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## Quality information

Prepared by	Checked by	Verified by	Approved by
JS	KS	<u>SR</u>	TB

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## Table of Contents

<b>1.</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Background.....	1
1.2	Objectives of HRA .....	1
1.3	Summary of the Project .....	2
1.4	Ecological Context of the Site .....	2
1.5	Current Legislation.....	2
<b>2.</b>	<b>METHODOLOGY .....</b>	<b>4</b>
2.1	Stages of Assessment .....	4
2.2	Stage 1 – Likely Significant Effect Test .....	4
2.3	Stage 2 – Appropriate Assessment.....	4
2.4	Stage 3 – Imperative Reasons of Overriding Public Interest (IROPI) Test .....	4
<b>3.</b>	<b>DESIGNATED SITES .....</b>	<b>6</b>
<b>4.</b>	<b>LIKELY SIGNIFICANT EFFECT TEST .....</b>	<b>8</b>
4.1	Pathways of Impact .....	8
4.2	Loss/Impact to Functionally Linked Habitats .....	9
	<i>The Wash SPA and Ramsar.....</i>	9
	<i>The Wash and North Norfolk Coast SAC .....</i>	10
4.3	Changes in Water Quality and Hydrological Regime Change.....	10
	<i>The Wash SPA and Ramsar, and the Wash and North Norfolk Coast SAC .....</i>	10
4.4	Summary of Potential Impacts Within the Scope of this HRA .....	11
<b>5.</b>	<b>APPROPRIATE ASSESSMENT .....</b>	<b>14</b>
5.2	Loss of functionally linked habitat .....	14
	<i>The Wash SPA and Ramsar -Overwintering gadwall and lapwing .....</i>	14
	<i>The Wash and North Norfolk Coast SAC- Otter.....</i>	15
<b>6.</b>	<b>IN-COMBINATION EFFECTS .....</b>	<b>16</b>
<b>7.</b>	<b>CONCLUSION.....</b>	<b>22</b>
<b>8.</b>	<b>REFERENCES .....</b>	<b>23</b>

## Drawing

ST19595/501 Internationally Designated Sites

1:500,000@A4

## Tables

Table 1: Qualifying Features and Conservation Objectives of the Designated Sites .....	6
Table 2: Summary of potential impact pathways .....	8
Table 3: Summary of Potential Impacts Within the Scope of this HRA.....	11
Table 4: LSE Screening Summary Table .....	12
Table 5: Summary of plans and projects with the potential for in-combination effects.....	17

## Appendices

Appendix 1	Minutes of meeting with Natural England 29 <sup>th</sup> August 2024
Appendix 2	Citations for designated sites
Appendix 3	Conservation objectives for designated sites

# 1. INTRODUCTION

## 1.1 Background

- 1.1.1 This Shadow Habitat Regulations Assessment has been prepared by Wardell Armstrong LLP (part of SLR) ('WA') on behalf of Beacon Fen Energy Park Ltd (the 'Applicant') in support of an application for a Development Consent Order (DCO) for Beacon Fen Energy Park (the 'Proposed Development').

## 1.2 Objectives of HRA

- 1.2.1 The objectives of an HRA screening process are to consider whether or not the Proposed Development would cause 'likely significant effects' on the qualifying features of Natura 2000 (European) sites (and their overlapping designations where appropriate), specifically the:
- The Wash (Ramsar & SPA & SSSI)
  - The Wash & North Norfolk Coast (SAC)
- 1.2.2 Both of the 'The Wash' designations overlap, but the SAC designation covers a larger area and includes the entirety of the Ramsar & SPA. These are shown in the drawings (ST19595-501 Internationally Designated Sites). Both designations are approximately 21.4 km from Solar Array Area and 14.2 km from the Cable Route Corridor. The parcel of land previously referred to as 'Beacon Fen South' has been removed from the Proposed Development and therefore has not been considered within this report.
- 1.2.3 This document has been produced in accordance with the Planning Inspectorate's advice on HRA (2024).
- 1.2.4 In order to fully assess any likely significant effects upon these two international designated sites, this Proposed Development has been assessed in isolation and combination with other known plans and projects.
- 1.2.5 The Central Lincolnshire Local Plan (Adopted April 2023) and supporting document Sustainability Appraisal Report and Habitat Regulations Assessment: Non-Technical Summary (April 2023) are the principal sources of information for in-combination assessments.
- 1.2.6 A Preliminary Ecological Appraisal Report (PEA) of the Solar Array Area was undertaken by AECOM in 2022 which was followed by a suite of Phase 2 surveys for badger, reptile, riparian mammal, eDNA for great crested newts (GCN), wintering birds and breeding birds in 2023. A PEA of the Cable Route Corridor and Bespoke Access Corridor was undertaken in 2024, along with Phase 2 surveys for wintering and breeding birds, eDNA for GCN, riparian mammal and bats (WA 2025).
- 1.2.7 This assessment is informed by the proposed Order Limits for the Solar Array Area, Cable Route Corridor and Bespoke Access Corridor, provided by the client as well as the PEA Reports (AECOM, 2022, WA 2025a application Document Refs: 6.3 ES Vol.2, 6.3.24 and 6.3.42), Wintering Bird Reports (AECOM, 2023a, WA 2025b application Document Refs: 6.3 ES Vol.2, 6.3.24



and 6.3.36) and riparian mammal reports (AECOM, 2023b, WA 2025c application Document Refs: 6.3 ES Vol.2, 6.3.28 and 6.3.38).

## 1.3 Summary of the Project

- 1.3.1 The proposed development is formed of the Solar Array Area, a Bespoke Access Corridor from the A17, and ~~Thea~~ Cable Route Corridor connecting the Solar Array Area to the Bicker Fen National Grid Substation ~~near Bicker Bar~~. The entire DCO application area is approximately 757 ha (hereafter known as the Project Area). The Proposed Development would have ~~an anticipated~~ generation capacity of approximately 400 megawatts (MW) of electricity per year, with a 600MW ~~Battery Energy Storage System (BESS)~~.

## 1.4 Ecological Context of the Site

- 1.4.1 The Solar Array Area comprises of mainly arable fields with small areas of game crop strips, hedgerows, woodland blocks, numerous mature trees, and small wooded copses. Subsequent surveys of the Bespoke Access Corridor and Cable Route Corridor show that these have similar habitats. The Project Area is surrounded by mainly arable and improved grassland livestock fields with several villages and hamlets.
- 1.4.2 In terms of immediate surroundings, the Project Area is bordered by Midfodder Dike and Car Dyke to the east and the roads of Howell Fen Drove to the south, unnamed road to the west and Black Drove to the north. The hamlets of Ewerby Thorpe and Howell are to the west and southwest. Virtually all the surrounding land is actively farmed arable fields.
- 1.4.3 Further details of the habitats, protected species and designated sites can be found within the Environmental Statement Ecology Chapter (WA 2025d, application Document Ref: 6.2 ES Vol.1, 6.2.7).

## 1.5 Current Legislation

- 1.5.1 The requirement for an assessment of impacts on European sites is set out within The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579) ~~(‘the Regulations’)~~.
- 1.5.2 The Regulations aim 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.
- 1.5.3 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 alternatives to them 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.

- 1.5.4 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 (e.g. the Local Planning 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.

**Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive 1992)**

Article 6(3) states that:

*“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.”*

**The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579).**

Section 63 of the Regulations State that:

*“(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.*

*(2) A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required.*

*(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specifies...”*

**Box 1: Legislative basis for Appropriate Assessment**

- 1.5.5 Over the years, the phrase ‘Habitats Regulations Assessment’ has come to describe the overall process set out in the Conservation of Habitats & Species Regulations, from screening through to 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, the term *Habitat Regulations Assessment* is used for the overall process and the term *Appropriate Assessment* is restricted to the specific stage of that name.

## 2. METHODOLOGY

### 2.1 Stages of Assessment

2.1.1 Habitats Regulations Assessment of projects can be broken down into three discrete stages, each of which effectively culminates in a test. The stages are sequential, and it is only necessary to progress to the following stage if a test is failed. The Habitat Regulations Assessment has been discussed with Natural England with correspondence included in Appendix 1.

2.1.2 The stages are:

### 2.2 Stage 1 – Likely Significant Effect Test

2.2.1 This is essentially a risk assessment, typically utilising existing data, records and specialist knowledge. The purpose of the test is to decide whether ‘full’ Appropriate Assessment is required. 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?”*

2.2.2 If it can be demonstrated that significant effects are unlikely, no further assessment is required. As a result of the ~~judgment in~~ People over Wind C-323/17 (Court of Justice of European Union, 12 April 2018) the ECJ have clarified that *“...it is not appropriate at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.”*

### 2.3 Stage 2 – Appropriate Assessment

2.3.1 If it cannot be satisfactorily demonstrated that significant effects are unlikely, an “Appropriate Assessment” will be required. This is focussed entirely upon the designated interest features of the European sites in question. The essential question here is:

*“Will the project, either alone or in combination with other relevant projects and plans, actually result in an adverse effect upon the integrity of any European sites, without mitigation?”*

2.3.2 If it is concluded that adverse effects will occur, 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, compensation for adverse effects (i.e. creation of alternative habitat) is not permitted at the Appropriate Assessment stage.

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

2.4.1 If a project will have a significant adverse effect upon 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 alternative solutions exist. The project must be referred to

the Secretary of State on the grounds that there are Imperative Reasons of Overriding Public Interest as to why the project should nonetheless proceed.

- 2.4.2 This report deals with the first stage of Habitat Regulations Assessment – the Likely Significant Effect Test and the second stage – Appropriate Assessment.
- 2.4.3 It is a requirement of the Regulations that the impacts of any plans or projects being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question. In this case, the Central Lincolnshire Local Plan (2023) is considered to be the main source of information for the in-combination assessment. The Local Plan Sustainability Appraisal and Habitats Regulation Assessment for the Adopted Local Plan (non technical summary) details in-combination effects arising from local projects.



### 3. DESIGNATED SITES

3.1.1 The qualifying features and conservation objectives of the Internationally designated sites of relevance to this Project are discussed in Table 1, below. Full Natura 2000 citations for each site and the Ramsar Information Sheet are given in Appendix 2 with the conservation objectives in Appendix 3.

**Table 1: Qualifying Features and Conservation Objectives of the Designated Sites**

<b>Site Name and Objectives</b> <b>SITE NAME AND OBJECTIVES</b>	<b>Reason for Designation</b> <b>REASON FOR DESIGNATION</b>
<p><b>The Wash Ramsar/SPA (UK11072/UK9008021)</b></p> <p>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;</p> <ul style="list-style-type: none"> <li>- The extent and distribution of the habitats of the qualifying features</li> <li>- The structure and function of the habitats of the qualifying features</li> <li>- The supporting processes on which the habitats of the qualifying features rely</li> <li>- The population of each of the qualifying features, and,</li> <li>- The distribution of the qualifying features within the site</li> </ul>	<p>The Wash qualifies <del>as a</del> SPA under Article 4(1) because it supports 30 breeding pairs of little terns <i>Sterna albifrons</i> (2% of the British population) and 220 pairs of common terns <i>Sterna hirundo</i> (2%); and because it supports 130 Bewick's swans <i>Cygnus cygnus</i> (3%) in winter.</p> <p>The Wash qualifies under Article 4(2) as an internationally important wetland by supporting in winter an average of 163,000 waders and also 51,000 wildfowl; and because it supports on average the following internationally important numbers of individual species: 17,000 dark-bellied brent geese <i>Branta bernicla bernicla</i> (12% of the European wintering population), 7,300 pinkfooted geese <i>Anser brachyrhynchus</i> (7%), 16,000 shelducks <i>Tadorna Tadorna</i> (12%), 1,700 pintails <i>Anas acuta</i> (2%), 24,000 oystercatchers <i>Haematopus ostralegus</i> (3%), 5,500 grey plovers <i>Pluvialis squatarola</i> (7%), 500 sanderlings <i>Calidris alba</i> (3%), 7,500 knots <i>Calidris canutus</i> (21%) 29,000 dunlins <i>Calidris alpina</i> (1%) 8,200 bar-tailed godwits <i>Limosa lapponica</i> (1%), 3,700 curlews <i>Numenius arquata</i> (1%), 4,331 redshanks <i>Tringa totanus</i> (5%) and 980 turnstones <i>Arenaria interpres</i> (2%).</p> <p>In addition the site qualifies because of its national importance to other migratory birds. Wintering birds include 3,900 wigeon <i>Anas penelope</i> (2% of the British wintering population), 220 goldeneye <i>Bucephala clangula</i> (1%), 130 gadwall <i>Anas strepera</i> (3%), 830 common scoters <i>Melanitta nigra</i> (2%), 260 black-tailed godwits <i>Limosa limosa</i> (6%) and probably several gull species (Larus). Important populations of wintering passerines are also supported.</p> <p>It qualifies as a Ramsar under Criterion 1, 3, 5 and 6:</p> <p>1 - a large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels.</p>

<del>Site Name and Objectives</del> <b>SITE NAME AND OBJECTIVES</b>	<del>Reason for Designation</del> <b>REASON FOR DESIGNATION</b>
	<p>3 - Qualifies because of the inter-relationship between its various components including saltmarshes, intertidal sand and mud flats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with other organic matter, forms the basis for the high productivity of the estuary.</p> <p>5 – winter waterfowl (peak counts of 292,541 waterfowl) assemblages of international importance.</p> <p>6- species/populations occurring at levels of international importance <u>including a peak count overwinter of 46422 northern lapwing <i>Vanellus vanellus</i> representing 1.3 % of the population.</u></p>
<p><b>The Wash &amp; North Norfolk Coast SAC (UK0017075)</b> 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;</p> <ul style="list-style-type: none"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>• The structure and function (including typical species) of qualifying natural habitats</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely</li> <li>• The populations of qualifying species and,</li> <li>• The distribution of qualifying species within the site.</li> </ul>	<p>Annex I habitats and Annex II species that are a primary reason for selection of this site:</p> <p>1110 Sandbanks which are slightly covered by sea water all the time</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1160 Large shallow inlets and bays</p> <p>1170 Reefs</p> <p>1310 Salicornia and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)</p> <p>1365 Harbour seal <i>Phoca vitulina</i></p> <p>Annex I habitats and Annex II species present as a qualifying feature, but not a primary reason:</p> <p>1150 Coastal lagoons</p> <p>1355 Otter <i>Lutra lutra</i></p>
<p><b>The Wash SSSI (1002998)</b></p>	<p>The whole area is of exceptional biological interest. The intertidal mudflats and saltmarshes represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependent on the rich supply of invertebrate food. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a valuable bird breeding zone. In addition, the Wash is also very important as a breeding ground for Common Seals.</p>

## 4. LIKELY SIGNIFICANT EFFECT TEST

### 4.1 Pathways of Impact

4.1.1 In carrying out an HRA, it is important to determine the various ways in which the Proposed Development 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 the Proposed Development can lead to an effect upon a European site.

4.1.2 Table 2 summarises the potential impact pathways between the Proposed Development and the European sites subject to screening.

**Table 2: Summary of potential impact pathways**

	<del>The Wash</del> <b>THE WASH SPA and Ramsar</b> <del>AND RAMSAR</del>	<del>The Wash and North Norfolk Coast</del> <del>SAC</del> <b>THE WASH AND NORTH NORFOLK COAST SAC</b>
Distance and direction from the Proposed Development c.	14.2 km E	14.2 km E
Land take by development in European sites	None	None
Fragmentation of European site habitats	None	None
Increased mortality of key species	None	None
Disturbance to key species / deterioration of Habitats	None	None
Disturbance to key species/ damage or deterioration of supporting habitats (outside of the network of sites area)	Potential disturbance of qualifying species of the SPA and Ramsar: over wintering gadwall using a reservoir in the Solar Array Area <u>and overwintering lapwing which were seen in significant numbers in a field 140 m east of the Order Limits and in the northwest of the grounds of a residential property outside the Order Limits in the north-eastern corner of the Site.</u>	Potential disturbance of qualifying species of the SAC: Otter using waterbodies crossed by the <u>Cable Route Corridor</u> <u>Proposed Development.</u>
Atmospheric pollution/ air quality pollution	None	None
Changes in soil chemistry	None	None

	<del>The Wash</del> <b>THE WASH SPA and Ramsar</b> <b>AND RAMSAR</b>	<del>The Wash and North Norfolk Coast</del> <b>SAC</b> <b>THE WASH AND NORTH NORFOLK COAST SAC</b>
<b>Hydrological Regime Change and Pollution of surface/ ground water</b>	Potential for pollutants to reach areas within the SPA, SAC and Ramsar via connecting water courses, and/or changes to water flow from the proposed development to the SPA, SAC and Ramsar affecting qualifying habitats.	

## 4.2 Loss/Impact to Functionally Linked Habitats

- 4.2.1 'Functionally linked habitat' is a term used to described areas of land or sea occurring outside of a designated site but is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature the designation has been notified for. These habitats are frequently used by qualifying species and supports the functionality and integrity of the designated sites.

### *The Wash SPA and Ramsar*

- 4.2.2 The Wash SPA and Ramsar qualifying species likely to use the habitat in and around the proposed development are wading/wildfowl birds. Wading and wildfowl birds travel vast distances, particularly during spring and winter migrations, and regularly use farmland when taking breaks during migration. They can also use them during the breeding season for foraging, and in some cases breeding.
- 4.2.3 Several species of wading and wildfowl birds are listed as qualifying features of the Ramsar, SPA and SAC designations. These include gadwall of which two individuals were seen on two occasions within the Solar Array Area. The most recent five-year mean for gadwall on the Wash is 176 individuals (2018/19-22/23), meaning the Proposed Development site supports over 1% of the SPA population (British Trust for Ornithology 2025). It should be noted that the most recent population estimates for wintering birds put the UK population of gadwall at 31,000 (Frost *et al.* 2019), therefore the Wash falls below the 1% threshold for the species being a qualifying feature (were the SPA designated now).
- 4.2.4 The gadwall were only seen using a reservoir within the Solar Array Area. This reservoir will be retained within the Proposed Development. This reservoir is **currently** used for fishing therefore subject to human disturbance.
- 4.2.5 ~~During the construction and demolition phases of the proposed development~~Significant numbers (450 individuals, that is over 1% of the Wash SPA and Ramsar site population) of lapwing were recorded in February 2022 and December 2022. On one occasion, lapwing were recorded approximately 140 m east of the Solar Array Area boundary. It is unlikely that the birds using this area would suffer significant disturbance as the noise generated from the development would have reduced to a level where birds would be unlikely to react (Cutts *et al.* 2013). On another occasion, lapwing were recorded outside the Order Limits, where individuals were seen in the northwest of the grounds of a residential property outside the Order Limits in the north-eastern corner of the Site; they were then seen flying west over the Solar Array Area. These birds were within 20 m of the construction area at the closest. Further details

on wintering birds including the locations where lapwing and Gadwall have been recorded can be found in 6.3.36 Appendix 7.17 Wintering Bird Survey Report (Cable route and access road). 6.3.36 Appendix 7.17 Wintering Bird Survey Report (Cable route and access road). During the construction and decommissioning phases of the Proposed Development there will be an increase in noise from vehicles and the construction techniques used, some of which may exceed the 70 dB threshold above which birds are considered to suffer disturbance (Cutts *et al.* 2013). The loudest plant used on site will reach 116 dB at the source (see Noise and Vibration Chapter 10, document ref: 6.2 ES Vol 1, 6.2.10). Construction workers on site may cause visual disturbance to birds if they are in the vicinity of the reservoir. As gadwall and lapwing are only of importance for their overwintering population, any impact would only occur during the winter (November to February).

#### **The Wash and North Norfolk Coast SAC**

- 4.2.6 The Wash and North Norfolk Coast SAC qualifying species likely to use the habitat in and around the proposed development is the otter. Otter can travel considerable distances and a male territory can extend to over 20km along water courses whilst females may have territories extended 5-10km. Otter are a qualifying feature but not a primary reason for The Wash & North Norfolk Coast SAC.
- 4.2.7 During the construction and demolition of the development there will be the need for the Cable Route Corridor and Bespoke Access Road to cross ditches that could be used by otters. Excavation for and construction of crossings could directly injure or kill otters or damage or cause the loss of their holts. It is assumed that individuals using breeding sites up to 100 m from the construction activity could be affected.
- 4.2.8 For any otters to reach the Order Limits for the Wash and North Norfolk Coast SAC, there will be the requirement for them to cross under at least one A-road. Any travelling along the South Forty Foot Drain would need to pass through the town of Boston. These will therefore be tolerant of some level of disturbance, albeit they are likely to prefer quieter locations for their breeding sites.

## **4.3 Changes in Water Quality and Hydrological Regime Change**

#### **The Wash SPA and Ramsar, and the Wash and North Norfolk Coast SAC**

- 4.3.1 The quality of the water that feeds into European sites is a major determinant of the habitats present, the species they support and their quality. Poor water quality can have a range of environmental impacts. Development adjacent or hydrologically connected to European sites has the potential to affect both the water quality and levels within European sites, which may result in significant effects on their features or supporting habitats for features. These impacts could be from pollution or contamination of habitats, for example where surface water or other water-based emissions (e.g. from sewage, or industrial processes in employment areas) are discharged into water courses or ground water. Developments also have the potential to affect water quantity either



through localised lowering of the water table through excavations or through interrupting drainage pathways.

- 4.3.2 Measures to contain pollutants and avoid them entering the water courses have been set out in the OCEMP (Document ref 6.3 ES vol 2, 6.3.7) in particular Section 4.5. A minimum 5 m buffer will be maintained from all water courses. The hydrological regime has been considered in the OCEMP section 6.11, and water levels are maintained by the Internal Drainage Board. Therefore there is expected to be no adverse effect on the Wash SPA and Ramsar, and the Wash and North Norfolk Coast SAC through changes in water quality or to the hydrological regime.

## 4.4 Summary of Potential Impacts Within the Scope of this HRA

- 4.4.1 Potential impacts pathways arising from the Proposed Development are described in Table 3, below, and any likely significant effects arising from these potential pathways are discussed in further detail with relevance to the Proposed Development in Table 4.

**Table 3: Summary of Potential Impacts Within the Scope of this HRA**

<del>Potential Effect on National Network Site</del> <b>POTENTIAL EFFECT ON NATIONAL NETWORK SITE</b>	<del>Rationale</del> <b>RATIONALE</b>
Loss of habitat functionally linked to a National Network site (Ramsar/SPA/SAC).	The proposals include construction on land utilised by qualifying species of the SAC, as well as adjacent to habitats used by species listed on the SPA.
Changes to water quality and levels where a National Network site is hydrologically linked to the Project, as a result of construction / operational activities.	A change in water quality and levels are not expected to affect the Ramsar/SPA/SAC

Table 4: LSE Screening Summary Table

<p>Potential Effect on National Network Site <b>POTENTIAL EFFECT ON NATIONAL NETWORK SITE</b></p>	<p>Impact Type <b>IMPACT TYPE</b></p>	
<p>Loss of functionally linked habitat to a National Network site (habitat not included within the Ramsar/SPA/SAC but utilised by qualifying species).</p>	<p><i>The Wash SPA and Ramsar</i></p> <p>The proposals in the Order Limits show the development will cover mainly arable fields. Arable fields are suitable habitat for foraging and breeding wading and wildfowl species. Wintering bird surveys identified small numbers of wildfowl utilising the site with peak counts of pink-footed geese at 50, gadwall at 2, wigeon at 11, mallard at 10 <del>and</del>, teal at 32 <del>and Lapwing at 452</del>. Noise and visual disturbance generated during the construction phases of the Proposed Development will exceed the threshold of disturbance (70 dB) with some machinery reaching 116 dB at the source (see Noise and Vibration Chapter 10, document ref: 6.2 ES Vol 1, 6.2.10). However, the low numbers of qualifying species utilising the Proposed Development indicates it is unlikely to be functionally linked habitat.</p> <p>For gadwall; <u>one of the only two</u> species where the <del>Proposed Development</del> <u>project area</u> supports over 1% of the SPA population, birds were only found on a reservoir <del>currently</del> used for fishing, on two of the four winter survey occasions, which will be retained in the Proposed Development. <del>There are also significant areas of suitable habitat for these species surrounding the Solar Array Area.</del></p> <p><u>For lapwing, the other species where the project area supports over 1% of the SPA and Ramsar population, individuals were seen in significant numbers in a field 140 m east of the Order Limits and in the northwest of the grounds of a residential property outside the Order Limits in the north-eastern corner of the Site. Both these areas will be retained in the Proposed Development.</u></p> <p><u>There are also significant areas of suitable habitat for both these species surrounding the Solar Array Area.</u></p> <p><i>The Wash and North Norfolk Coast SAC</i></p> <p>The construction of the <del>Proposed Development</del> <u>proposed development</u> will require some ditch crossings. Otter surveys found potential evidence along Heckington Eau and an otter was seen swimming along the South Forty Foot Drain. No other evidence (including breeding sites) was found. Both of these water courses will be crossed for the installation of the Cable Route using trenchless techniques such as Horizontal Directional Drilling (HDD), thus avoiding impacts on the water courses themselves and there are expected to be no significant impact on otters. Update pre-construction otter (walkover) surveys will be done on ditch crossings to determine if any impact will occur and if so, what mitigation is required.</p>	<p>Screened in for further assessment</p>

<p><b>Potential Effect on National Network Site</b> <b>POTENTIAL EFFECT ON NATIONAL NETWORK SITE</b></p>	<p><b>Impact Type</b> <b>IMPACT TYPE</b></p>	
<p>Changes to water quality where a National Network site is hydrologically linked to the Project, because of construction activities.</p>	<p>No works involved with installation and construction of the proposed development are anticipated to change the current levels of hydrology. The OCEMP (document ref: 6.3 ES vol 2, 6.3.7) includes measures to avoid pollution and run-off. The OCEMP considers dust, spillages, refuelling and appropriate storage of materials and fuel. This will avoid adverse effects on the habitats of the Ramsar/SPA/SAC designations within The Wash and others which use the SAC and waterways surrounding the order limits. There are no adverse impacts anticipated upon hydrology and water quality during operation and the proposed development will not result in the loss of any watercourses.</p>	<p>Screened out for further assessment</p>

## 5. APPROPRIATE ASSESSMENT

- 5.1.1 Table 4 above summarises the likely significant effects found during Stage 1.
- 5.1.2 The Proposed Development is described in Chapter 2 of the Environmental Statement (Document Ref: 6.2 ES Vol 1, 6.2.2).

### 5.2 Loss of functionally linked habitat

- 5.2.1 The construction and decommissioning phases of the Proposed Development will involve works which potentially cause disturbance to species which are qualifying features of the SPA and SAC. This will include noise from plant as well as visual disturbance mainly caused by the presence of construction workers which animals may perceive as a threat. As a result, the species may stop using the land within or close to the Order Limits and there will be an effective loss of functionally linked habitats.

#### *The Wash SPA and Ramsar -Overwintering gadwall and lapwing*

- 5.2.2 The current overwintering population of gadwall is estimated as 31,000 (Frost *et al.* 2019), with the latest 5 year peak mean at the Wash being 176 (BTO 2025). The gadwall is listed on the Amber List of the most recent Birds of Conservation Concern (Stanbury *et al.* 2021).

5.2.3 The current overwintering population of lapwing is estimated as 620,000 with the latest 5 year peak mean at the Wash being 29,548 (BTO 2025). The lapwing is listed on the Red List of the most recent Birds of Conservation Concern (Stanbury *et al.* 2021).

5.2.35.2.4 As detailed in Table 2.1 and Section 2.14 of Chapter 2 of the Environmental Statement (Document Ref: 6.2 ES Vol 1, 6.2.2), the installation of the solar panels in the Solar Array ~~Area~~ will require piling and other works. This piling has been identified as generating up to 116 dB (see table 10.16 of the Noise and Vibration chapter of the Environmental Statement (Document Ref: 6.2 ES Vol 1, 6.2.10).

5.2.45.2.5 The Solar Array Area supports the equivalent of over 1% of the Wash SPA and Ramsar's gadwall ~~population~~ and lapwing populations over winter. Operations above 70 dB are considered to cause a significant adverse disturbance response in birds (i.e. they move away from the area of noise) (Cutts *et al.* 2013). The presence of construction workers may also disturb birds, especially considering that they will be wearing high visibility clothing. No significant populations of other qualifying species of the SPA and Ramsar (either wintering or breeding birds) were found within the Order Limits.

5.2.55.2.6 To mitigate the impacts on wintering birds including gadwall and lapwing, and therefore the Wash SPA and Ramsar, where works are required in the vicinity of the reservoir ~~and~~ In the north-eastern corner of the Solar Array Area a 60 metre buffer where no construction works can occur will be ~~set up~~ during in place over the winter months (November to February). ~~Over distance the noise from the machinery~~ The loudest plant used on site will be reduced, and reach 116 dB at a certain distance it will be quiet enough to avoid causing disturbance. ~~the source~~ (see Noise and Vibration Chapter 10, document ref:

6.2 ES Vol 1, 6.2.10). At ~~60-m~~60m from the loudest plant the noise will fall below 70 dB, which is quiet enough to avoid causing disturbance and there will therefore be no significant effect on the overwintering gadwall. ~~Therefore the buffer should be 60 m from the reservoir, and lapwing.~~

~~5.2.6~~5.2.7 Section 3.3. of the OCEMP (document ref 6.3 ES Vol 2, 6.3.7) sets out the requirement for an Environmental Induction 'toolbox talk' to include the contractors responsibility with regards to environmental issues. This will include ~~avoiding areas around the reservoir two 60m buffers where no construction works can occur~~ between November and February.

~~5.2.7~~5.2.8 With the ~~mitigations~~mitigation measures set out above there is expected to be no adverse effect on overwintering gadwall and lapwing, and therefore the Wash SPA and Ramsar as a result of the ~~proposed development~~Proposed Development.

### ***The Wash and North Norfolk Coast SAC- Otter***

~~5.2.8~~5.2.9 Otters are rare but widespread in the UK. In the most recent otter survey by the Environment Agency (2010) the catchments covering the site (Witham and Old Bedford) had experienced significant expansion of otters since surveys started 1977-79 with over 40% of the sites surveyed having evidence of otters

~~5.2.9~~5.2.10 As detailed in Table 2.1 and Section 2.11 of Chapter 2 of the Environmental Statement (Document Ref: 6.2 ES Vol 1, 6.2.2), where ditch crossings are necessary they will mostly be done using open cut trenching methods.

~~5.2.10~~5.2.11 Otters have been seen swimming along South Forty-Foot Drain, and possible evidence of their presence has been found on Heckington Eau. Open cut trenches in the banks could damage or destroy the breeding or resting places of otters if present, and the works disturb individuals. No resting or breeding place have been found to date.

~~5.2.11~~5.2.12 ~~Trenchless methods such as~~ Horizontal Directional Drilling methods will be adopted under Heckington Eau and the South Forty Foot Drain which will avoid impacts on otters. Section 6.7 of the OCEMP (document ref 6.3 ES Vol 2, 6.3.7) includes requirements for update surveys for protected species once the locations of crossings have been defined. These surveys will outline further mitigation including protected species licences if required.

~~5.2.12~~5.2.13 With the mitigations measures set out above there is expected to be no adverse effect on otters, and therefore the Wash and North Norfolk Coast SAC as a result of the proposed development.

## **~~5.3 In-Combination Effects~~**



## **6. IN-COMBINATION EFFECTS**

5.3.16.1.1 Details of plans and projects identified as likely to result in any in-combination effects to National Network sites are below in Table 5.

**Table 5: Summary of plans and projects with the potential for in-combination effects**

<b><u>Plan or Project</u></b> <b><u>PLAN OR PROJECT</u></b>	<b><u>Description</u></b> <b><u>DESCRIPTION</u></b>	<b><u>Potential effect on Ramsar</u></b> <b><u>POTENTIAL EFFECT ON RAMSAR/SPA/SAC and AND HRA</u></b> <b><u>Outcome</u></b> <b><u>OUTCOME</u></b>	<b><u>Potential for in-combination effects</u></b> <b><u>POTENTIAL FOR IN-COMBINATION EFFECTS</u></b>
Heckington Fen Solar Park (500MW) on Land to the east of Sidebar Lane.	Approximately 3.5km east of the Project Area at its closest point.	A HRA has been produced (Ecotricity, 2024). The HRA advises that Likely Significant Effects are possible relating to North Norfolk Coast and Wash SAC / The Wash SPA / The Wash Ramsar. This is due to silt laden run off and pollution entering the ditch network and loss of functionally linked land associated with qualifying winter wetland bird species.	Potential for in combination impacts regarding hydrological connection and loss of functionally linked land associated with qualifying winter wetland bird species. However, Likely Significant Effects (LSEs) associated with Heckington Fen Solar Park were taken forward to a Shadow Appropriate Assessment. Where the design of the Proposed Development, appropriate mitigating factors and other factors were taken into consideration, the potential adverse effects of the Proposed Development on the integrity of the North Norfolk Coast and Wash SAC, the Wash SPA, and the Wash Ramsar were ruled out by the Heckington Fen Solar Park project team. Additionally winter wetland bird species using land associated with Heckington Fen Solar Park differed from that using the Project Area. As such providing the appropriate design and mitigation is followed by both schemes, no in-combination impacts are expected.

<u>Plan or Project</u> <u>PLAN OR PROJECT</u>	<u>Description</u> <u>DESCRIPTION</u>	<u>Potential effect on Ramsar</u> <u>POTENTIAL EFFECT ON RAMSAR/SPA/SAC and AND HRA Outcome</u> <u>OUTCOME</u>	<u>Potential for in-combination effects</u> <u>POTENTIAL FOR IN-COMBINATION EFFECTS</u>
Screening Opinion for solar farm on Land at Park Lane, Ewerby.	Approximately 1.7km west of the Project Area at its closest point.	None identified within screening reply. No HRA has been produced.	None as no effects <u>have been</u> identified in <u>the</u> screening opinion and no planning application has been submitted since this screening opinion- <u>(decision date August 2014).</u>
Proposed solar farm (32MW) on Land to the north of White Cross Lane.	Approximately 4.1km southwest of the Project Area at its closest point.	None identified as no HRA has been produced.	<u>None have been identified; no wintering bird survey report was available and the Biodiversity Management Plan identifies lapwing as a constraint in the breeding season only. Due to the scale of this project and distance from the site, no significant in combination effects are anticipated.</u>
Proposed solar farm (49.9MW) at Little Hale Fen.	Approximately 5.85km south of the Project Area at its closest point.	None identified as no HRA has been produced.	<u>The wintering bird report identifies lapwing using the site infrequently over the winter months. Due to the scale of the project and distance between Little hale Fen and the Site (large areas of alternative habitat is available between) no significant in combination effects are anticipated.</u>
Proposed solar farm (50MW) at Land West of Walcot.	Approximately 13.5km southwest of the Project Area at its closest point.	None identified as no HRA has been produced.	None identified due to distance from the Project Area and The Wash designations.
<u>Triton Knoll Electrical System:</u>	<u>Adjacent to Project Area as it joins the electricity network at Bicker Fen National Grid Substation</u>	<u>HRA is no longer publicly available as the project has been completed, therefore no potential effects identified.</u>	<u>Excluded from consideration as likely cumulative impacts would only occur during the construction of the two projects. As the onshore component of Triton Knoll has been completed, with</u>

<u>Plan or Project</u> <u>PLAN OR PROJECT</u>	<u>Description</u> <u>DESCRIPTION</u>	<u>Potential effect on Ramsar</u> <u>POTENTIAL EFFECT ON RAMSAR/SPA/SAC and AND HRA Outcome</u> <u>OUTCOME</u>	<u>Potential for in-combination effects</u> <u>POTENTIAL FOR IN-COMBINATION EFFECTS</u>
			the infrastructure (cable) underground, there will be no overlap between the proposed development's construction and Triton Knoll's and therefore no opportunity for cumulative impact.
<u>Outer Dowsing Offshore Wind (Generating Station)</u>	<u>Approximately 9.9 km southeast of the Project Area at its closest point.</u>	<p>A HRA has been produced (Outer Dowsing Offshore Wind 2024). This identified impacts to the habitats on the Wash SPA and Ramsar from:</p> <p><u>Physical habitat loss/disturbance</u>  <u>Suspended sediment/deposition;</u>  <u>Indirect Pollution;</u>  <u>Accidental Pollution;</u>  <u>INNS; and</u>  <u>Changes to physical processes</u></p> <p>It also identified impacts to qualifying bird species of the SPA and Ramsar from:</p> <p><u>Barrier effects for migratory waterbirds;</u>  <u>Collisions for migratory waterbirds;</u>  <u>Loss of foraging, roosting, and nesting habitat within the site and surrounding area;</u>  <u>Disturbance of birds within and outside the SPA; and</u>  <u>Pollution from site run-off affecting habitat quality</u></p> <p>It identified effects to a Wash and North Norfolk Coast SAC qualifying species harbour seal <i>Phoca vitulina</i> through:</p> <p><u>Underwater noise;</u></p>	<p>No evidence of otters were found during surveys for the Outer Dowsing Offshore Wind (Generating Station) project so there is unlikely to be a cumulative impact on this qualifying species of the Wash and North Norfolk Coast SAC. Impacts were identified on non-breeding (wintering) birds as a result of the onshore works of the Outer Dowsing project. Therefore, as construction of Outer Dowsing and the Proposed Development could occur at the same time, there is potential for cumulative impacts through overlapping disturbance. The Outer Dowsing Offshore Wind (Generating Station) project identified mitigation including avoiding work around sensitive areas over winter, use of an Ecological Clerk of Works for local impacts and a pink-footed goose management plan. With this mitigation and the mitigation proposed for the Proposed Development, no cumulative impacts are expected.</p>

<u>Plan or Project</u> <u>PLAN OR PROJECT</u>	<u>Description</u> <u>DESCRIPTION</u>	<u>Potential effect on Ramsar</u> <u>POTENTIAL EFFECT ON RAMSAR/SPA/SAC and AND HRA Outcome</u> <u>OUTCOME</u>	<u>Potential for in-combination effects</u> <u>POTENTIAL FOR IN-COMBINATION EFFECTS</u>
		<u>Vessel disturbance;</u> <u>Changes to prey; and</u> <u>Collision risk</u>	
<u>Lincolnshire Reservoir:</u>	<u>Approximately 3.5 km southeast of the Project Area at its closest point.</u>	<u>None identified as no HRA has been produced yet.</u>	<u>Excluded from consideration as likely cumulative impacts would only occur during the construction of the two projects. It is anticipated the Lincolnshire Reservoir (which is currently due for submission for a Development Consent Order late 2028/29) will be constructed after the Proposed Development is completed (construction due to take place from 2027 for between 2.5 to 5 years) and, therefore, there will be no opportunity for cumulative impacts.</u>
<u>Springwell Solar Farm</u>	<u>Approximately 11.0 km northwest of the Project Area at its closest point.</u>	<u>A HRA has been produced (Springwell Energyfarm Ltd. 2024) this identified no likely significant effects would occur as a result of the project.</u>	<u>No qualifying species of either the Wash and North Norfolk Coast SAC or the Wash SPA and Ramsar were recorded on Springwell Solar Farm. Therefore, no cumulative impacts with the Proposed Development are anticipated</u>
<u>Boston Alternative Energy Source</u>	<u>Approximately 11.3 km east of the Project Area at its closest point.</u>	<u>A HRA has been produced (Alternative Use Boston Projects Ltd. 2023). This identified impacts to the qualifying bird species and habitats on the Wash SPA and Ramsar from:</u> <u>Disturbance;</u>	<u>The Habitats Regulation Assessment identified disturbance and habitat loss of waterbirds as a result of the Boston Alternative Energy Source project, including Lapwing and Gadwall, which could have a cumulative impact with the Proposed Development. Although</u>



<u>Plan or Project</u> <u>PLAN OR PROJECT</u>	<u>Description</u> <u>DESCRIPTION</u>	<u>Potential effect on Ramsar</u> <u>POTENTIAL EFFECT ON RAMSAR/SPA/SAC and AND HRA Outcome</u> <u>OUTCOME</u>	<u>Potential for in-combination effects</u> <u>POTENTIAL FOR IN-COMBINATION EFFECTS</u>
		<u>Vessel disturbance and Habitat loss</u> <u>It identified effects to the Wash and North Norfolk Coast SAC qualifying species and habitats though:</u> <u>Disturbance of harbour seal;</u> <u>Increased collision risk to harbour seal;</u> <u>and</u> <u>Changes to air quality during operation resulting in potential deposition of pollutants on habitats.</u>	<u>the Boston Alternative Energy Source DCO has been granted consent (June 2023, and construction should not occur at the same time as the Proposed Development, there is potential for some overlap and hence cumulative impacts on waterbirds. However, the birds affected by the Boston Alternative Energy Source (BAES) are wading birds. Given that mitigation is in place for the wading birds impacted at BAES, no cumulative impacts are expected...</u>
<u>Temple Oaks Renewable Energy Park</u>	<u>Approximately 14.5 km south-west of the Project Area at its closest point.</u>	<u>None identified as no HRA has been produced.</u>	<u>The Temple Oaks site lies approximately 28 km from the Wash and North Norfolk Coast and the Wash SPA and Ramsar. No information is available yet on the results of the baseline ecological surveys (including for qualifying species of the SAC, SPA and Ramsar). However, owing to the distance between these designated sites and the proposed Temple Oaks Renewable Energy Park, it is unlikely there will be functionally linked land at Temple Oaks. Therefore, there is expected to be no cumulative impacts.</u>

## 6.7. CONCLUSION

6.4.17.1.1 The Proposed Development has been assessed as having a Likely Significant Effect upon National Network sites (Ramsar/SPA/SAC). This is due to loss of functionally linked habitats. As such an Appropriate Assessment has been undertaken as part of this HRA

6.4.27.1.2 Within the Appropriate Assessment, mitigation measures outlined in the OCEMP (document ref 6.3 ES Vol 2, 6.3.7) to avoid these adverse effects have been taken into account. It is therefore considered that the Proposed Development will ~~result in~~have no adverse effects on the Wash SPA and Ramsar or the Wash and North Norfolk Coast SAC or the qualifying features of these designated sites.

6.4.37.1.3 No in-combination effects are anticipated.

## 7.8. REFERENCES

- AECOM (2022) Bicker Fen Solar Farm: Preliminary Ecological Appraisal
- AECOM (2023a) Bicker Fen Solar Farm: Wintering Bird Report
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- Wardell Armstrong (2025a) Beacon Fen Energy Park: Preliminary Ecological Appraisal
- Wardell Armstrong (2025b) Beacon Fen Energy Park: Wintering Bird Report
- Wardell Armstrong (2025c) Beacon Fen Energy Park: Riparian Mammal Survey Report
- Wardell Armstrong (2025d) Beacon Fen Energy Park: Environmental Statement. Chapter 7 – Ecology

# BFEP Appendices

# Appendix 1 Minutes of meeting with Natural England 29th August 2024



## Appendix 2 Citations for designated sites

## Appendix 3 Conservation objectives for designated sites

## ~~Figures~~/Drawings