boundary. This threat also does not apply to any of the other sites.	None
Utility and service lines	The Proposed Development does not include the installation of utility and service lines so there is no mechanism for impacts to the Solway Firth SPA.	None

²⁶ Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (June 2018)

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from Proposed Development	Conclusion on LSE
	This threat also does not apply to any of the other sites.	
Pollution to surface waters (limnic & terrestrial, marine & brackish)	The Proposed Development is over 5km from the coast and will not affect any terrestrial, marine or brackish habitats associated with the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Renewable abiotic energy use	Although the Proposed Development will involve the erection of solar panels to harness renewable energy it is sufficiently far away that there will be no impacts to the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Changes in abiotic conditions	The Proposed Development is sufficiently far away that there will be no impacts to the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Fishing and harvesting aquatic resources	This threat which is specific to the Solway Firth SPA does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None
Other ecosystem modifications	This threat which is specific to the Solway Firth SPA could be realised should the Site of the Proposed Development be functionally linked to the SPA. This threat does not apply to any of the other sites.	Only for Solway Firth SPA
Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	This threat which is specific to the Solway Firth SPA does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None

Identified Pressure or Threat	Rationale for Threat or Pressure Arising from Proposed Development	Conclusion on LSE
Hunting, fishing or collecting activities not listed above	This threat which is specific to the Solway Firth SPA does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None
Shipping lanes, ports, marine constructions	The Proposed Development will not impact any marine activities within the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Exploration and extraction of oil or gas	The Proposed Development does not involve any exploration of oil or gas within the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Marine water pollution	The Proposed Development will not lead to any marine pollution which could impact the Solway Firth SPA This threat also does not apply to any of the other sites.	None
Discharges	There will be no discharges from Site given the nature of the Proposed Development such that there will be no effect on the Solway Firth SPA. This threat also does not apply to any of the other sites.	None
Problematic native species	The Proposed Development seeks to enhance and restore habitats which are occupied by local wildlife. Those identified during surveys to inform the ES were either protected and/or native. Any increase in populations of native species, of both animal and plant, is also unlikely to impact the Lake District High Fells SAC. This threat also does not apply to any of the other sites.	None
Modification of cultivation practices	This threat which is specific to the North Pennine Dales Meadows SAC does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None
Mowing / cutting of grassland	This threat which is specific to the North Pennine Dales Meadows SAC does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None
Fertilisation	This threat which is specific to the North Pennine Dales Meadows SAC does not apply to the Proposed Development. This threat also does not apply to any of the other sites.	None

4 Screening Assessment

4.1 Overview

4.1.1 A summary of the threats / pressures to the identified European Sites for which conceivable impact pathways have been identified is presented in Table 4.1 below.

Table 4.1: Summary of the Threats / Pressures to the Identified European Sites and Conceivable Impact Pathways

European Sites	Threat / Pressures Considered Relevant and Required Further Consideration at Screening Stage.
River Derwent & Bassenthwaite Lake SAC	Pollution to groundwater (point sources and diffuse sources) Siltation Changes in species distributions
Solway Firth SPA	Other ecosystem modifications

4.1.2 Considering the nature of the Proposed Development, and the distance separation, no scenarios were identified by which any of the identified threats / pressures to River Ehen SAC, Lake District High Fells SAC or North Pennine Dales Meadows SAC could arise. As such no further assessment of these European Sites is required.

4.2 Screening Matrix

4.2.1 The Proposed Development will be considered 'likely' to have an effect if, on the basis of objective information, it is clear that a significant effect could be caused, or could conceivably be caused, or if there is any uncertainty that the Proposed Development could have a significant effect on any European Site, either alone or in-combination with other plans or projects. An effect will be considered 'significant' if a European Site's Conservation Objectives could be undermined.

4.2.2 In assessing whether significant effects are likely, consideration has been given to:

- The extent and nature of the Proposed Development;
- The distance of the European Sites from the project and the nature of any connectivity or impact pathways;

- Other existing technical information about the European Sites and the species they support was obtained from Magic interactive mapping²⁷ ; Natural England's designated sites website²⁸ for details of relevant European Sites; species surveys, and
- Information presented within the Allerdale Borough Council Local Plan and the Habitat Regulations Assessment: Local Plan Site Allocations²⁹.

4.2.3 Following the People over Wind ruling (as outlined in Section 2), only mitigation which is inherent as part of the project and not specifically ecological mitigation ('embedded mitigation') is considered at Screening. Any effects for which specific ecological mitigation ('additional mitigation') is required are not considered at this stage, even if the mitigation proposed is well known and documented.

4.2.4 This assessment is presented within a Screening Matrix in Appendix C in which each qualifying feature is assessed. Evidence for the conclusions reached are detailed within the footnotes presented after the matrix. A summary is presented within Table 4.2 and 4.3 below for each designated site.

Table 4.2: Summary HRA Screening Matrix for River Derwent and Bassenthwaite Lake SAC

River Derwent and Bassenthwaite Lake SAC				
1.2km east				
Effect	Pollution to groundwater (point sources and diffuse pollution)		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Otter, Atlantic salmon, river lamprey and brook lamprey.	√ ³⁰	X	X	X
Marsh fritillary and floating water-plantain	X	X	X	X
	Siltation		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation

²⁷ DEFRA. Magic Maps. Available at: <https://magic.defra.gov.uk/> Accessed November 2024

²⁸ Natural England Designated Sites View: <https://designatedsites.naturalengland.org.uk/>

²⁹ Allerdale Borough Council (2019). Habitat Regulations Assessment: Local Plan Site Allocations.

³⁰ Indirect impacts only

River Derwent and Bassenthwaite Lake SAC				
Otter, Atlantic salmon, river lamprey and brook lamprey.	✓	X	X	X
Marsh fritillary and floating water-plantain	X	X	X	X
	Change in species distribution		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Otter, Atlantic salmon, river lamprey and brook lamprey.	X ✓	X	X	X
Marsh fritillary and floating water-plantain	X	X	X	X

Table 4.3: Summary HRA Screening Matrix for Solway Firth SPA

Solway Firth SPA				
5km west				
Effect	Other ecosystem modifications		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Article 4.1 qualifying species	X	X	X	X
Article 4.2 qualifying species	X	X	X	X
Article 4.2 qualifying species (passage)	X	X	X	X
Article 4.2 non-breeding assemblage	✓	✓	✓	✓

4.3 Assessment of Functionally Linked Land

- 4.3.1 Wintering bird surveys were carried out at the Site to determine whether it could be functionally linked to the Solway Firth SPA and to satisfy the comments raised by NE during statutory consultation.
- 4.3.2 To this end, a characterisation survey was undertaken in February and March 2023, with more a focussed wintering bird survey carried out between September 2023 and March 2024 using the methodology agreed to by NE.

- 4.3.3 None of the Article 4.1 qualifying species (barnacle geese, whooper swan, bar tailed godwit, golden plover or red-throated diver) were recorded during the surveys either on the Site or flying over it. Similarly, no listed Article 4.2 qualifying species (northern pintail, pink-footed goose, greater scaup, knot, oystercatcher, curlew or redshank), including passage migrants (ringed plover only) were recorded during the surveys either on the Site or flying over it.
- 4.3.4 Four species which are listed under the Article 4.2 qualification as constituting the '*internationally important assemblage of birds in the non-breeding season*' of the Solway Firth SPA were recorded on Site during the surveys: black-headed gull, common gull, herring gull and lapwing. One further SPA species, teal, was recorded in a pond just outside the Site boundary. No other qualifying species of the SPA including geese, swans or sea-going ducks were recorded using the Site.
- 4.3.5 The results of the surveys are provided in the ES Appendix 8.6 – Wintering Bird and Hen Harrier Survey Report, with details summarised for qualifying species provided in the Screening Matrix in Appendix C. Table 4.4 presents peak counts recorded on Site across all months, compared to the 5-year peak mean for each species in the SPA³¹; the population of the SPA assemblage as stated on the SPA citation and; their contribution to the Great British population. Counts are shown as a percentage of the 5-year peak mean and the SPA citation population in parentheses.

³¹ Accessed at WeBS Report Online. Waterbirds in the UK (2022/3) The wetland bird survey and goose and swan monitoring programme 2024. Woodward, I.D., Calbrade, N.A., Birtles, A. Feather, G.A. Peck, K., Wotton S.R., Shaw, J.M., Balmer, D.E. and Frost, T.M. BTO/RSPB/JNCC/Nature Scot

Table 4.4: Peak counts of SPA Qualifying species recorded on Site in relation to Solway Firth population and percentage GB population

Species ³²	Peak count Flock Sizes recorded over duration of survey (September 2023 to March 2024)	5-year peak mean (%)	SPA Population (%) ³³	% Solway Firth Population v GB Population
Black-headed gull	15	7,120 (0.2%)	13,732 (0.11%)	0.6%
Common gull	40	4,074 (0.98%)	12,486 (0.32%)	1.8%
Herring gull	200	2,700 (7.41%)	3,034 (6.59%)	0.4%
Lapwing	26	5,851 (0.44%)	5,037 (0.51%)	0.8%

- 4.3.6 The number of SPA species recorded on Site are very low compared to the 5-year peak means and overall SPA populations, which in itself contributes only a very small percentage of the overall GB population.
- 4.3.7 Black-headed gull, common gull and lapwing peak counts are relatively low across the Site with only single flocks recorded for black-headed gull and lapwing in December and January respectively. Indeed, black-headed gull was recorded once out of nine surveys; common gull recorded four out of nine, and lapwing recorded once out of nine survey visits.
- 4.3.8 However, common gull were recorded more frequently with a peak count of 40 in both December and January. This may reflect the general ecology of the species with the UK population expanding over autumn and winter by a large influx of continental common gulls with adds to the existing UK breeding population. The UK estimate for common gull increases from 48,500 breeding pairs to over 710,000 individuals in winter³⁴.

³² Teal not included as only recorded on a pond off-site. Peak count of 7 individuals in December 2023. Recorded in December 2023, January and February 2024.

³³ Sourced from Standard Data Form for Solway Firth SPA (JNCC); <https://jncc.gov.uk/jncc-assets/SPA-N2K/uk9005012.pdf> Accessed November 2024

³⁴ The Avian Population Estimates Panel (APEP) (2019) Population Estimates of birds in Great Britain and the United Kingdom

- 4.3.9 Counts fall below 1% of the 5-year peak mean and the SPA citation count for these three species which is less than what would be considered as an indication of significant functional linkage. As such they have been discounted from further assessment.
- 4.3.10 Herring gull are the most numerous and they were recorded frequently foraging in the grassland in Area C (as shown in Figure 3.1 of the ES) of the Site during surveys in November, December and January. Most observations were of single birds or pairs, and larger flocks over 50 birds were recorded in only three months: November, December and January.
- 4.3.11 Herring gull is a widespread and common winter species in the UK, with current estimates of 740,000 overwintering³⁵. Wintering herring gulls are widely distributed throughout lowland areas of Britain, utilising coastal areas but also inland³⁶ indicating they are not restricted to coastal habitats. They will utilise a wide variety of habitats, including farmland, heathland, and urban areas³⁷, again indicating they are not restricted to coastal or wetland habitats. This ability to utilise a range of habitat types suggests that specific geographical locations or habitats are less important when compared to species with more specific requirements.
- 4.3.12 Herring gull, indeed, all gulls, are opportunistic feeders and can arrive following the undertaking of farming activities such as manuring or slurry spraying which increases the availability of invertebrate prey. The presence of livestock could also encourage birds to use the Site given dung piles can provide an invertebrate food source.
- 4.3.13 The herring gull recorded on-Site are considered likely a combination of locally resident birds which occupy the urban areas of Workington and Lillyhall and those from the surrounding surround landscape which forage in these areas or in the large waterbodies which lie to the south of the Site.

³⁵ The Avian Population Estimates Panel (APEP) (2019) Population Estimates of birds in Great Britain and the United Kingdom

³⁶ Balmer, D. (2007-2011) Bird Atlas 2007-2011. British Trust for Ornithology (BTO).

³⁷ Bird Facts: Herring Gull. BTO.

- 4.3.14 Indeed, consultation with NE received on 23 January 2025 has provided further information on the presence of herring gull in the local area:

'There is a significant rooftop colony of HG [herring gull] that feed at the Lillyhall site, which is directly west of the proposed development area. However, these generally roost further south at the Sellafeld site, so are actually functionally linked to the Morecambe Bay and Duddon Estuary SPA'

- 4.3.15 NE goes on to state the following:

'An indication of significant functional linkage is if 1% or more of the SPA population is using a site. Therefore, a likely significant effect cannot be ruled out for this project. Further analysis should be undertaken during the Appropriate Assessment stage with regards to the behaviour of the species and the site conditions.'

- 4.3.16 Although most species only occur at less than 1% when compared to the 5-year peak mean of the SPA populations, the presence of herring gull at levels over 1% of the 5-year peak mean on a single occasion over winter, indicates that there may be a functional linkage with the Solway Firth SPA. As such an LSE cannot be ruled out and the Solway Firth SPA and it is taken through to Stage 2 Appropriate Assessment.

4.4 Screening Stage Conclusions

- 4.4.1 The Screening Stage of this sHRA identified LSE to the River Derwent and Bassenthwaite Lake SAC as a result of pollution to groundwater (point sources and diffuse pollution) and siltation during construction. Changes to species distributions were also considered. Although these effects were considered temporary, and would not occur during operation, they have been progressed to the next stage of the HRA process: Appropriate Assessment.
- 4.4.2 As LSE to the Solway Firth SPA cannot be ruled out due to potential functional linkage with the Site, so it too has been progressed to the next stage of the HRA process: Appropriate Assessment.

5 Appropriate Assessment

5.1 Overview

- 5.1.1 The following section presents the Stage 2 Appropriate Assessment. Further detail is provided relating to the specific nature of the LSE identified during Stage 1 Screening, the mitigation to be implemented to avoid or minimise those potential impacts (where required), and the resultant effect on the integrity of the European Site in light of that mitigation.
- 5.1.2 As identified in Section 4, further consideration of the River Derwent and Bassenthwaite Lake SAC and Solway Firth SPA is provided. The Screening Matrix for these Sites can be referred to in Appendix C.
- 5.1.3 The JNCC Standard Form and SIP for the River Derwent and Bassenthwaite Lake SAC³⁸ which are presented in Table 3.2 highlight the following threats and pressures which would apply to the Proposed Development. No others are relevant given the nature of the Proposed Development and Site conditions.
- Water Pollution;
 - Siltation (reduce silt levels); and
 - Changes in species distributions.
- 5.1.4 Based on the threat of LSE of pollution to groundwater (point sources and diffuse pollution) to include pollution more generally, and siltation, a number of mitigation strategies have been devised as part of the Proposed Development to ensure the Conservation Objectives for the SAC are maintained. These are in addition to the embedded mitigation (ES Chapter 8; Section 8.5) which aims to minimise impacts to ecology receptors.
- 5.1.5 For the Solway Firth SPA, the majority of the threats and pressures which may lead to LSE do not apply on account of the nature of the Proposed Development, but also the intervening distance between the Site and the SPA. However, as peak flock counts of herring gull are 7.41%, an LSE

³⁸ Natural England (2014). Site Improvement Plan (SIP195): River Derwent and Bassenthwaite Lake (2014) (UK0030032).

cannot be ruled out based on the Site potentially acting as Functionally Linked Land to the SPA. Therefore, the threat and pressure which will be considered further is as follows:

- Other ecosystem modifications

5.1.6 Consideration of the potential effects and committed mitigation to avoid or minimise construction and operation impacts to the River Derwent and Bassenthwaite Lake SAC and the Solway Firth SPA is provided in this section.

5.2 River Derwent and Bassenthwaite Lake SAC

Construction Pollution to Groundwater / Water Pollution and Siltation

Impact Pathway

5.2.1 The Proposed Development is to erect solar PV arrays across intensively grazed pasture used for sheep farming. The Site is over 1.2 km from the SAC at its closest point, although there is hydrological linkage from watercourses which flow through the Site and converge with the River Marron before entering the River Derwent some 6km downstream.

5.2.2 There is the potential for construction activities to mobilise soil and fine sediment during the early stages of works, for example, the topsoil stripping of proposed Construction Compound locations, as shown on ES Figure 3.4 and Works Number 4, before geotextile membrane and hardcore is laid or clearing the ground for construction access. Vehicles themselves could cause pollution by leaking fuel from machines or refuelling bowzers while chemicals needed to secure infrastructure (e.g., cement) could spill or blow into adjacent watercourses if in powder or granular form.

5.2.3 The design of the Proposed Development includes drainage and swales. However, until drainage is in place and buffer strips along the edge of water course have developed then there is the risk of pollutants and silts entering the watercourses onsite and travelling downstream to the SAC.

Mitigation

- 5.2.4 The embedded mitigation will retain and enhance all sensitive habitats such as ponds, watercourses, woodland, hedgerows, and small areas of scrub, swamp and mire while the inclusion of vegetated buffers and marginal planting along water courses will improve species diversity of riparian corridors. This marginal planting and enhanced grassland habitat will have a benefit of reducing surface flows during high precipitation and reduce pollutants, including sediment washing into onsite water courses which may eventually flow into the River Derwent.
- 5.2.5 Mitigation which will be adopted during construction and operation of the Proposed Development is detailed in ES Chapter 8 Biodiversity. The mitigation will be largely in accordance with the Outline Construction and Environmental Management Plan ('OCEMP') and Outline Landscape and Ecological Management Plan ('OLEMP') provided as ES Appendices 5.1 [REF: 6.3] and 7.7 [REF: 6.3], and these will be secured by DCO Requirements.
- 5.2.6 The CEMP will be adopted to control potential pollutants and avoid effects to all environmental receptors on Site, including habitats, species, and geology. The CEMP will provide details on soil excavation and storage; protection of features such as trees and hedgerows, and the establishment and protection of buffer strips adjacent to hedgerows and watercourses. The full CEMP will be secured by DCO Requirement and be completed by the Principal Contractor prior to any works commencing.
- 5.2.7 The CEMP will detail the implementation of pollution prevention and controls which will reduce the likelihood of fluids, sediments and chemicals entering watercourses. Self-contained or dry wheel washing facilities will be used where possible. If water is used, then potentially contaminated water will be collected and tankered off-Site for appropriate disposal.
- 5.2.8 An Ecological Clerk of Works (ECow), who will be appointed for the duration of construction, will deliver a Toolbox Talk to the Principal Contractor on the need for pollution control to be observed at all times,

including during the installation of temporary fences or barriers along the watercourses.

- 5.2.9 SuDS infrastructure, swales and drainage infrastructure will be located away from sensitive areas, in particular Thief Gill and Lostrigg Beck which are known to support otter. Surveys have not been undertaken for Atlantic salmon and lamprey but the size, flow regime and substrate suggest that Thief Gill, and potentially the other water courses on Site are not suitable for this species.
- 5.2.10 Soil stripping in compound locations will be supervised by the ECoW to advise on the retention of valuable habitats such as hedgerows; to ensure that adequate protection watercourses including the appropriate placement and erection of silt fences, and that bunds are correctly sealed and not close to watercourses. Further information is available from ES Appendix 5.3 OSMP [REF: 6.3]. The SMP will be secured by a DCO Requirement and will be implemented in accordance with the OSMP at Appendix 5.3.
- 5.2.11 The measures set out in the oCEMP are well-established, based on industry standards, and can be relied upon with confidence. As a result of this mitigation, effects to qualifying features of the River Derwent and Bassenthwaite Lake SAC from pollution to groundwater, general water pollution, and siltation during construction will be avoided. Consequently, there will be no adverse effects from construction pollution to groundwater / water pollution and siltation on the integrity of the River Derwent and Bassenthwaite Lake SAC nor its conservation objectives.

Changes in Species Distributions

Impact Pathway

- 5.2.12 The absence of instream and bankside works will avoid any impacts to aquatic species, including fish and plants so there will be no impacts to their species distribution.

- 5.2.13 Although this risk was identified within the SIPS and is not included within the JNCC Standard Form, it is included here given the known presence of otter which is a qualifying feature of the SAC. Otter presence was confirmed on watercourses within the Site during surveys completed in 2024 (ES Appendix 8.4 Otter and Water vole Survey Report). Although no holts were found, the Site is used for commuting and foraging as confirmed by the presence spraint and images of otter recorded during trail camera surveys at specific locations close to water courses.
- 5.2.14 Although the main watercourse on the Site, Thief Gill, is both narrow and shallow, and is unlikely to provide significant food resources, the watercourse could be important in allowing otter to move between catchments, for example the River Derwent catchment to the River Ehen catchment located further south.
- 5.2.15 Construction of the Proposed Development will necessitate the erection of perimeter fencing around of the Site, as well as internal stock fencing as part of the Site-wide grazing management plan which will be implemented during operation. Sensitive infrastructure (tracks and cables) where it crosses water courses will be fenced for protection from livestock.
- 5.2.16 Construction traffic, fragmentation of habitat and restricted access to key habitats has the potential to disrupt otters on-Site. Although the Site is distant from the SAC, particularly if otters commute along the riparian corridor and not overland, there is the risk that otters are impacted by disturbance and fragmentation of their range.
- 5.2.17 While such effects are considered highly unlikely to affect the overall integrity of the River Derwent and Bassenthwaite Lake SAC, given the presence of other readily available and undisturbed habitat suitable for otter, (such that the overall population density will be maintained), they could result in temporary adverse effect on individuals or small numbers.
- 5.2.18 Surveys were not carried out for Atlantic salmon or lamprey species given the absence of any instream or bank side works which could impact the aquatic habitat used for spawning, should any of these species be

present. However, Thief Gill and the other water courses on Site are small tributaries close to the upper catchment of the River Marron which flows into the River Derwent. They tend to be small, restricted in both width and depth and lack suitable instream conditions, flow regimes and substrate for these species. Additionally, more suitable habitat will be available for these species across the catchment, including all major tributaries (River's Cocker, Dash Beck, Greta, Marron, and Newlands Beck) such that there will be no change in the overall species distribution if present.

- 5.2.19 The river habitat survey carried out as part of the BNG assessment (ES Appendix 8.8) did not identify the presence of floating water-plantain within Thief Gill or any other water course on Site. As this plant has a preference for slow flowing lowland rivers, pools, ditches and canals that are moderately nutrient rich³⁹ its absence would be expected.

Mitigation

- 5.2.20 Mitigation which will be adopted to protect species such as otter during construction is detailed in ES Chapter 8; section 8.6.
- 5.2.21 Prior to works commencing, pre-construction surveys for terrestrial protected species, including otter, will be carried out by the ECoW to identify any change in Site use, including the potential for otter holts to have been created. The ECoW will be responsible for any monitoring of features thought to be used by otter. No pre-construction surveys will be carried out for aquatic species including fish and plants as there will be no in-stream works.
- 5.2.22 The ECoW will advise on the appropriate location and structure, including vegetative screening, of gaps in the perimeter fence to promote uptake and use by protected and notable species. This will be important to maintain commuting corridors across the Site and which are tied into Green Infrastructure (GI) which connect to habitats off-Site so that animals can travel and forage without impediment.

³⁹ JNCC species lists: 1831 Floating water-plantain *Luronium natans*. <https://sac.jncc.gov.uk/species/S1831/>. Accessed November 2024

- 5.2.23 Any fencing close to watercourses will be fitted with mammal gates or appropriate gaps and regularly inspected by the ECoW to make sure they are in good working order and not obscured or held shut by growth of vegetation.
- 5.2.24 Phased vegetation clearance where there is potential to support protected species will be undertaken under the direct supervision of the ECoW. Species protection plans setting out how species such as otters will be protected from mortality, disturbance and habitat fragmentation during construction works will be produced by the Principal Contractor and agreed with the ECoW.
- 5.2.25 No nighttime construction work will be permitted that would require the use of night lighting which will avoid disturbing otters which may move across the Site in the hours of darkness. Sensitive ecological lighting has been proposed for emergency works during operation and as set out in the OLEMP (Appendix 7.7).
- 5.2.26 As a result of this mitigation these measures will avoid effects to qualifying features of the River Derwent and Bassenthwaite Lake SAC from construction, particularly species distribution. Consequently, there will be no significant effects through changes in species distributions to the integrity of the River Derwent and Bassenthwaite Lake SAC nor its conservation objectives.

5.3 Solway Firth SPA

Other ecosystem modifications

Survey information appraisal

- 5.3.1 The peak count of 200 herring gulls recorded in January 2024 during the wintering bird surveys represent approximately 7.41% of the Solway Firth SPA populations when considering the 5-year peak mean. Only herring are considered as part of the Appropriate Assessment stage.
- 5.3.2 During the wintering bird survey (Appendix 8.6), herring gull were recorded loafing and roosting on the Site with some evidence of foraging recorded

in some months. Few birds were recorded foraging or roosting within areas A, B and D, with most observations being overflights. Several flocks were recorded during the survey, as well as observations of individual birds recorded across the Site.

5.3.3 Flock size and frequency of observations across months for herring gull are presented in Table 5.1. Full details of the survey are included in Appendix 8.6 of the ES.

Table 5.1: Flock sizes of herring gull and common gull recorded over winter. Each observation of individual flocks across the Site during visits is separated by a ‘,’.

Month	Herring gull flock sizes
September*	4,1,2,2,1,1,2,3
October	1,2,6,3,1,2
November*	1,1,2,2,2,5,1,6,3,2,2,3,2,3,2,1,10,5,10,1,1,1,2,2,2,
December	1,1,1,1,2,4,1,5,15,5,60, 20,3,1,2,3,13,1,9,10
January	6,10,1,1,3,4,17,1,38,200,50,20,10,20
February	1,1,3,1,3,2,8,10,20,5,2,5,10
March	8,5,6,2,1,1,2,5,7,40,15, 10,5
*Two surveys completed	

5.3.4 Use of the Site by herring gull during winter is not consistent across months, with no flock greater than six birds recorded in September or October. Although Site use does increase in November, and accounting for the two visits, observations on the whole are of small flocks with a number of observations of single birds and pairs.

5.3.5 In November, out of a total of 23 flocks observed, only four were of 10 or more birds. In December, out of 20 flocks observed, only five flocks consisted of 10 or more birds. This pattern of smaller groups is also evident in February and March with three flocks exceeding 10 or more birds out of a total number of 13 flocks recorded separately in both months. Data also suggests a trend in a reduction in the number of single birds and pairs at the end of winter compared to the start.

- 5.3.6 The largest flock of 200 birds was recorded in January, as well as several other large flocks across the Site. The number of individual birds and small flocks is lower in this month compared to all others, with a higher proportion of flocks being 10 birds or greater (eight out of 14 flocks). The greater number of larger flocks could suggest a sudden increased attraction of the Site in this month caused by farming practices, such as manuring or slurry spraying (although no evidence of this was documented during the survey) or heavy rain increasing the availability of soil invertebrates⁴⁰. Notably, the survey in January carried out in Area C was undertaken in heavy, persistent rain.
- 5.3.7 Research into management practices have confirmed the value of grassland to farmland birds over winter⁴¹. Gulls are also wide ranging, flying large distances which allows them to identify and exploit a sudden increase in resources over winter.
- 5.3.8 The pattern of Site use by herring gulls suggests that it is not consistent across winter, with number of birds using the Site increasing as winter progresses before declining again as spring approaches. This is also reflected in the number and size of flocks which peaks in January.

Impact Pathway

- 5.3.9 Construction of the Proposed Development will lead to the loss of much of the open habitat available for both herring gull and common gull. This will be significant in Work No. 1 and 2 (ES Figure 3.4) in which solar arrays and grid connection infrastructure will be located. Areas of Green Infrastructure will exist across the Site during operation, including that which is associated with watercourses in the northern part of Area C. However, this is unlikely to provide the open areas favoured by these species for loafing and roosting, while the loss of grazing on much of the Site will diminish the accessibility and availability of food resources in the form of invertebrates attracted by animal dung.

⁴⁰ Bird Study (1972). Feeding habitats and food of the black-headed and common gulls. Part 2-Food. Volume 19 (4)

⁴¹ Journal of Applied Ecology (2005) Influence of agricultural management, sward structure and food resources on grassland field use by birds in lowland England. Atkinson, P.W. *et al* (2005) Volume 41 pp 932-942.

- 5.3.10 Although the southern part of Area C which lies within Dean Moor CWS is being retained for mitigation and biodiversity enhancements, the cessation of intensive grazing and an increase in sward length may make it undesirable for gull species. Longer swards may hamper foraging, while reduced manure deposits from livestock and or slurry spraying will reduce the abundance and density of soil invertebrates which may act as a food resource.

Assessment

- 5.3.11 Grassland habitats favoured by herring gull will be lost during construction and operation. Wintering bird surveys carried out between September 2023 and March 2024 suggest that a functional linkage to the Solway Firth SPA cannot be ruled out, with a peak flock count in January 2024 being higher than the 1% of the 5-year peak count for the designated site.
- 5.3.12 However, the majority of birds were loafing, rather than feeding, such that the actual ecological dependence on the fields is likely to be low. Furthermore, the Site is not used consistently by herring gull across the winter period and the availability of alternative habitat in the wider area is considerable. Consequently, birds have opportunity to forage elsewhere or utilise other field for roosting and loafing.
- 5.3.13 The Site is located in a rural area which is dominated by pasture used for livestock rearing which is a habitat regularly used by gulls for feeding and loafing. The Site is bordered by grassland habitats on its immediate western boundary.
- 5.3.14 The use of the field within the Site may be related to farming practices (such as manuring or slurry spraying), precipitation, or the dispersion of birds in the local landscape as they utilise available food resources. Herring gulls are gregarious, form large flocks and are able to forage considerable distances such that they can form large flocks when food resources become temporarily abundant.
- 5.3.15 Additionally, consultation received by NE on 23 January 2024 highlights the presence of a rooftop colony in the village of Lillyhall 1.5km to the west

of the Site. These birds generally roost further south close to Sellafield and are actually functionally linked to the Morecambe Bay and Duddon Estuary SPA.

5.3.16 Although habitats will be lost to the Proposed Development, given the points discussed above in relation to the availability of alternative habitat and behaviour of herring gull, the Appropriate Assessment concludes that there will be no likely significant effect on the integrity of the Solway Firth SPA alone.

5.3.17 This conclusion is further supported by that of NE in their consultation who state:

‘Although there is some indication that these gulls could be part of the core population of the SPA, this proposal will not have an adverse effect on site integrity alone when taken through to the Appropriate Assessment stage.’

In-combination Impacts

5.3.18 Further to the Proposed Development, the development of Lostrigg Solar contiguous with the northern boundary of the Site, has also been considered when assessing effects on herring gull as the loss of grassland in the local landscape could have an in-combination effect and impact the SPA population.

5.3.19 Wintering bird surveys are in progress at Lostrigg Solar and data has been provided by the project ecologists covering the months September to December 2024 and comprising seven visits. Peak count data, and the percentage of the 5-year peak count of the SPA is provided in Table 5.2 for each month.

Table 5.2: Peak count data of herring gull recorded as part of the development of Lostrigg Solar during wintering bird surveys undertaken in 2024

Visit Number	Date	Peak Count	% of 5-year peak count.
1	20 September	0	0
2	2 October	24	0.88
3	16 October	136	5.0
4	6 November	31	1.15
5	20 November	13	0.48
6	4 December	10	0.37
7	18 December	43	1.6

- 5.3.20 The survey indicates that peak flock sizes across winter are variable and also vary considerably within the same month. Only on two of the seven visits do peak flock counts exceed 1% which would indicate a significant functional linkage with the Solway Firth SPA. However, these larger flocks are separated by smaller flocks in the intervening months, suggesting that the birds are not exclusively reliant on the fields within Lostrigg Solar.
- 5.3.21 Peak flock counts at Lostrigg Solar exceed those of the Site only in October, with the Site tending to have the larger peak flocks in all other months where survey data is available.
- 5.3.22 The data provided to date, suggest that a functional linkage to the Solway Firth SPA cannot be ruled out for herring gull recorded at Lostrigg Solar. However, the lack of consistent use of the land within the Lostrigg Solar boundary, variable flock sizes within the given month and smaller flocks when compared to the Site, suggests that the herring gull population in the local landscape is itinerant and making use of all available land on which to forage and loaf over winter which includes both solar sites. There is the likelihood that herring gull switch between the sites such that observations recorded across both Sites could be the same birds or representatives of the same population.

- 5.3.23 Given the proximity of both solar sites to one another, and that the population of herring gull are likely to be part of the same population, birds will be able to access extensive areas of alternative habitats in the wider environment for foraging and loafing.
- 5.3.24 As discussed previously, herring gull are a wide ranging and gregarious species which are able to utilise a wide range of habitats for foraging and loafing. Birds are also likely be part of the core population of the SPA as well as form part of the Morecambe Bay and Duddon Estuary SPA population.
- 5.3.25 Although habitats will be lost from both the Proposed Development and Lostrigg Solar, given the points discussed above in relation to the availability of alternative habitat and behaviour of herring gull, the Appropriate Assessment concludes that there will be no likely significant effect on the integrity of the Solway Firth SPA in-combination with Lostrigg Solar.

6 Conclusion

6.1 Screening

- 6.1.1 At the Screening Stage three statutory sites were not considered further for the assessment: River Ehen SAC, The Lake District High Fells SAC, and the South Pennines Dales Meadows SAC owing to their distance from Site and lack of impact pathways; the known scope of the Proposed Development; the nature of their qualifying features and the intervening nature of the landscape.
- 6.1.2 The River Derwent and Bassenthwaite Lake SAC and Solway Firth SPA were taken forward to the Screening Assessment.
- 6.1.3 LSEs could not be ruled out during construction for the River Derwent and Bassenthwaite Lake SAC given the presence of a hydrological connectivity between the Site and SAC. As such this European Site was taken forward for Appropriate Assessment.
- 6.1.4 As some Solway Firth SPA qualifying bird species were recorded using the Site and at levels above the 1% of the 5-year peak mean of the SPA population and suggesting an ecological functional linkage, an LSE could not be ruled out, it too was taken forward to Appropriate Assessment.

6.2 Appropriate Assessment

- 6.2.1 The purpose of the Appropriate Assessment is to determine whether the Proposed Development will result in an adverse effect on the integrity of the European Site, in this case the River Derwent and Bassenthwaite Lake SAC and Solway Firth SPA.
- 6.2.2 In respect to River Derwent and Bassenthwaite Lake, consideration has been given to the impacts and the proposed mitigation. The mitigation has been designed, in part, to protect water courses during construction; to prevent spillages and the mobilisation of soil and sediments and to safeguard otters and other aquatic species which occupy the SAC. The

mitigation for the Proposed Development has much wider aims which will also benefit qualifying features during its operation.

- 6.2.3 A such the Proposed Development will not have an adverse effect on the integrity of the River Derwent and Bassenthwaite Lake SAC.
- 6.2.4 The Screening Assessment suggested that a functional link could not be ruled with the Solway Firth SPA. However, given the wider availability of suitable alternative habitat; the low ecological dependence on the Site for loafing, and the potential for birds to use the Morecambe Bay and Duddon Estuary SPA further south it is considered that the Proposed Development will not have an adverse effect on the integrity of the SPA alone. This was supported by NE in their correspondence on 23 January which stated:
- ‘...this proposal will not have an adverse effect on the site integrity alone when taken through to the Appropriate Assessment stage’.*
- 6.2.5 Following a review of other planning applications within 10km only Lostrigg Solar, contiguous with the northern boundary of the Site was considered for an *in-combination* effect. An assessment of wintering bird data received from the project ecologists responsible for the delivery of Lostrigg Solar to the north of the Site was undertaken. It is acknowledged that this data set is incomplete and surveys at the Lostrigg Solar site are ongoing.
- 6.2.6 Flock sizes at Lostrigg Solar tended to be smaller than those at the Site, although some peak counts recorded could suggest a functional link to the Solway Firth SPA alone. Again, flock size was variable over winter suggesting that birds are using suitable alternative habitat, which may also include land within the Site. The birds at Lostrigg Solar may also form part of the core population of the SPA or may be part of the core population of the Morecambe Bay and Duddon Estuary SPA further to the south.
- 6.2.7 Accounting for their gregarious nature; large ranges; their ability to utilise a wide range of habitats, and opportunistic feeding habitats it is concluded that the Proposed Development will not have an adverse effect on the integrity of the Solway Firth SPA *in-combination* with other developments.

Appendix A European Sites

A summary of the European Sites considered in relation to the Proposed Development. Only the two sites taken to Appropriate Assessment (River Derwent and Bassenthwaite Lake and Solway Firth SPA) present details of the condition of closest component SSSI units.

Site	Distance	Reason for Designation	Component SSSI ⁴²
River Derwent & Bassenthwaite Lake SAC	1.2km to the east (and hydrologically connected to the Site via watercourses)	Annex I Habitats which are a primary reason for the selection of this site: - Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoeto-Nanojuncetea</i> - Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche Batrachion</i> vegetation Annex II habitats present as a qualifying feature, but not a primary reason for the selection of this site: - Sea lamprey <i>Petromyzon marinus</i> - Brook lamprey <i>Lampetra planeri</i> - River lamprey <i>Lampetra fluviatilis</i> - Atlantic salmon <i>Salmo salar</i> - Otter <i>Lutra lutra</i> - Marsh fritillary butterfly <i>Eurodryas aurinia</i> - Floating water-plantain <i>Luronium natans</i>	River Derwent and Tributaries SSSI. Bassenthwaite Lake SSSI. Buttermere SSSI.
Solway Firth SPA	5km to the west	ARTICLE 4.1 QUALIFICATION	Upper Solway Flats and Marshes SSSI.

⁴² Information on Units derived from Natural England Designated Sites View. [Designated Sites View](https://designatedsites.naturalengland.org.uk/ReportUnitConditionSummary.aspx?SiteCode=S2000214&ReportTitle=River%20Derwent%20and%20Tributaries%20SSSI).
<https://designatedsites.naturalengland.org.uk/ReportUnitConditionSummary.aspx?SiteCode=S2000214&ReportTitle=River%20Derwent%20and%20Tributaries%20SSSI> Accessed November 2024

Site	Distance	Reason for Designation	Component SSSI ⁴²
		(2009/147/EC) Over winter the area regularly supports: - Barnacle geese <i>Branta leucopsis</i> - Whooper swan <i>Cygnus cygnus</i> - Bar-tailed godwit <i>Limosa lapponica</i> - Golden plover <i>Pluvialis apricaria</i> - Red-throated diver <i>Gavia stellata</i> ARTICLE 4.2 QUALIFICATION (2009/147/EC) Over winter the area regularly supports: - Northern pintail <i>Anas acuta</i> - Pink-footed goose <i>Anser brachyrynchos</i> - Greater scaup <i>Aythya marila</i> - Knot <i>Calidris canutus</i> - Oystercatcher <i>Haematopus ostralegus</i> - Curlew <i>Numenius arquata</i> - Redshank <i>Tringa totanus</i> ARTICLE 4.2 QUALIFICATION (2009/147/EC) On passage (non-breeding) the area regularly supports: - Ringed plover <i>Charadrius hiaticula</i> ARTICLE 4.2 QUALIFICATION (2009/147/EC): An internationally important assemblage of birds in the non-breeding season the area regularly supports: 122,200 waterfowl, the marine extension in the outer Solway Firth added approximately a further 5,000 waterbirds to the non-	

Site	Distance	Reason for Designation	Component SSSI ⁴²
		breeding assemblage including: Whooper swan; pink-footed goose; barnacle goose; shelduck (<i>Tadorna tadorna</i>); Eurasian teal (<i>Anas crecca</i>); pintail; shoveler (<i>Anas clypeata</i>); greater scaup; goldeneye (<i>Bucephala clangula</i>); oystercatcher; golden plover; grey plover; knot; sanderling; dunlin; bar-tailed godwit; curlew; redshank; turnstone; red-throated diver; common ringed plover (<i>Charadrius hiaticula</i>); common scoter (<i>Melanitta nigra</i>); common merganser (<i>Mergus merganser</i>); lapwing (<i>Vanellus vanellus</i>); cormorant (<i>Phalacrocorax carbo</i>); black-headed gull (<i>Chroicocephalus ridibundus</i>); common gull (<i>Larus canus</i>), and herring gull (<i>Larus argentatus</i>)	
River Ehen SAC43	6.1km to the south	This site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II: - Freshwater pearl mussel <i>Margaritifera margaritifera</i> - Atlantic salmon <i>Salmo salar</i>	River Ehen (Ennerdale Water to Keekle Confluence) SSSI Ennerdale SSSI

Site	Distance	Component SSSI	Component SSSI
Lake District High Fells SAC	8km to the southeast	The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I: Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i>	Skiddaw Group SSSI Buttermere Fells SSSI Pillar and Ennerdale Fells SSSI Honister Crag SSSI Scarfell Pikes SSSI Armboth Fells SSSI

⁴³ Screened out of the Allerdale Borough Council Local Plan HRA

Site	Distance	Component SSSI	Component SSSI
		and/or of the <i>Isoeto-Nanojuncetea</i> - Northern Atlantic wet heaths with <i>Erica tetralix</i> - European dry heaths - Alpine and Boreal heaths - Sub-Arctic <i>Salix</i> spp. scrub <i>Juniperus communis</i> formations on heaths or calcareous grasslands - Siliceous alpine and boreal grasslands - Hydrophilous tall herb fringe communities of plains of the montane to alpine levels - Blanket bogs (priority feature) - Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) - Siliceous rocky slopes with chasmophytic vegetation - Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles - Species-rich <i>Nardus</i> grassland on siliceous substrates in mountain areas (and submontane areas in continental Europe) (priority feature) - Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i> - Alkaline fens - Calcareous rocky slopes with chasmophytic vegetation The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:	

Site	Distance	Component SSSI	Component SSSI
		Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i>.	

Site	Distance	Reason for Designation	Component SSSI
North Pennine and Dales Meadows SAC ⁴⁴	8.9km to the east	The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I: - Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) (purple moor-grass meadows) - Mountain hay meadows	Details of units are not provided given distance between site and Proposed Development and that only a small part of the site lies within the 10km Zone of Influence. Arkle Beck Meadows, Whaw SSSI Ashes Pasture and Meadows SSSI Askrigg Bottoms SSSI Aules Hill Meadows SSSI Barrowburn Meadows SSSI Bell Sykes Meadows SSSI Borrow Beck Meadows SSSI Bowber Head and Piper Hole Meadows SSSI Bowlees and Friar House Meadows SSSI Bretherdale Meadows SSSI Catton Lea Meadow SSSI Cautley Thwaite Meadows and Ecker Secker Beck SSSI Cliff Beck Meadow, Buttertubs SSSI Cornriggs Meadows SSSI Deepdale Meadows SSSI (Cumbria) Deepdale Meadows SSSI (North Yorkshire, known as "Deepdale Meadows, Langstrothdale") Durtrees Burn Grassland SSSI

⁴⁴ Outside Allerdale Borough Council Local Plan so not included in Local Plan HRA

Site	Distance	Reason for Designation	Component SSSI
			Far High House Meadows SSSI Fothering Holme SSSI Gingerfields SSSI Gowk Bank SSSI Grains O' th' Beck Meadows SSSI Grassington Hospital Grounds SSSI Greenhaugh Meadow SSSI Hannah's Meadows SSSI Harker's House Meadows, Keld SSSI Heatheryburn Bank SSSI High Knock Shield Meadow SSSI Knarsdale Meadows SSSI Langcliff Cross Meadow SSSI Low Redford Meadows SSSI Mere Beck Meadows SSSI Middle Crossthwaite SSSI Middle Side and Stonygill Meadows SSSI Mill Holme Meadows, Thwaite SSSI Muker Meadows SSSI Myttons Meadows SSSI New Close, Calvert Houses SSSI New House Meadows, Malham SSSI Oughtershaw and Beckermonds SSSI Peckriding Meadows SSSI Pry and Bottom Meadows, Mid-Mosssdale SSSI Raisbeck Meadows SSSI Richmond Meadows SSSI Rigg Farm and Stake Hill Meadows SSSI Sandybeck Meadow SSSI Scar Closes, Kisdonside SSSI

Site	Distance	Reason for Designation	Component SSSI
			Stephen Ings, Crackpot SSSI Swindale Meadows SSSI Thorneyburn Meadow SSSI Town End Meadows, Little Asby SSSI Walden Meadows SSSI West Newlandside Meadows SSSI West Park Meadows SSSI Wet Sleddale Meadows SSSI White Ridge Meadow SSSI Wilson Place Meadows Yockenthwaite Meadows SSSI

Appendix B Conservation Objectives and Threats Affecting Site Integrity

A summary of the relevant Conservation Objectives for each of the European Sites, along with a summary of the factors affecting their integrity from Standard Forms and Natural England SIPS, and the condition of the associated SSSI.

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS ⁴⁵)
River Derwent & Bassenthwaite Lake SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by 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.	Invasive Non-native species Pollution to groundwater (point sources and diffuse sources) Human induced changes in hydraulic conditions Water Pollution From SIPS: • Siltation (from agriculture) • Siltation (reduce silt levels) • Invasive species • Physical modification • Water abstraction • Changes in species distributions • Change in land management • Forestry and woodland management • Fisheries: Fish stocking • Hydrological changes • Air pollution: impact of atmospheric nitrogen deposition

⁴⁵ Site Improvement Plan (SIP195): River Derwent and Bassenthwaite Lake (2014). Natural England <https://publications.naturalengland.org.uk/publication/6242242071101440#:~:text=This%20SIP%20includes%20the%20priorities,Management%20Plan%20and%20its%20consultation>. Accessed November 2024

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS, as Required)
Solway Firth SPA	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of the qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	Utility and service lines Pollution to surface waters (limnic & terrestrial, marine & brackish) Grazing Renewable abiotic energy use Changes in abiotic conditions Fishing and harvesting aquatic resources Other ecosystem modifications Outdoor sports and leisure activities, recreational activities Hunting, fishing or collecting activities not referred to above Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.) Shipping lanes, ports, marine constructions Exploration and extraction of oil or gas Marine water pollution Discharges

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS ⁴⁶ , as Required)
River Ehen SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying species • The structure and function of the habitats of qualifying species • The supporting processes on which the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.	Pollution to groundwater (point sources and diffuse sources) Human induced changes in hydraulic conditions Changes in biotic conditions From SIPS • Water abstraction • Low breeding success/poor recruitment • Siltation • Water pollution (agriculture) • Water pollution (point sources) • Inappropriate weirs, dams and other structures • Agricultural management practices • Invasive species • Forestry and woodland management • Public access/disturbance • Transportation and service corridors.

⁴⁶ Site Improvement Plan (SIP192): River Ehen (2007). Natural England [SIP141007FINALv1.0 River Ehen \(1\).pdf](https://publications.naturalengland.org.uk/publication/6242242071101440)
<https://publications.naturalengland.org.uk/publication/6242242071101440>. Accessed November 2024

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS ⁴⁷ , as Required)
Lake District High Fells SAC	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by 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.	Air pollution, air-borne pollutants Grazing Problematic native species Changes in biotic conditions Outdoor sports and leisure activities, recreational activities From SIPS • Inappropriate grazing • Deer • Air pollution: impact of atmospheric nitrogen pollution • Unsustainable on-site population or habitat • Public access/disturbance • Managed rotational burning • Hydrological changes • Invasive species • Disease

⁴⁷ Site Improvement Plan (SIP116): Lake District High Fells (2014). Natural England [SIP141217FINALv1.0 Lake District High Fells \(1\).pdf](https://publications.naturalengland.org.uk/publication/6242242071101440)<https://publications.naturalengland.org.uk/publication/6242242071101440>. Accessed November 2024

Site	Relevant Conservation Objectives (from Natural England Conservation Objectives)	Threats Affecting Site Integrity (from Natura Standard Data Form and SIPS ⁴⁸ , as Required)
North Pennine Dales Meadows SAC ⁴⁹	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Modification of cultivation practices Mowing / cutting of grassland Air pollution, air-borne pollutants Fertilisation From SIPS • Fertiliser use • Change in land management • Air pollution: impact of atmospheric nitrogen pollution • Change in land management • Inappropriate cutting/mowing • Changes in species distributions • Inappropriate CSS/ESA prescription • Drainage • Overgrazing • Undergrazing • Hydrological changes • Inappropriate weed control • Invasive species • Direct impact from third party.

⁴⁸ Site Improvement Plan (SIP195): North Pennine Dales Meadows (SIP153) (2017) (UK0030032). [SIP150217FINALv1.0 North Pennine Dales Meadows \(1\).pdf](#) Natural England <https://publications.naturalengland.org.uk/publication/6242242071101440>. Accessed November 2024

⁴⁹ Outside Allerdale Borough Council Local Plan so not included in Local Plan HRA

Appendix C Shadow HRA Screening Matrices

Appendix C sets out a matrix which details consideration of those threats / pressures that could reasonably be attributed to the Proposed Development, and which have to potential to result in a Likely Significant Effect on the qualifying features of the European Sites.

The Matrix Key is as follows:

✓ = Likely Significant Effect cannot be excluded, X = Likely significant effect can be excluded

Screening Matrix for River Derwent and Bassenthwaite Lake SAC

River Derwent and Bassenthwaite Lake SAC				
1.2km east				
Effect	Pollution to groundwater (point sources and diffuse pollution)		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Otter	✓ ^a	X ^b	X ^c	X ^c
Atlantic salmon	✓ ^a	X ^b	X ^c	X ^c
River lamprey	✓ ^a	X ^b	X ^c	X ^c
Brook lamprey	✓ ^a	X ^b	X ^c	X ^c
Sea lamprey	✓ ^a	X ^b	X ^c	X ^c
Marsh fritillary	X ^a	X ^b	X ^c	X ^c
Floating water-plantain	X ^a	X ^b	X ^c	X ^c
Effect	Siltation		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Otter	✓ ^a	X ^b	X ^c	X ^c

River Derwent and Bassenthwaite Lake SAC				
Atlantic salmon	√ ^a	X ^b	X ^c	X ^c
River lamprey	√ ^a	X ^b	X ^c	X ^c
Brook lamprey	√ ^a	X ^b	X ^c	X ^c
Sea lamprey	√ ^a	X ^b	X ^c	X ^c
Marsh fritillary	X ^a	X ^b	X ^c	X ^c
Floating water plantain	X ^a	X ^b	X ^c	X ^c
Effect	Change in species distribution		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Otter	X √ ^a	X ^b	X ^c	X ^c
Atlantic salmon	X √ ^a	X ^b	X ^c	X ^c
River lamprey	X √ ^a	X ^b	X ^c	X ^c
Brook lamprey	X √ ^a	X ^b	X ^c	X ^c
Sea lamprey	X √ ^a	X ^b	X ^c	X ^c
Marsh fritillary	X ^a	X ^b	X ^c	X ^c
Floating water plantain	X ^a	X ^b	X ^c	X ^c
Evidence Supporting Conclusions: a) Direct impacts to the SAC associated with the construction phase are unlikely given the distance and intervening habitats. Otter surveys carried out by the Applicant and appended to the ES chapter as Appendix 8.4 did not identify any otter holts, although evidence including spraints and camera trapping confirmed this species commuted and foraged through the Site. No instream works or those affecting the bank face or bank-top are proposed on Site so there will be no impact to fish which may use gravel beds for spawning (e.g. Atlantic salmon) or finer sediments such as sand (all lamprey species), while the water courses on Site do not support floating water-plantain. Given the absence of Devil's-bit-scabious, the food plant of the marsh fritillary butterfly, this species is considered absent from Site and will not be impacted by pollution or sedimentation. Indirect impacts may occur to otter and fish species (salmon and lamprey species) through pollutants and silts entering the adjoining water courses during construction and flowing				

River Derwent and Bassenthwaite Lake SAC

downstream into the River Derwent and Bassenthwaite Lake SAC and River Derwent and Tributaries SSSI via the River Marron. Incorporation of site-wide drainage and swales as well as vegetated buffers between infrastructure and sensitive habitats would slow surface flows and capture pollutants and silts before entering any watercourse, however these will take time to become established. Although embedded mitigation is included in the Proposed Development and only limited removal of woodland, trees and hedges is proposed, construction and the installation of solar panels could lead to limited pollution events from Site traffic and mobilisation of soil and sediment. However, soil movement will be limited to areas of compounds and there will be no site-wide levelling prior to the erection of solar panels.

The construction of the Proposed Development will adopt a Construction Environmental Management Plan ('CEMP') to mitigate for these impacts and include a pollution prevention and control measures including the erection of silt fences where necessary. Self-contained or dry wheel washing facilities will be used where possible. If water is used, then potentially contaminated water will be collected and tankered off-site for appropriate disposal.

Surveys for protected species (e.g. otter) will be undertaken in advance by an ecologist appointed during works. No surveys are considered necessary for Atlantic salmon or the lamprey species given they will be confined to the aquatic habitat. The absence of marsh fritillary and floating water-plantain prior to the development rules out the need for further surveys.

Despite the mitigation proposed, there remains the risk that construction of the Proposed Development could cause **indirect Likely Significant Effects** to qualifying features of the SAC through both pollution and siltation. However, these effects will be temporary and through dilution effects there will be **no Likely Significant Effects** on species distributions within the SAC.

- b) Operational activities will be infrequent and limited in scale resulting in only a minimal risk of pollution and siltation events. The Proposed Development will benefit from a number of embedded measures to enhance and restore the Site which will prevent any pollutants or sediments entering surface water drains and flowing into the River Derwent. By operation, drainage and swales incorporated into the design will be fully functional and attenuate surface flows, while vegetated buffer strips and improved marginal planting between infrastructure will slow any surface flows and prevent any pollutants and silts entering water courses. Owing to the nature of the development the day to day operation of the site will be limited to low level maintenance by a small number of personnel and there is no requirement for discharge into surface channels nor further soil movement. Stock fences will be erected along the bank tops of water courses while grazing across the entire site will be reduced and subject to a grazing management plan. As such, there will be no poaching of banks and the reduction in livestock and the need for fertiliser application, including manuring or slurry spraying, will reduce the levels of nitrates and phosphates entering water courses. Indeed, the absence of intensive grazing and the protection of bank side habitats has the potential to improve water quality at the top of one of the River Derwent's tributaries, the River Marron.

During the lifespan of the Proposed Development, the Site will be managed in accordance with a Site wide Landscape and Ecological Management Plan which will include the fulfilling of staff roles whose purpose will be to manage all environmental mitigation, undertake surveys and monitoring of both habitats and protected species (e.g. otter) and ensure that non-native invasive species do not become established on-Site. Operation of the Proposed Development will lead to **no Likely Significant Effects** caused by pollution, siltation or changes in species distributions.

- c) The majority of other planning applications assessed as part of this Proposed Development and presented in the main body of Chapter 8 are generally distant from the Site, are small in scope, do not support habitats or species of high ecological value, in particular the qualifying features associated with the River Derwent and Tributaries SAC, and may not be

River Derwent and Bassenthwaite Lake SAC

associated with the River Derwent catchment. Several applications are set within urban areas and appear not to support a wide diversity of species.

An exception to this Lostrigg Solar which is contiguous with the northern boundary of the Site. During construction of Lostrigg Solar, a CEMP will be in place to minimise any pollution or siltation entering watercourses which lie within the footprint of this development, for instance Lostrigg Beck. Therefore, no impacts from construction will occur. Lostrigg Solar is also downstream of the Proposed Development, such that with the implementation of pollution control and silt fencing on both sites, there will be no in-combination effects on water courses. Embedded mitigation and operational management to safeguard habitats and species will occur during the operational stage of both developments so there will be no impacts to species distributions of the SAC which lies several kilometres further downstream.

It is therefore concluded that there will be **no In-Combination Likely Significant Effects** associated with pollution, siltation or changes in species distributions.

Screening Matrix for Solway Firth SPA

Solway Coast SPA				
5km west				
Effect	Other ecosystem modifications		In-combination Effects	
Stage of Development	Construction	Operation	Construction	Operation
Barnacle geese	X ^a	X ^a	X ^a	X ^a
Whooper swan	X ^a	X ^a	X ^a	X ^a
Bar-tailed godwit	X ^a	X ^a	X ^a	X ^a
Golden plover	X ^a	X ^a	X ^a	X ^a
Red-throated diver	X ^a	X ^a	X ^a	X ^a
Northern pintail	X ^a	X ^a	X ^a	X ^a
Pink-footed goose	X ^a	X ^a	X ^a	X ^a
Greater scaup	X ^a	X ^a	X ^a	X ^a
Knot	X ^a	X ^a	X ^a	X ^a
Oystercatcher	X ^a	X ^a	X ^a	X ^a

Solway Coast SPA				
Curlew	X ^a	X ^a	X ^a	X ^a
Redshank	X ^a	X ^a	X ^a	X ^a
Ringed plover	X ^a	X ^a	X ^a	X ^a
Internationally important assemblage of birds in the non-breeding season	✓ ^a	✓ ^b	✓ ^c	✓ ^c

Evidence Supporting Conclusions:

a) The qualifying species of the Solway Firth SPA are migratory waterfowl, including geese, ducks and waders and gulls which occupy the site during winter with number in excess of 122,200 birds. The marine extension in the outer Solway Firth in 2020 (from which it was renamed from 'Upper Solway Flats and Marshes' SPA) added over 5,000 other waterbirds to the non-breeding assemblage. The Solway Firth is an extensive site and covers over 135,749ha, of which 95.95% is comprised the marine environment.

The Proposed Development is 5km west of the designated area such that there will be no direct effects on either the coastal or marine habitats which extend up the coast to Carlisle and then along the Dumfries and Galloway Coast of Southern Scotland to gatehouse of Fleet, Wigton and Whithorn. Habitats within the Proposed Development are not coastal habitats and do not represent suitable over-wintering habitats for several of the qualifying species which have more marine /coastal ecological requirements (e.g. red-throated diver, pintail, greater scaup, knot, ringed plover, and several assemblage species like shoveler, cormorant and merganser). Several species, including barnacle geese, whooper swan, pink-footed goose and some of the general non-breeding winter assemblage, such as gulls, would make use of grassland habitats for roosting or foraging during the day and return to the Solway Firth to roost.

The grassland available at the Site represents a negligible proportion of grassland habitats available given the extent of this habitat across the coastal areas of Cumbria and southern Scotland. Many species, such as geese, swans and gulls are also capable of flying large distances to forage and loaf during the day; Pink-footed goose have been shown to fly between 3.9km and 8km while Barnacle Geese associated with the Solway Firth can fly on average 7.5km to forage⁵⁰.

b) To inform the development and to understand whether the Site could be functionally linked to the SPA a series of wintering bird surveys were carried out at the Site during winter 2023/24. The full results, which are presented in Appendix 8.6 of the ES Chapter, recorded the following qualifying SPA species: black-headed gull, common gull, herring gull, and lapwing. Teal were also recorded in small numbers using a pond just outside the Site boundary and are not considered below. No other qualifying species were recorded during any of the survey visits.

The largest flocks recorded on the grassland for each of these species by month is shown below as well as the percentage of the 5 year peak mean of the SPA in parentheses:

- Black-headed gull - A flock of 15 (0.2%) were recorded on a single occasion in December

⁵⁰ Johnson, W.P.; Schmidt, P.M. and Taylor, D.P. (2014) Foraging flight distances of wintering ducks and geese: a review. *Avian Conservation and Ecology* 9(2):2. Available at [Foraging flight distances of wintering ducks and geese: a review](#)

Solway Coast SPA

- Common gull - Recorded on seven occasions in November, December 2023, as well as January and March 2024. Peak count of 40 (0.98%) in both December and January
- Herring gull - Majority of observations within the northern half of the Site (Area A and B) were over flights, and few herring gull were recorded foraging or roosting. The largest concentration of herring gull throughout the survey period was a peak count of 200 (7.41%) during the January survey in the south section of the Site (Area C). Other notable flocks, include a flock of 63 in November, and 50 in January roosting in the southern part of the Site within improved grassland habitat. A flock of 60 individuals was recorded roosting during December 2023. A count of 38 individuals were recorded roosting during January 2024. A count of 40 individuals were recorded foraging during March 2024. All of these notable flocks were recorded in the southern section of the Site.
- Lapwing - A flock was recorded on a single occasion during January with a peak count of 26 individuals (0.44%) within grassland habitat in Area C.

The number of birds recorded on Site are insignificant when compared to the numbers of each these species occupying the Solway Firth SPA and indeed as a proportion of the entire Great British Population which area as follows:

- Black-headed gull - a peak population estimate of 13,732 individuals; 0.6% of the Great Britain population for the years 2003/04 to 2005/06,
- Common gull - 12,486 individuals; 1.8% of the Great Britain population for the years 2003/04 to 2005/06
- Herring gull - a peak population estimate of 3034 individuals; 0.4% of the Great Britain population for the years 2003/04 to 2005/06.
- Lapwing - a mean peak population estimate of 5037 individuals; 0.8% of the Great Britain population and > 2,000 individuals for the years 2007/08 to 2011/12)

Herring gull is a widespread and common winter species in the UK and utilises inland habitats as much as coastal areas. They will utilise a wide variety of habitats, including farmland, heathland and urban areas again indicating they are not restricted to coastal or wetland habitats. As such It is possible that the gulls recorded are not associated with the SPA and are locally resident birds which occupy the urban areas of Workington and Lillyhall and surrounds, and which may forage in these areas or in the large waterbodies which lie to the south of the Site.

Consultation with NE on 23 January 2025, and based on the wintering bird survey data, suggested that a functional linkage may exist between the Site and the Solway Firth SPA.

NE stated:

“An indication of significant functional linkage is if 1% or more of the SPA population is using a site. Therefore, a likely significant effect cannot be ruled out for this project. Further analysis should be undertaken during the Appropriate Assessment stage with regards to the behaviour of the species and the site conditions”.

As such it was assumed at Screening that a **Likely Significant Effect** could occur during construction and operation.

To this end, herring gull was considered further as part of an Appropriate Assessment. The other three species recorded (black-headed gull, common gull and lapwing), but whose peak flock count was below 1% of the 5-year peak mean were not considered further.

As part of their consultation response, NE provided details of a large colony of herring gull in Lillyhall, 1.5km to the west of the Proposed Development, which flies south to roost on the Morecambe Bay and Duddon Estuary SPA as opposed to the northwest to the Solway Firth SPA. It is most likely therefore that the birds on the Site, which may

Solway Coast SPA

also form part of this colony Lillyhall, are functionally linked to this other SPA, and do not form part of the core population on the Solway Firth SPA.

NE also stated that as herring gull were favouring the fields as a loafing area, rather than feeding, such that the actual ecological dependence on the fields within the Proposed Development is likely to be low. The availability of alternative land in the surrounding land for this purpose in the area is considerable.

Furthermore, flock data shows that herring gulls in particular only rely on the Site in mid-winter, rather than the whole season, suggesting that they may be utilising short term abundances in resources which are created as part of grassland management techniques employed over winter (e.g. manuring and slurry spraying). It is also noted that the largest flock was observed during a survey in heavy persistent rain which is known to promote the availability of invertebrates on or near the soil surface (e.g. earthworms) which are exploited by birds.

Based on the bird behaviour recorded, the distance to the Solway Firth SPA and the preference of birds in the local area to roost on the Morecambe Bay and Duddon Estuary SPA it is unlikely that they are functionally linked to Solway Firth SPA.

In their consultation response NE concluded the following:

“It is therefore likely that, although there is some indication that these gulls [herring gulls] could be part of the core population of the SPA, this proposal will not have an adverse effect on site integrity alone when taken through to Appropriate Assessment Stage”.

- c) In summation, it is concluded that, **no Likely Significant Effects** have been identified during construction or operation, on completion of the Appropriate Assessment. An appraisal of wintering bird survey data received from Lostrigg Solar project ecologists covering the months on September to December, and totalling seven visits confirmed the presence of several species of qualifying species of the Solway Firth SPA. However, to assess in-combination effects for herring gull, the peak counts for each survey visit are presented below with the percentage of the 5-year peak counts in parentheses.

- Visit 1 (20 September 2024): 0 (0%)
- Visit 2 (2 October 2024): 24 (0.88%)
- Visit 3 (16 October 2024): 136 (5%)
- Visit 4 (6 November 2024): 31 (1.15%)
- Visit 5 (20 November 2024): 13 (0.48%)
- Visit 6 (4 December 2024): 10 (0.37%)
- Visit 7 (18 December 2024): 43 (1.6%)

Peak flock sizes are variable throughout the early part of winter, and indeed within the same months suggesting that reliance on the land within the limits of Lostrigg Solar is not ecologically significant given the majority of figures are below 1% which would indicate a functional linkage to the Solway Firth SPA. Notably there are only two visits in seven where peak flock size has exceeded 1%, with flock sizes being markedly lower in the intervening months.

Peak flock sizes recorded in October are larger than those at the Site, but in November and December this pattern is reversed with flocks of 63 and 60 birds recorded at the Site. As there is an inconsistent pattern across both Sites, it is most likely birds are moving around the wider landscape over winter, with some birds likely to use land within the Site and Lostrigg Solar given their close proximity and wide ranging behaviour of this species.

In light of the consultation received from NE with regards to the Proposed Development wintering bird survey data, again it is concluded that the birds recorded at Lostrigg may be

Solway Coast SPA

part of the core population on the Solway Firth SPA but that the development will not have an adverse effect on site integrity.

It is concluded that there will be **No Likely Significant Effects** in combination with other projects associated with the Proposed Development.