



RENEWABLES UK SOLAR & STORAGE LTD

HIGH GROVE SOLAR FARM, NORFOLK

HABITAT REGULATIONS ASSESSMENT (HRA) - STAGE 1: SCREENING

APRIL 2025

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APPENDICES

Appendix 1 – Designated Sites Citations and Conservation Objectives

1 INTRODUCTION

- 1.1.1 This document provides a Habitat Regulations Assessment (HRA) screening for High Grove Solar (the Proposed Development). RWE Renewables UK Solar and Storage Limited (the Applicant) has prepared this document as part of the statutory consultation process in relation to an application for a Development Consent Order (DCO) for the construction, operation and decommissioning of the Proposed Development.
- 1.1.2 This HRA screening report aims to provide information to support a Stage 1 HRA. The land within the draft Order Limits is shown in Preliminary Environmental Information (PEIR) Figure 2.1 (draft *Order Limits*). The draft Order Limits comprises of five 'Panel Areas' (groups of solar PV panels), the associated cable routes, and substations.
- 1.1.3 This HRA Screening intends to inform the 'Competent Authority' pursuant to the first stage of a HRA (Stage 1) and will conclude with a summary of findings and advise whether a Stage 2 HRA Appropriate Assessment is considered to be required where it cannot be reasonably ascertained that there are no likely significant (adverse) effects to the interest features of the specified internationally designated sites. Alternatively, the report will conclude confirming no likely significant (adverse) effects will arise resultant from the Proposed Development.

1.2 Project and Construction Summary

- 1.2.1 The Proposed Development is a renewable energy scheme, comprising five distinct Panel Areas covering an area of approximately 1,700 hectares (ha), including solar photovoltaic (PV) panels, on-site Battery Energy Storage Systems (BESS), underground cabling and associated infrastructure including substations and environmental mitigation and enhancement areas. The Proposed Development will also include underground Cable Corridors, which are still being refined, connecting the Panel Areas to one another and to the point of connection. The Proposed Development will have the capacity to generate over 50 Megawatts (MW) of alternating current (AC) electricity. The Proposed Development is located between Narborough and Dereham in the county of Norfolk in the East of England.
- 1.2.2 Due to the rapidly changing and evolving solar and energy storage technology, the Proposed Development parameters are designed to maintain flexibility to allow the latest technology to be installed at the time of construction. As a result, this Stage 1

HRA screening considers the reasonable worst-case scenario for key design parameters; where appropriate this is detailed in Sections 3.2 to 3.5.

1.3 Proximity to Designated Sites

1.3.1 No works are scheduled to take place within internationally designated sites. PEIR Figure 2.1 (draft Order Limits) and Figure 6.2 (Statutory Designated Wildlife Sites within 10km) of the PEIR show the draft Order Limits location and extent relative to the identified Natura 2000 sites.

1.3.2 Nearby internationally designated sites include:

- Breckland Special Protection Area (SPA) (located immediately south of the Western Panel Area);
- Norfolk Valley Fens Special Area of Conservation (SAC) (located 1.7km west);
- Breckland SAC (located 4.6km south);
- River Wensum SAC (located 8.2km northeast).

1.3.3 All of the above sites fall within the Zone of Influence (Zoi) of the Proposed Development and are shown on Figure 6.2 (Statutory Designated Wildlife Sites within 10km) of the PEIR.

1.3.4 Other nearby internationally designated sites that lay outside the 10km Zoi, but are considered in this report due to their sensitivity and possible hydrological connections to watercourses within the Zoi, include:

- Broadland RAMSAR (located 34km northeast); and
- The Broads SAC (located 34km east).

1.4 Legislative Context

1.4.1 The requirement for an assessment of impacts on SACs, SPAs and Ramsar sites (collectively known as European Sites) is set out within Article 6 of the EC Habitats Directive 1992 (92/43/EEC) and transposed into British law by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

1.4.2 The ultimate aim of the Directive is to “*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering Favourable Conservation Status (FCS).

1.4.3 The Habitats Directive applies the ‘Precautionary Principle’ to European sites. Plans and Projects can only be permitted having ascertained that there will be no adverse

effect on the integrity of the site(s) in question. Plans and Projects with predicted adverse impacts on European sites may still be permitted if there are no satisfactory alternatives and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

1.4.4 In order to ascertain whether or not site integrity will be affected, an assessment should be undertaken of the plan or project in question. While the competent authority makes the formal decision as to whether adverse effects will result, they are entitled to request the applicant to produce necessary information to assist them; that is the purpose of this report.

1.4.5 The legislative basis for a HRA is detailed within the Conservation of Habitats and Species (2019) Regulations which state:

“Regulation 63.—(1) *A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—*

(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site,

must make an appropriate assessment of the implications of the plan or project for that site in view of that site’s conservation objectives.

(5) In the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

And..

Regulation 77. (7) *In the light of the conclusions of the assessment the local planning authority may approve the development only after having ascertained that it will not adversely affect the integrity of the site.”*

1.4.6 A ‘Habitats Regulations Assessment’ (HRA) describes the overall process set out in the Conservation of Habitats and Species Regulations from screening through to Imperative Reasons of Overriding Public Interest (IROPI). This has arisen in order to distinguish the process from the individual stage described in the law as an ‘Appropriate Assessment’. Throughout this report, we use the term Habitat Regulations Assessment for the overall process and restrict the use of Appropriate Assessment to the specific stage of that name.

1.5 Assessment Methodology

Stage 1 – Screening

- 1.5.1 Within the first stage, the assessment must consider if the proposals will result in any ‘likely significant effects’ (LSE) in order to decide if an Appropriate Assessment (Stage 2) is required. This is essentially a risk assessment, typically utilising existing data, records and specialist knowledge.
- 1.5.2 The essential question is:
- “Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant [adverse] effect upon European sites?”*
- 1.5.3 If it can be demonstrated that significant effects to the European Sites are unlikely, no further assessment is required. If significant effects are identified, or if it remains unclear, the assessment procedure will follow on to Stage 2.
- 1.5.4 It should be noted that following the Court of Justice of the European Union (CJEU) ruling (People over Wind, Peter Sweetman v Coillte Teoranta (Case: C-323/17)), measures intended to avoid or reduce the harmful effects of a plan or project on a European site (mitigation) should not be taken into account at this screening stage, and instead these must be considered as part of an Appropriate Assessment (Stage 2).

Stage 2 – Appropriate Assessment

- 1.5.5 If it cannot be satisfactorily demonstrated that significant effects are unlikely, in the absence of specific/bespoke mitigation pursuant to the European site(s), a full Appropriate Assessment will be required.
- 1.5.6 The ‘Precautionary Principle’ should be applied to the assessment, with focus on objectively demonstrating (with supporting evidence) that there will be no adverse impacts on the integrity of the European Site. Natural England¹ provide examples of adverse impacts on integrity as follows:

“The integrity of the site will be adversely affected if a proposal could, for example:

- *destroy, damage or significantly change all or part of a designated habitat*
- *significantly disturb the population of a designated species, for example, its breeding birds or hibernating bats*

¹Available at <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site> [Accessed: 06.03.25].

- *harm the site's ecological connectivity with the wider landscape, for example, harm a woodland that helps to support the designated species from a nearby European site*
- *harm the site's ecological function, or its ability to survive damage, and reduce its ability to support a designated species*
- *change the site's physical environment, for example, by changing the chemical makeup of its soil, increasing the risk of pollution or changing the site's hydrology*
- *restrict access to resources outside the site that are important to a designated species, for example, food sources or breeding grounds*
- *prevent or disrupt restoration work, or the potential for future restoration, if it undermines the site's conservation objectives."*

1.5.7 Where this is not the case, it must be assumed that adverse impacts are expected and measures will be required to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant. Note that, unlike standard Ecological Impact Assessment (EcIA), compensation for adverse effects (i.e. creation of alternative habitat) is not permitted at the Appropriate Assessment stage.

Stage 3 – Imperative Reasons of Overriding Public Interest (IROPI) Test

1.5.8 If a project will have a significant adverse effect upon the integrity of a European site, and this effect cannot be either avoided or mitigated, the project cannot proceed unless it passes the IROPI test. In order to pass the test, it must be objectively concluded that no satisfactory alternative solutions exist. The project must then be referred to Secretary of State on the grounds that there are IROPI as to why the plan should proceed.

1.6 Scope of Assessment

1.6.1 When considering the physical scope of the assessment, impact pathways are identified rather than arbitrary 'zones'. Current guidance suggests that the following aspects of a Project which may affect a European site be included in the scope of assessment:

- All works within the designated site boundary; and
- Construction and operational phases of the development beyond the designated site boundary but linked through a known 'pathway' (discussed below).

1.6.2 Briefly defined, 'pathways' are routes by which a change in activity within the project

scope can lead to an effect upon a European site which is not directly connected with or necessary to the management of the European site. For this Proposed Development, the potential pathways by which an effect could occur have been identified as follows:

- Loss or deterioration of habitats which may be ‘Functionally Linked’ to their respective European site;
- Loss or deterioration of habitats as a result of air quality changes during construction;
- Disturbance to qualifying species via noise/vibration, light (during construction); and
- Hydrological impacts to water quality of aquatically linked habitats during construction and operation.

1.7 Consultation

- 1.7.1 An Environmental Impact Assessment (EIA) scoping report² was submitted to the Planning Inspectorate on 6 September 2024. A scoping opinion was consequently published by the Planning Inspectorate on 17 October 2024.
- 1.7.2 A summary of the key comments relating to HRA from the Planning Inspectorate and how these have been addressed in the PEIR, is presented in Table 1. Column 1: ID refers to the comment number within the Scoping Opinion.

Table 1. Summary of PINS Comments Regarding HRA		
ID	Comment	Response
3.3.1	<i>“The Inspectorate agrees that significant effects on these sites and features are unlikely and that they can be scoped out of further assessment, except River Wensum SAC.</i> <i>The Inspectorate notes that Wendling Beck (a tributary of the River Wensum) bisects the Northern panel areas, and a number of smaller tributaries run through the Eastern panel area and the cable corridors. The ES should assess the potential for significant effects from cable works should these watercourses be hydrologically linked to the SAC. Effects on the River Wensum SSSI should also be assessed, where significant effects are likely. Relevant cross</i>	The River Wensum Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) are scoped in due to the hydrological connection via the Wendling Beck and tributaries. This matter is discussed in Section 6.6 and will be addressed within the Habitat Regulations Assessment (HRA).

² Scoping Opinion for High Grove Solar (2024) The Planning Inspectorate. Case Reference: EN0110010.

Table 1. Summary of PINS Comments Regarding HRA		
ID	Comment	Response
	<i>reference should be made to the Water Resources and Flood Risk chapter of the ES."</i>	
3.3.5	<i>"Tables 7-16 and 22-1 propose to scope out operational phase effects on:</i> <i>Statutory designated sites;</i> <i>Non-statutory designated sites;</i> <i>Priority habitats including Ancient Woodlands;</i> <i>Great crested newts;</i> <i>Riparian mammals (otter and water vole);</i> <i>Reptiles; and</i> <i>Badger.</i> <i>However, operational phase effects are scoped in for these receptors in Tables 7-9, 7-10, 7-11, 7-12 and 7-13.</i> <i>No supporting evidence has been provided to justify scoping out operational phase effects on these receptors. Nevertheless, given the nature of the operational phase, the inspectorate considers significant effects are unlikely for the above listed species, priority habitats and sites designated for habitats and flora; these can be scoped out of the ES.</i> <i>However, the Inspectorate considers there is a potential for impacts on designated sites with breeding or nesting birds as interest features, including Breckland Special Protection Area (SPA) and SSSI, in terms of disturbance and effects of the loss of functionally linked land (including the loss of foraging resource). The ES should assess these impacts, where significant effects are likely."</i>	Further detail is provided on potential for impacts and significant effects on Breckland SPA in terms of disturbance and functionally linked land. This matter will be further addressed within the HRA and ES.
3.3.10	<i>"The Scoping Report considers the potential for adverse impacts on Norfolk Valley Fens SAC and Potter & Scarning Fens, East Dereham SSSI due to hydrological connections. Natural England has noted that Potter & Scarning Fens, East Dereham SSSI is a component part of Norfolk Valley Fens SAC and is adjacent to the A47. It notes that the features of the SSSI and SAC may be sensitive to changes in air quality. Air quality impacts on these sites from construction traffic should be assessed, where relevant vehicle movement thresholds for assessment are exceeded."</i>	Impacts to these sites as a result of air quality has been scoped in for construction and decommission. This matter will be further addressed within the HRA.

Table 1. Summary of PINS Comments Regarding HRA		
ID	Comment	Response
3.3.11	<i>"The Broads SAC and Broadland Ramsar site have not been identified in the Scoping Report. The Inspectorate considers that further information is required to determine if watercourses present within the study area are hydrologically linked to the sites. The ES should assess the possible effects of cable works upon watercourses linked to these sites, where significant effects are likely."</i>	The Broads SAC and Broadland Ramsar have been included and further assessed in this report. See Chapter 6 of the PEIR. These sites will also be included in the HRA submitted with the application.
3.3.12	<i>"The Scoping Report does not make reference to fish. The Environment Agency notes that the Wendling Beck and River Wissey, both located within the draft Order Limits, present a pathway to fish and have advised that fish surveys be undertaken where cables are proposed to cross watercourses. The Applicant is advised to seek to agree survey effort with the Environment Agency. The ES should detail the baseline and include an assessment of likely significant effects on fish present in chalk rivers. Consideration should be given to noise and vibration during watercourse crossings, impacts of electromagnetic fields (EMF) from buried cables and potential smothering from fine sediment. Alternatively, the ES should provide evidence of subsequent agreement with relevant consultation bodies that significant effects are not likely."</i>	Impacts to fish have been considered further within chapter 6.7 of the PEIR. With the use of appropriate methods and embedded mitigation, no impact to fish is expected as a result of the Proposed Development.

2 STAGE 1 – SCREENING OF LIKELY SIGNIFICANT EFFECTS

2.1 European Designations

- 2.1.1 Four European Sites have been identified within a 10km buffer from the location of the Proposed Development. All of these sites are considered in this report for potential LSE, with the exception of Breckland SAC, which has been excluded from assessment on the basis of absence of impact pathways.
- 2.1.2 Broadland Ramsar and The Broads SAC are located more than 10km from the Proposed Development; however, due to their sensitivity and possible hydrological connections to watercourses within the ZOI, they are considered in this report for potential LSE.
- 2.1.3 The separation distance and potential impact pathways to each of the remaining European Sites are set out in Table 2.

Table 2: European Sites Evaluation											
European Designated Site	Distance and direction from the Proposed Development	Direct habitat loss	Loss or deterioration of Habitats which may be 'Functionally Linked'	Noise / vibration, light or visual impact (including any FLL)	Cat predation	Recreation	Air quality	Water quality	Water levels	Invasive species	Considered in this report?
Breckland SPA	Immediately south	X	✓	✓	X	X	X	✓	X	X	Yes
Norfolk Vally Fens SAC	1.7km west	X	✓	X	X	X	✓	✓	X	X	Yes
River Wensum SAC	8.2km northeast	X	✓	X	X	X	X	✓	X	X	Yes
The Broads SAC	34km east	X	✓	X	X	X	X	✓	X	X	Yes
Broadland Ramsar	34km northeast	X	✓	X	X	X	X	✓	X	X	Yes

2.1.4 Therefore, European sites considered in this report are:

- Breckland SPA;
- Norfolk Valley Fens SAC;
- River Wensum SAC;
- Broadland Ramsar; and
- The Broads SAC.

2.2 Qualifying features and Conservation Objectives of Scoped in Sites

2.2.1 A summary of the citations and conservation objectives are detailed below in relation to each of the European sites.

Breckland SPA

2.2.2 The site is designated under article 4(1) of the Directive (79/409/EEC) as it is used regularly by 1% or more of the populations in Great Britain of the following species listed in Annex I in any season:

- Stone curlew *Burhinus oedicnemus*;
- Nightjar *Caprimulgus europaeus*; and
- Woodlark *Lullula arborea*.

2.2.3 The European Site Conservation Objectives for Breckland SPA are as follows:

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

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

Norfolk Valley Fens SAC

2.2.4 The site is designated under article 4(4) of the Directive (92/43/EEC) as it encompasses the following habitats listed in Annex I:

- Alkaline fens (calcium-rich spring water-fed fens);
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (alder woodland on floodplains);
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (calcium-rich fen dominated by great fen sedge (saw sedge));
- European dry heaths;
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae* (purple moor-grass meadows));
- Northern Atlantic wet heaths with *Erica tetralix* (wet heathland with cross-leaved heath); and
- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia* (dry grasslands and scrublands on chalk or limestone)).

2.2.5 The site is designated under article 4(4) of the Directive (92/43/EEC) as it supports the following species listed in Annex II:

- Narrow-mouthed whorl snail *Vertigo angustior*; and
- Desmoulin's whorl snail *Vertigo moulinsiana*.

2.2.6 The European Site Conservation Objectives for Norfolk Valley Fens SAC are as follows:

2.2.7 “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.”*

River Wensum SAC

2.2.8 The site is designated under article 4(4) of the Directive (92/43/EEC) as it encompasses the following habitats listed in Annex I:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (rivers with floating vegetation often dominated by water-crowfoot).

2.2.9 The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*;
- Bullhead *Cottus gobio*;
- Brook lamprey *Lampetra planeri*; and
- Desmoulin’s whorl snail *Vertigo moulinsiana*.

2.2.10 The European Site Conservation Objectives for River Wensum SAC are as follows:

“Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the 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.”*

The Broads SAC

2.2.11 The site is designated under article 4(4) of the Directive (92/43/EEC) as it encompasses the following habitats listed in Annex I:

- Alkaline fens (calcium-rich spring water-fed fens);
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (alder woodland on floodplains);
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. (calcium-rich fen dominated by great fen sedge (saw sedge));
- Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (calcium-rich nutrient-poor lakes, lochs and pools);
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae* (purple moor-grass meadows);
- Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation (naturally nutrient-rich lakes or lochs which are often dominated by pondweed); and
- Transition mires and quaking bogs (very wet mires often identified by an unstable 'quaking' surface).

2.2.12 The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Desmoulin's whorl-snail *Vertigo moulinsiana*;
- Little whirlpool ram's-horn snail *Anisus vorticulus*;
- Fen orchid *Liparis loeselii*; and
- Otter *Lutra lutra*.

2.2.13 The European Site Conservation Objectives for The Broads SAC are as follows:

"Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the 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.”*

Broadland Ramsar

2.2.14 The site is designated under Ramsar Criterion 2, as it supports a number of rare species and habitats within the biogeographical zone context, including the following Habitats Directive Annex I features:

- H7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*, (calcium-rich fen dominated by great fen sedge (saw sedge));
- H7230 Alkaline fens (calcium-rich spring water-fed fens:
- H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) alder woodland on floodplains,

2.2.15 The site also supports the following Annex II species:

- S1016 *Vertigo moulinsiana* Desmoulin's whorl snail;
- S1355 *Lutra lutra* Otter; and
- S1903 *Liparis loeselii* Fen orchid.

2.2.16 The site is designated under Ramsar Criterion 6, for species/populations occurring at levels of 'international' importance.

2.2.17 Qualifying species/populations (as identified at designation):

- Species with peak counts in winter:
 - Tundra swan, *Cygnus columbianus bewickii*, NW Europe, 196 individuals, representing an average of 2.4% of the GB population (5 year peak mean 1998/9-2002/3);

- Eurasian wigeon, *Anas penelope*, NW Europe, 6769 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3);
- Gadwall, *Anas strepera*, NW Europe, 545 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3); and
- Northern shoveler, *Anas clypeata*, NW & C Europe, 247 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3).

2.2.18 Species/populations identified subsequent to designation for possible future consideration under Criterion 6:

- Species with peak counts in winter:
 - Pink-footed goose, *Anser brachyrhynchus*, Greenland, Iceland/UK, 4263 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3); and
 - Greylag goose, *Anser anser*, Iceland/UK, Ireland, 1007 individuals, representing an average of 1.1% of the population (Source period not collated).

2.2.19 As the Broads SAC falls within the boundary of the Ramsar site, please refer to paragraph 2.2.12 for conservation objectives.

3 IMPACT PATHWAYS

3.1 Consideration of Potential Impacts

3.1.1 When carrying out a HRA, it is important to determine the various ways in which the Proposed Development in question can impact on European sites by following the 'pathways' along which development can be connected with those sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site.

3.1.2 It has not been possible to rule out adverse effects to the following sites caused by the construction/development of the Proposed Development:

- Breckland SPA;
- Norfolk Valley Fens SAC;
- River Wensum SAC;
- Broadland RAMSAR; and
- The Broads SAC.

3.1.3 Of those sites listed above, the following effects have been scoped in as potential adverse impacts when considering the activities associated with the Proposed Development.

- Loss or deterioration of habitats which may be 'Functionally Linked' to the designated sites;
- Disturbance via noise/vibration, light, visual etc.;
- Air quality; and
- Hydrological impacts.

3.1.4 Additional information will be required to consider the effects of the Proposed Development on each of the sites, what aspects of the designated sites would be affected and the likelihood and significance of the effect(s).

3.1.5 Mitigation and avoidance measures will need to be considered and incorporated into the Proposed Development design which should be discussed in detail in a Stage 2 Appropriate Assessment.

3.2 Breckland SPA

- 3.2.1 The Western Panel Area is directly north of Breckland Forest Site of Special Scientific Interest (SSSI), a constituent part of the Breckland SPA.

Qualifying Species - Stone Curlew, Nightjar and Woodlark

- 3.2.2 Stone curlew (a qualifying feature of Breckland SPA) are sensitive to disturbance up to 1.5km. To address this, a 1.5km buffer zone around the SPA has been implemented by the local authorities (Liley & Hosking, 2019)³.
- 3.2.3 Breckland Forest SSSI was largely excluded from the 1.5km buffer zone. Upon review, the draft Order Limits lies outside the 1.5km buffer zone as shown on 'Map 2' (Liley & Hosking, 2019).
- 3.2.4 Disturbance effects to birds relates to the need to expend energy above that which are normally required, which delays feeding and pressurizes energy budgets. These risks increasing energetic output while reducing energetic input, which can adversely affect their 'fitness' and hence likelihood of survival and breeding success. In addition, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they have to sustain a greater number of birds. Furthermore, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to cool (reducing incubation success) and the more vulnerable the eggs/nestlings are to predators.
- 3.2.5 Potential impacts from the Proposed Development include visual and noise disturbance and displacement of nesting and foraging stone curlew, nightjar and woodlark (qualifying species).
- 3.2.6 There is also the potential for indirect loss of (displacement of birds from) 'Functionally Linked' land and associated loss of foraging resources, as habitats found within the Panel Area offer suitable foraging and nesting habitat for these qualifying species. In this event, disturbance and/or displacement of the supporting bird assemblage of the SPA during construction, operation and decommissioning may be apparent.
- 3.2.7 The construction phase would be relatively short-term (2.5 years) and the area effectively available for nesting birds' post-construction. However, stone curlew

³Liley, D & Hoskin, R. (2019). Habitat Regulations Assessment of the Breckland Local Plan Part 1 – Main Modifications Stage. Footprint Ecology, unpublished report for Breckland Council.

prefer to have a clear line of sight around the nest to view the approach of predators; once the solar PV modules are installed, the birds' line of sight will be reduced and therefore less likely to use the Panel Areas.

- 3.2.8 For all other bird species that nest in the draft Order Limits, due to the availability of offsite nesting options, there is expected to be a temporary very low adverse impact and the resultant effect on their conservation status is **Not Significant**.
- 3.2.9 The Proposed Development would be listed as C in Table one of Annex A (Natural England, n.d.)⁴: *Consultation always required with Natural England and will require HRA taken to stage 2 and the provision of Stone Curlew records (Five years within 1.5km).*
- 3.2.10 This tool only applies to indirect impacts to stone curlew in the SPA from the operational phase of a development. Construction and decommissioning may result in increased potential for disturbance during these phases.
- 3.2.11 Based on the survey data so far, evidence to date outlined shows of stone curlews have been returned within the Western Panel Area indicating nesting activity and/or fledged chicks. Furthermore, two potential stone-curlew territories were identified during the survey, outside the site itself. As a result, qualifying bird species associated with the SPA have been identified and therefore the Proposed Development area is Functionally Linked. On that basis, there is a **likely significant (Adverse) effect** arising from the Proposed Development during construction, operation and decommissioning.

⁴ Natural England (n.d.) Annex A: Ruling Out Impacts of Small-Scale Development to Breckland Special Protection Area (SPA) – Background. Available at: [https://www.breckland.gov.uk/media/20486/Habitats-Regulation-Assessment-HRA-Annex-A/pdf/Guidance on how Natural England assesses the impacts of minor developments in proximity to Breckland.pdf?m=1679068466110](https://www.breckland.gov.uk/media/20486/Habitats-Regulation-Assessment-HRA-Annex-A/pdf/Guidance%20on%20how%20Natural%20England%20assesses%20the%20impacts%20of%20minor%20developments%20in%20proximity%20to%20Breckland.pdf?m=1679068466110) [Accessed: 18th February 2025].

3.3 Norfolk Valley Fens SAC

- 3.3.1 Potter & Scarning Fens, East Dereham SSSI is a component part of the SAC and is adjacent to the A47.

Air Quality

- 3.3.2 Qualifying Features of the SSSI and SAC are sensitive to changes in air quality and pollution. Air pollutants can alter the soil and plant composition and species which depend upon these. This may result in the loss or deterioration of habitats which may be qualifying features of the SSSI and SAC.
- 3.3.3 Construction traffic for the Proposed Development could use the A47 therefore, due to the proximity of the Potter & Scarning Fens SSSI to the A47 (within 200m), the potential for increased construction traffic to impact this site has been considered.
- 3.3.4 Natural England has prepared a standard methodology for the assessment of traffic related air quality impacts under the Habitats Regulations which is relevant to the HRA of plans which may result in a change in traffic flows. The Natural England guidance on the assessment of road traffic emissions [37] states the following:

“The use of the AADT (Annual Average Daily Traffic movements) screening threshold is advocated by Highways England in their Design Manual for Roads and Bridges to check whether more detailed assessment of the impact of emissions from road traffic is required. This non-statutory or guideline threshold is based on a predicted change of daily traffic flows of 1,000 AADT or more (or heavy duty vehicle flows on motorways (HDV) change by 200 AADT or more).”

- 3.3.5 This threshold applies to proposed permanent operational changes, below which potential impacts are considered so low that significant effects are not likely and no further assessment is required. As outlined in Chapter 6 of the PEIR the construction of the Proposed Development would take approximately 2.5 years; therefore, significant effects from construction traffic are not considered likely due to the short lived potential low contribution to air quality impacts. Furthermore, the expected daily heavy duty vehicle (HDV) numbers required for construction range from 54 to 106, with the highest number only expected to last for a period of around 6 months. This equates to 108 to 212 trips per day. However, assuming a 5.5 day working week, gives a maximum AADT of approximately 155 during peak activity across the second year of construction. This is also a gross overestimate of potential impact to prove a worst

case scenario is below the threshold, as not all construction traffic will use this part of the A47 and only two Panel Areas are expected to be constructed simultaneously at any given time. Therefore, following accepted guidance concludes that significant effects are not likely and no further assessment is required.

- 3.3.6 Impact via air contamination is expected to have a very low temporary adverse impact and the resultant effect on the conservation status is **Not Significant**.

Water Quality

- 3.3.7 Chapter 14 of the PEIR states that the SAC is potentially hydrologically connected to the Proposed Development area via a series of smaller rivers, streams and ditches. Qualifying Features of the SAC are sensitive to changes in water quality. Based on the information to date, it is assumed there could be up to a temporary very low adverse impact on the designated sites from waterborne contaminants, the resultant effect on their conservation status is **Not Significant**.

3.4 River Wensum SAC

- 3.4.1 Wendling Beck (a tributary of the River Wensum) bisects the Northern Panel Area (pink area) and a number of smaller tributaries run through the Eastern Panel Area and the cable corridors, as shown on Figure 14.1 of the PEIR).

Water Quality

- 3.4.2 All qualifying habitats and species of the River Wensum are sensitive to pollution. Water pollution is a priority issue creating pressure on these features as outlined in the 'Site Improvement Plan' (Natural England, 2014)⁵. There is the potential for hydrological impacts resultant from dust and run-off during the construction, operational and decommissioning phases of the Proposed Development.
- 3.4.3 The Proposed Development will not result in any of the remaining issues identified in the Site Improvement Plan, namely: physical modification, inappropriate weirs, dams and other structures, siltation, invasive species and water abstraction.
- 3.4.4 In the absence of mitigation, there would be a **Likely Significant (adverse) Effect** on qualifying habitats and species of the SAC.

⁵ Natural England (2014) Site Improvement Plan, River Wensum. Available at: <https://publications.naturalengland.org.uk/publication/6720168281505792> [Accessed: 19.02.2025].

3.5 Broadland Ramsar and Broads SAC

3.5.1 Broadland Ramsar and The Broads SAC are located more than 10km from the draft Order Limits but due to their sensitivity and possible hydrological connection to watercourses within the ZOI of the draft Order Limits, they are considered further. The Broads SAC is hydrologically connected to the Proposed Development via a series of smaller rivers, streams and ditches.

Water Quality

3.5.2 All qualifying habitats and species of the Broadland Ramsar (and as such Broads SAC and Broadland SPA) are sensitive to pollution. Features for which habitats are designated are sensitive to changes in water balance and levels. Increased dust and run-off has the potential to reduce the quality of water entering the catchment during the construction, operation and decommissioning phases of the Proposed Development.

3.5.3 As water and land resources are closely linked, in the absence of mitigation there would be a **Likely Significant (adverse) Effect** on qualifying habitats and species of the SAC.

Air Quality

3.5.4 Qualifying Features of the SAC and SPA for which the Ramsar site is designated may be sensitive to changes in air quality and pollution. Air pollutants can alter the soil and plant composition and species which depend upon these. This may result in the loss or deterioration of habitats which may be Functionally Linked.

3.5.5 Sections 3.3.4-3.3.7 outline the information to date that suggests there could be up to a temporary very low adverse impact on the above designated site from waterborne contaminants and changes in air quality, the resultant effect on their conservation status is **Not Significant**.

3.6 In-Combination Effects

3.6.1 Relevant guidance (Assessing Projects Under the Habitats Directive: Guidance for Competent Authorities, September 2011⁶) states that:

⁶ Department for Environment, Food and Rural Affairs DEFRA (2011). Assessing Projects Under the Habitats Directive: Guidance for Competent Authorities. Available at: <https://www.marineenergywales.co.uk/wp->

“A project with a potential effect, which is insignificant on its own, is not free from the provisions of the Habitats Regulations until it has been checked in combination with the effects of other plans and projects. The in-combination check must consider whether:

a) the effects of the plans and projects, in combination, would make effects more likely to occur, or more likely to occur at significant levels, that alone would be unlikely to either occur or be significant;

b) the effects of the plans and projects, in combination, would make insignificant effects significant;

c) the effects of the plans and projects, in combination, would generate new or different effects that would not occur if the plans and projects proceeded alone.”

3.6.2 In accordance with the methodology set out in Chapter 15, the following developments are relevant to this assessment and have been considered for the cumulative assessment:

- The Drovers Solar Farm (EN0110013);
- Land South of Rawhall Lane (FUL/2022/0021);
- Pentney Quarry (FUL/2023/009);
- Solar Photovoltaic Farm (3PL/2022/1215);
- Development Site Off Sporle Road (3PL/2023/0441/F);
- Development Site (3PL/2024/0321/0);
- Oakland Gardens (21/02392/OM); and
- Land Opposite Flint Farm (21/02247/FM).

3.6.3 A detailed assessment of the above will be undertaken during Stage 2: Appropriate Assessment.

4 CONCLUSIONS

- 4.1.1 Following the above assessment of the European sites and potential effects, it cannot be satisfactorily demonstrated that significant effects are unlikely to occur to qualifying habitats and species associated with the Breckland SPA, River Wensum SAC, Broadland Ramsar and The Broads SAC.
- 4.1.2 Given that the assessment concludes Likely Significant (adverse) effects cannot be ruled out, a Stage 2 HRA: Appropriate Assessment (AA) will be required. The AA will be prepared in consultation with Natural England and be submitted with the DCO Application. This will consider the impact of the Proposed Development (directly or indirectly; alone, or in combination with others), on the integrity of the European sites. The location, nature and duration/scale of the Proposed Development will affect the scope and content of the AA which will include sufficient detail to allow the Secretary of State to form a decision on whether the Proposed Development will adversely affect the integrity of the sites.

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