Department for Energy Security & Net Zero

Habitats Regulations Assessment for an Application Under the Planning Act 2008

BOSTON ALTERNATIVE ENERGY FACILITY

Regulations 63, 64 and 68 of The Conservation of Habitats and Species Regulations 2017

July 2023

Contents

List of abbreviations

Term	Abbreviation
(draft) Development Consent Order	(d)DCO
(Outline) Landscape and Ecological Mitigation Strategy	(O)LEMS
(Outline) Marine Mammal Mitigation Plan	(O)MMMP
Adverse Effect on Integrity	AEoI
Appropriate Assessment	AA
Boston Borough Council	BBC
Changes In Waterbird Behaviour survey	CiWB survey
Code of Construction Practice	CoCP
Compensation Measures Document	CMD
Dark-bellied Brent Goose	DBBG
Deemed Marine Licence	DML
Dynamic Positioning	DP
Eastern Inshore Fisheries and Conservation Authority	EIFCA
Energy from Waste	EfW
England Coast Path	ECP
Environment Agency	EA
Environmental Impact Assessment	EIA
Environmental Permit	EP

Environmental Statement	ES
European Economic Area states	EEA states
Examining Authority	ExA
ExA's written question	ExQ
Functionally Linked Land	FLL
Greenhouse Gas	GHG
Ground Investigation	GI
Habitat Mitigation Area	HMA
Habitats Regulations Assessment	HRA
Habitats Regulations Assessment Report	HRAR
Hectare	ha
Household Waste Recycling Centre	HWRC
In-combination Effect	ICE
Interested Parties	IPs
Issue Specific Hearing	ISH
Joint Nature Conservation Committee	JNCC
Likely Significant Effect	LSE
Lincolnshire Wildlife Trust	LWT
Marine Mammal Observers	MMObs
Marine Management Organisation	MMO
Mean High Water Springs	MHWS
Megawatt	MW
Mouth of the Haven	MOTH
National Policy Statement	NPS
National Site Network	NSN

Nationally Significant Infrastructure Project	NSIP
Natural England	NE
Navigation Management Plan	NMP
Navigation Risk Assessment	NRA
Ornithology Compensation Implementation and Monitoring Plan	OCIMP
Ornithology Engagement Group	OEG
Passive Acoustic Monitoring	PAM
Planning Inspectorate	PINS
Port of Boston	PoB
Predicted Environmental Concentration	PEC
Process Contribution	PC
Refuse Derived Fuel	RDF
Register of Environmental Actions and Commitments	REAC
Relevant Representation	RR
Report on the Implications for European Sites	RIES
Royal Society for the Protection of Birds	RSPB
Sea Mammal Research Unit	SMRU
Special Area of Conservation	SAC
Special Protection Area	SPA
Statement of Common Ground	SoCG
Statutory Nature Conservation Body	SNCB
Supplementary Advice on Conservation Objectives	SACOs
The Secretary of State	The Secretary of State for Energy Security and Net Zero
UK Without Incineration Network	UKWIN

Wetland Bird Survey	WeBS
Worst-Case Scenario	WCS
Written Representation	WR

1 Introduction

1.1 Background

This is a record of the Habitats Regulations Assessment ("HRA") that the Secretary of State for Energy Security and Net Zero ("the Secretary of State") has undertaken under the Conservation of Habitats and Species Regulations 2017[1] ("the Habitats Regulations") as amended in respect of the Development Consent Order ("DCO") and Deemed Marine Licence ("DML") for the Boston Alternative Energy Facility and its associated infrastructure (the "Project"). The Examining Authority ("ExA") defines this as the "Proposed Development". It is defined as the Project within this HRA. For the purposes of these Regulations the Secretary of State is the competent authority.

The Project would comprise an Energy from Waste ("EfW") plant with the capacity to generate 102 megawatts ("MW") gross (net export of 80 MW) electricity, grid connection arrangements, wharf facility, ash processing plant and a lightweight aggregate manufacturing facility. The Project is described in more detail in Section 2.

The Project constitutes a nationally significant infrastructure project ("NSIP") as defined by s. 14(1)(a) of the Planning Act 2008[2] as it is for an onshore generating station with a capacity over 50MW.

The Project was accepted by the Planning Inspectorate ("PINS") on 20 April 2021 and a single Inspector was appointed as the ExA for the application on 30 April 2021. The Examination of the Project application began on 7 October 2021 and concluded on 7 April 2022. The ExA submitted its report of the Examination, including its recommendation ("the ExA's Report") to the Secretary of State on 7 July 2022. Numbered references to the ExA's Report are presented in the format "[ER *.*.*]". Numbered references to Appendix C of the ExA's Report, which contains detailed consideration of HRA matters, are presented in the format "[ER *.*.* App. C]".

Following receipt of the ExA's Report the Secretary of State invited Interested Parties ("IPs") to provide additional updates, information and responses to information, including relating to potential impacts on qualifying features of UK National Site Network ("NSN") sites. The Secretary of State's consultation letters referred to throughout this report are referenced in Section 1.5.

This HRA contains a consideration of the potential effects of the Project upon protected sites in European Economic Area ("EEA") States ("transboundary sites"). This is recorded under the transboundary assessment section of the report (Section 6).

[1] https://www.legislation.gov.uk/uksi/2017/1012/contents/made

[2] http://www.legislation.gov.uk/ukpga/2008/29/contents

1.2 Habitats Regulations Assessment

The Habitats Regulations aim to ensure the long-term conservation of certain species and habitats by protecting them from possible adverse effects of plans and projects. In the UK, the Habitats Regulations apply as far as the 12 nautical miles ("nm") limit of territorial waters.

The Habitats Regulations provide for the designation of sites for the protection of habitats and species of international importance. These sites are called Special Areas of Conservation ("SACs"). They also provide for the classification of sites for the protection of rare and vulnerable birds and for regularly occurring migratory species within the UK and internationally. These sites are called Special Protection Areas ("SPAs"). SACs and SPAs together from part of the UK's NSN.

The Convention on Wetlands of International Importance 1972 ("the Ramsar Convention") provides for the listing of wetlands of international importance. These sites are called Ramsar sites. Government policy is to afford Ramsar sites in the United Kingdom the same protection as sites within the NSN (collectively referred to in this HRA as "protected sites").

Candidate SACs ("cSACs"), SACs and SPAs are afforded protection as protected sites. As a matter of policy[3] the Government affords potential SPAs ("pSPAs") the same level of protection.

Regulation 63 of the Habitats Regulations provides that:

…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, [the competent authority] must make an appropriate assessment of the implications for that site in view of that site's Conservation Objectives.

And that:

In the light of the conclusions of the assessment, and subject to regulation 64 [IROPI], 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).

This Project is not directly connected with, or necessary to the management of a protected site. The Habitats Regulations require that, where the Project is likely to have a significant effect ("LSE") on any such site, alone or in-combination with other plans and projects, an appropriate assessment ("AA") is carried out to determine whether or not the Project will have an adverse effect on the integrity ("AEoI") of the site in view of that site's Conservation Objectives. In this document, the following assessments are collectively referred to as the HRA:

- Stage 1: Assessment of LSE;
- Stage 2: AA to determine whether there is an AEoI of a protected site;
- Stage 3: Assessment of alternative solutions;
- Stage 4: Imperative reasons of overriding public interest; and
- Stage 5: Proposed compensatory measures.

[3] NPS EN-1 para 5.3.9

The Secretary of State has had regard to relevant guidance on the application of HRA published by the PINS (2022) (Advice Note 10)[4] , guidance produced by Defra (2012)[5] & (2021)[6] and the European Commission (2019)[7], together with recently published joint guidance by Defra, Natural England ("NE"), the Welsh Government and Natural Resources Wales (2021) on 'Habitats Regulations Assessment: protecting a European site' (the "2021 joint guidance")[8]. It is noted that the Defra (2012) guidance was withdrawn on 15 March 2021 and has subsequently been updated and replaced by the 2021 joint guidance.

1.3 Site Conservation Objectives

Where an AA is required in respect of a protected site, regulation 63(1) of the Habitats Regulations requires that it be an AA of the implications of the plan or project for the site in view of its Conservation Objectives. Government guidance also recommends that in carrying out the LSE screening, applicants must check if the proposal could have a significant effect on a protected site that could affect its Conservation Objectives.

Defra guidance[9] indicates that disturbance to a species or deterioration of a protected site must be considered in relation to the integrity of that site and its Conservation Objectives. It states that *"the integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was designated"*.

Conservation Objectives have been established by NE. When met, each site will contribute to the overall favourable conservation status of the species or habitat feature across its natural range. Conservation objectives outline the desired state for a protected site, in terms of the interest features for which it has been designated. If these interest features are being managed in a way which maintains their nature conservation value, they are assessed as being in a 'favourable condition'. An AEoI is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of its designation. There are no set thresholds at which impacts on site integrity are considered adverse. This is a matter for interpretation on a site-by-site basis, depending on the designated feature and nature, scale, and significance of the impact.

[4] The Planning Inspectorate (2022): Advice Note Ten: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects.

[5] Defra (2012) Habitats and Wild Birds Directives: Guidance on the application of article 6(4) Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures.

[6] https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting_documents/mpacompensatorymeasuresbestpracticeguidance.pdf

[7] European Commission (2019) Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf

[8] Defra, NE, the Welsh Government and Natural Resources Wales (2021) 'Habitats Regulations Assessment: protecting a European site': https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

[9] https://www.gov.uk/guidance/appropriate-assessment

NE has issued generic Conservation Objectives[10] which should be applied to each interest feature of the site. Supplementary advice on Conservation Objectives ("SACOs") for each site underpins these generic objectives to provide site-specific information and give greater clarity to what might constitute an adverse effect on a site interest feature. SACOs are subject to availability and are updated on a rolling basis.

Where supplementary advice is not yet available for a site, NE advises that HRAs should use the generic objectives and apply them to the site-specific situation. For SPAs, the overarching objective is to avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Habitats Regulations. This is achieved by, subject to natural change, maintaining and 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 populations of the qualifying features; and
- the distribution of the qualifying features within the site.

For SACs, the overarching objective is to avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving favourable conservation status of each of the qualifying features. This is achieved by, subject to natural change, maintaining or restoring:

- the extent and distribution of the qualifying natural habitats and habitats of qualifying species;
- the structure and function (including typical species) of qualifying natural habitats;
- the structure and function of the habitats of qualifying species;
- the supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
- the populations of qualifying species; and
- the distribution of qualifying species within the site.

Section 17.3 of the Applicant's Habitats Regulations Assessment Report ("HRAR") [AS-006] summarised site-specific information for the designated sites screened in by the Applicant along with their conservation objectives. In the absence of conservation objectives for Ramsar sites, the same objectives were assumed in the HRAR for The Wash Ramsar site. No IPs made any comments on this approach.

The Conservation Objectives and, where available, SACOs have been used by the Secretary of State to consider whether the Project has the potential to have an AEoI of sites, either alone or in-combination with other plans or projects.

The SACOs relevant to this HRA Report, as published by NE and the Joint Nature Conservation Committee ("JNCC"), are referenced in Table 1 and where relevant in Section 5 of this HRA Report.

[10] http://publications.naturalengland.org.uk/publication/6734992977690624?cache=1656417868.31

1.4 The Report on the Implications for European Sites and statutory consultation

Under Regulation 63 (3) of the Habitats Regulations the competent authority must, for the purposes of an AA, consult the statutory nature conservation body ("SNCB") and have regard to any representation made by that body within such reasonable time as the authority specifies.

NE is the SNCB for England and for English waters within the 12 nm limit.

The ExA, with support from the Inspectorate's Environmental Services Team, produced a Report on the Implications for European Site[11] ("the RIES"). The purpose of the RIES was to compile, document and signpost information submitted by the Applicant and IPs during the examination (until Deadline 6 on 8 February 2022). It was issued to ensure that IPs, including NE as the SNCB under Regulation 5 of the Habitats Regulations, had been formally consulted on Habitats Regulations matters in respect of the Application for the Project during the Examination.

The RIES was published on the PINS NSIP web pages and the ExA notified IPs that it had been published. Consultation on the RIES was undertaken between 24 February 2022 and 24 March 2022. The Applicant [REP9-027], the Eastern Inshore Fisheries and Conservation Authority ("EIFCA") [REP9-54], NE [REP9-063] and the Royal Society for the Protection of Birds ("RSPB") [REP9-065] provided comments on the RIES at Deadline 9 (24 March 2022). The Applicant [REP10-020] responded to comments made by IPs at Deadline 10 (7 April 2022).

1.5 Documents referred to in this HRA

This HRA Report has taken account of, and should be read in conjunction with the documents produced as part of the Application and Examination which are available on the PINS NSIP web page[12]. In particular:

- The ExA's Report;
- The RIES;
- The Applicant's assessment of effects, including:
  - The Applicant's HRA Report ("HRAR"): Boston Alternative Energy Facility – Environmental Statement - Appendix 17.1: Habitats Regulations Assessment (V1.0) [AS-006] (which superseded [APP-111] and [REP9-013]);
  - Updated Habitats Regulations Assessment Screening and Integrity Matrices [REP3-018];
  - ES Chapter 17 Marine and Coastal Ecology and Appendix 17.1 Habitats Regulations Assessment Update [REP5-006];
  - ES Chapter 17: Marine and Coastal Ecology and Appendix 17.1: Habitats Regulations Assessment - Ornithology Addendum ([REP1-026] (hereafter referred to as "the Ornithology Addendum"); and

[11] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001079-EN010095%20-%20Report%20on%20the%20Implications%20for%20European%20Sites%20(RIES).pdf

[12] https://infrastructure.planninginspectorate.gov.uk/projects/north-east/boston-alternative-energy-facility-baef/?ipcsection=docs

  - Addendum to ES Chapter 17 and Appendix 17.1: Marine Mammals (V1.0) [REP9-020] (hereafter referred to as the Marine Mammals Addendum).
- The Applicants without prejudice derogation case, including:
  - Without Prejudice Habitats Regulations Assessment Derogation Case: Assessment of Alternative Solutions [REP2-011];
  - Without Prejudice Habitats Regulations Assessment Derogation Case: Imperative Reasons of Overriding Public Interest ("IROPI") Case [REP2-012]; and
  - Without Prejudice Habitats Regulations Assessment Derogation Case: Compensation Measures (V2.0) [REP8-006] (hereafter referred to as "the Compensation Measures Document ("CMD"). It was supported by an Outline Ornithology Compensation Implementation and Monitoring Plan ("oOCIMP") at Deadline 8 (V1.1) [REP8-013].
- The Environmental Statement ("ES") [APP-039 to APP-064] and the following addenda:
  - Chapter 17 Marine and Coastal Ecology and Appendix 17.1 - Habitats Regulations Assessment - Ornithology Addendum [REP1-026];
  - Addendum to ES Chapter 17 and Appendix 17.1 - Marine Mammals [REP1-027]; and
  - Addendum to Chapter 17 and Appendix 17.1 - Benthic Ecology, Fish and Habitats [REP1-028];
- The Statement of Common Ground ("SoCG") with NE [REP10-033], the Environment Agency ("EA") [REP10-032], the RSPB [REP9-039], Lincolnshire Wildlife Trust ("LWT") [REP10-024] and the Marine Management Organisation ("MMO") [REP9-053].
- Responses to the Secretary of State's consultation letters ("the consultation letters"), published on:
  - 14 October 2022[13] ("the first consultation letter");
  - 25 November 2022[14] ("the second consultation letter");
  - 10 January 2023[15] ("the third consultation letter");
  - 24 April 2023[16] ("the fourth consultation letter"); and
  - 25 May 2023[17] ("the fifth consultation letter").

Plus, other information submitted during the Examination and during the Secretary of State's consideration of the Project. Key information from these documents is summarised in this HRA.

The signed SoCG between the Applicant and NE [REP10-033] was submitted at Deadline 10 (07 April 2022). The SoCG confirmed that not all matters relating to HRA were agreed between the two parties and that there were significant HRA matters outstanding between them in respect of the Project. A final signed SoCG with the RSPB was provided at Deadline 9 [REP9-039]; no issues were shown as agreed.

[13] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001389-BAEF-Information-Request-No.1-14.10.2022(no-signature).pdf

[14] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001399-BAEF%20-%20Information%20Request%2025.11.2022.pdf

[15] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001405-Boston-AEF-Consultation-Letter-10-January-2023.pdf

[16] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001426-20230424_BAEF_Information_Request_No.4.pdf

[17] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001434-BAEF-Interested-Parties-Letter-250523.pdf

1.6 Structure of this HRA

The remainder of this HRA Report is presented as follows:

- Section 2: provides a general description of the Project;
- Section 3: presents an assessment of the extent to which the Project could have a significant effect on protected sites and qualifying features on its own or in-combination with other plans or projects;
- Section 4: provides a description of the AA methodology;
- Section 5: presents an AA of the effects of the Project on protected sites and qualifying features, on its own and in-combination with other plans or projects;
- Section 6: presents the transboundary assessment of protected sites in other EEA States;
- Section 7: considers the case for derogation under the Habitats Regulations;
- Section 8: considers whether there are feasible alternative solutions that would avoid damage or be less damaging to protected sites;
- Section 9: considers whether the Project must be carried out for imperative reasons of overriding public interest;
- Section 10: considers the proposed measures to compensate for the adverse effects of the Project; and
- Section 11: presents the Secretary of State's conclusions.

2 Project description

The Project comprises:

- an energy recovery facility with a capacity to process up to 1,200,000 tonnes of waste Refuse Derived Fuel (“RDF”) per calendar year;
- Generators to generate up to 102 MW (gross, net export of 80 MW) of electricity;
- an ash processing building to process bottom ash and boiler ash;
- two carbon dioxide processing units;
- a lightweight aggregate manufacturing facility;
- an electrical substation;
- a wharf facility to receive waste RDF and imported clay and sediment, and export lightweight aggregates;
- supporting buildings and facilities;
- supporting infrastructure; and
- temporary construction compounds.

The application site covers 26.8 hectares (“ha”) and is split into two components: the area containing operational infrastructure for the EfW plant (the “Principal Application Site”, PAS); and an area containing proposed habitat mitigation works for wading birds (the ‘Habitat Mitigation Area’ (“HMA”)). The PAS covers 25.3 ha and is bordered to the west by the Riverside Industrial Estate and to the east by The Haven, a tidal waterway of the River Witham between The Wash and the town of Boston. The A16 public highway is located approximately 1.3 km to the west. The HMA covers 1.5 ha and is located approximately 170 m to the southeast of the PAS, encompassing an area of saltmarsh and small creeks at the margins of The Haven. A small portion of this area extends below Mean High Water Springs (“MHWS”) and is therefore covered with estuarine water around high water on some tides.

Works within the HMA are proposed to mitigate the loss of the roosting and foraging habitats for waders, notably redshank. It is intended that the works would enhance the habitat within this area to improve roosting and foraging habitat. This would involve the creation of shallow pools in the existing marsh habitat; re-profiling the edges of existing pools and a low bank; and, increasing the volume of ‘roosting’ rocks in the upper intertidal area by translocating rocks to this area that would otherwise be lost due to construction of the wharf.

Transportation of materials to and from the Project would be via cargo vessels, anticipated by the Applicant to be of 100 m in length, travelling from the mouth of The Haven (“MOTH”) to the PAS.

The PAS comprises both undeveloped and previously developed land enclosed by a network of drainage ditches and forms part of a wider emerging industrial/commercial area allocated for industrial development in the local plan.

The eastern site margins of the PAS are defined in part by a primary flood defence bank along The Haven. Large and small industrial business units are located to the north, west and south of the site. A 132-kilovolt overhead powerline on pylons traverses the site from north to south and bisects the PAS.

The overall construction period including commissioning is assessed as being no greater than 48 months. It is anticipated that temporary construction laydown areas will be required for the construction of the Project. These areas are within the PAS.

The proposed wharf would replace sections of the current flood defence bank and would comprise the quay wall, the main area of the wharf and an area behind the wharf for associated infrastructure, such as the re-baling facility, workshop, transformer pen and welfare facilities. The wharf facility would include a berthing pocket to allow ships to safely dock without restricting the navigable channel within The Haven.

The part of the PAS which will accommodate the wharf is approximately 750 m downstream from the existing Port of Boston ("PoB"). The Haven is contained within flood banks (in good condition) which are located within the PAS at approximately 6.3 m Above Ordnance Datum. The navigation channel is not dredged at this point. The bed level changes over time. Under normal conditions it gradually silts up but erodes when large water volumes are discharged from the sluices upstream.

It is proposed that a footbridge will be installed early in the construction programme to allow safe passing for the public over the PAS. This would be installed on the current public right of way which follows the route of Roman Bank along footpath sections BOST/14/11 and BOST/14/9 where it crosses the PAS.

There are no existing buildings within any part of the application site that will require demolition.

Chapter 5 of the Applicant's ES [APP-043] provides a full description of the Project.

2.1 Project location

The Project is located approximately 2 km to the southeast of Boston town centre (Figure 1). The site lies within the area administered by Boston Borough Council ("BBC") in Lincolnshire. The PAS is accessed by road via the Riverside Industrial Estate's existing road network from Nursery Road. Access to the site from the west to Marsh Lane is gained from Bittern Way.

The Project is located within National Character Area 46: The Fens (Natural England, 2013), the Reclaimed Saltmarsh Landscape Character Type and Welland to Haven Reclaimed Saltmarsh Landscape Character Area ("LCA") (ECUS Ltd, 2009). The area is significantly influenced by urban/industrial features including electricity pylons, industrial units, cranes and gantries at the PoB.

The Boston Biomass UK No.3 Ltd gasification plant is located on the eastern boundary of the PAS. A waste management facility (which had ceased operation at the time of submission) which processed construction and demolition waste is located to the east of Nursery Road and is bounded by the PAS on all sides (but is not included within the proposed application site itself).

2.2 Protected sites

The application site is within the zone of influence of three protected sites as illustrated in Figure 1, at a distance of approximately 3 km.

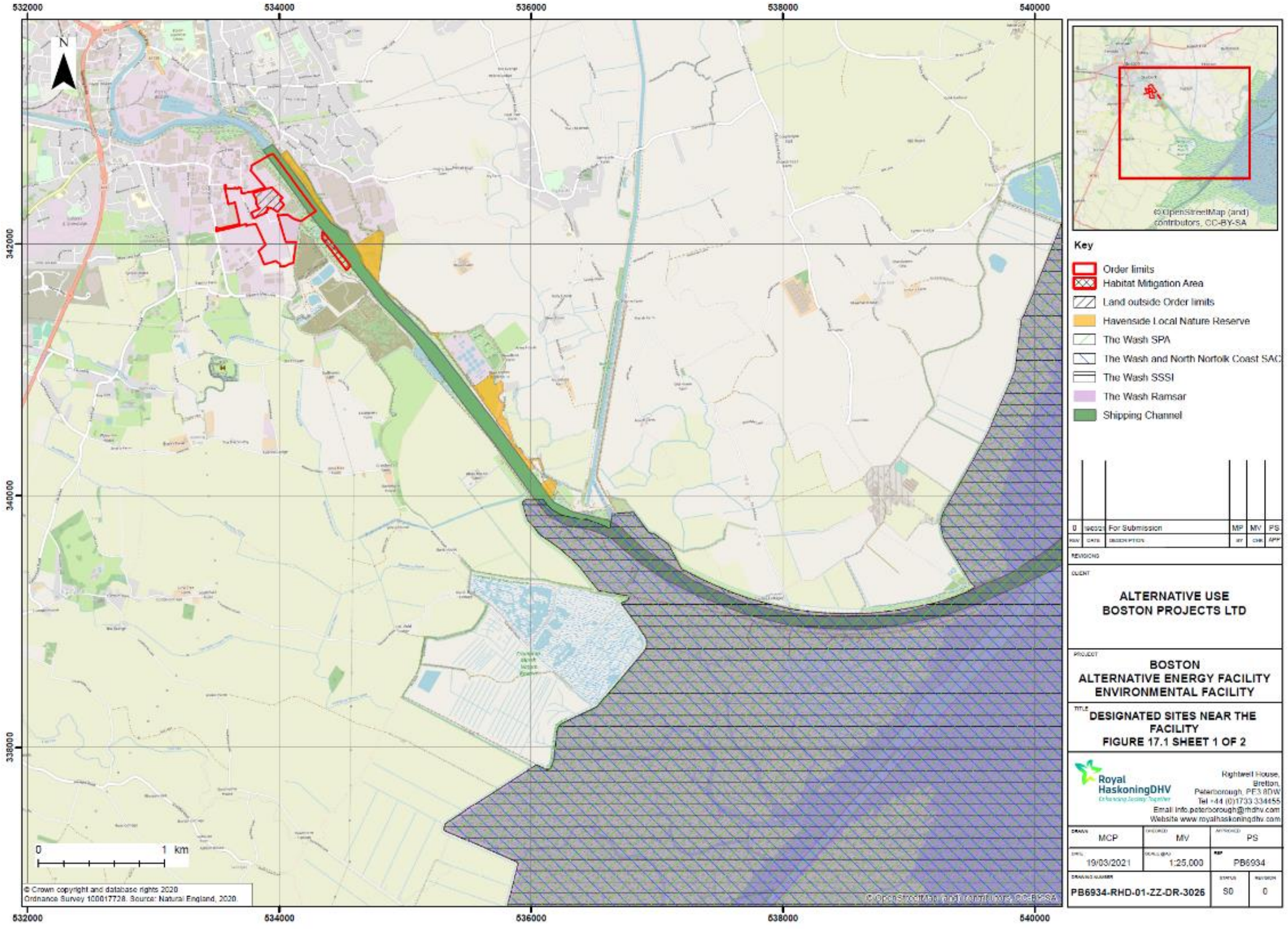
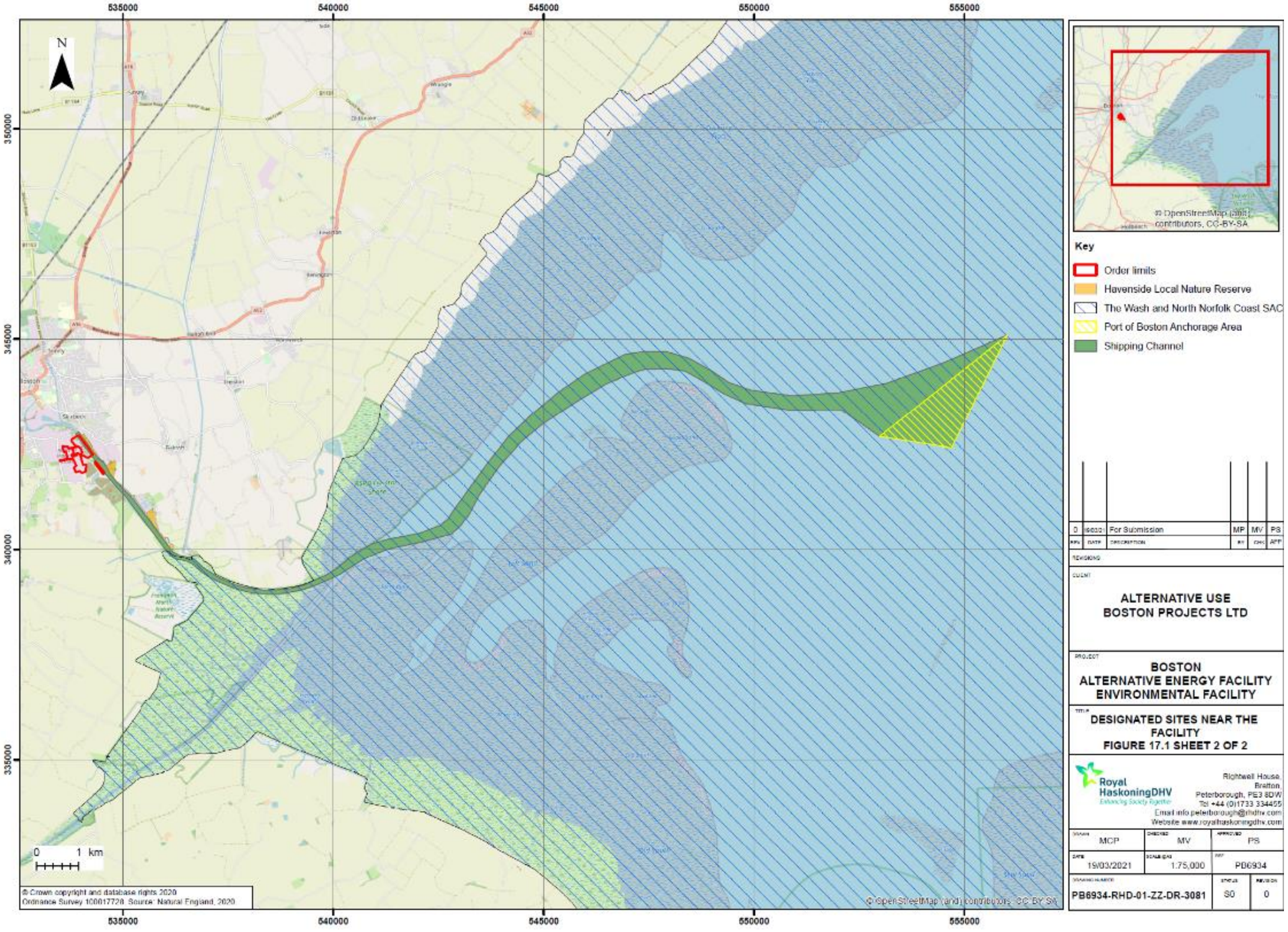


Figure 1: Location of the Project in relation to protected sites considered in this HRA report. This figure consists of two sheets, see the following page for sheet 2 of 2.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Havenside Local Nature Reserve
The Wash and North Norfolk Coast SAC
Port of Boston Anchorage Area
Shipping Channel
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REVISIONS
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ALTERNATIVE USE
BOSTON PROJECTS LTD
PROJECT
BOSTON
ALTERNATIVE ENERGY FACILITY
ENVIRONMENTAL FACILITY
TITLE
DESIGNATED SITES NEAR THE FACILITY
FIGURE 17.1 SHEET 2 OF 2
Royal HaskoningDHV
Enhancing Society Together
Rightwell House
Bretton
Peterborough, PE3 8DW
Tel +44 (0)1733 334455
Email info.peterborough@rhdhv.com
Website www.royalhaskoningdhv.com
DRAWN MCP
CHECKED MV
APPROVED PS
DATE 19/03/2021
SCALE@A3 1:75,000
JOB PB6934
DRAWING NUMBER PB6934-RHD-01-ZZ-DR-3081
STATUS S0
REVISION 0

3 Stage 1: Screening for Likely Significant Effects

Under regulation 63 of the Habitats Regulations, the Secretary of State must consider whether a development will have an LSE on a protected site, either alone or in-combination with other plans or projects.

The purpose of this section is to identify any LSEs on protected sites that may result from the Project and to record the Secretary of State's conclusions on the need for an AA.

The protected sites and qualifying features that were considered in the Applicant's screening exercise are presented in Section A17.3 and Tables A17-1 to A17-4 of the HRAR [AS-006]. The Applicant's HRAR sets out the methodology applied to determining what would constitute a 'significant effect'. The Applicant screened the following protected sites into the HRAR:

- The Wash SPA;
- The Wash Ramsar; and
- The Wash and North Norfolk Coast SAC.

Potential construction and operational effects on the three protected sites are identified in Section 17.4 and Appendix A17.1.1, Table A17-1-1-1.

The Applicant considered in the HRAR that the pathway for an effect on protected sites (or functionally linked land ("FLL")) during the construction phase could be the delivery of materials to the PAS using vessels via The Wash and The Haven.

The Applicant stated that although construction of the Project would not take place within any protected sites, there are birds from the protected sites that would use this area, mostly for roosting on the saltmarshes and feeding on the mudflats of The Haven. This is expected to be the case particularly during very cold winters. In addition, the vessels will pass through the designated sites and in so doing could cause disturbance to populations using the habitats within the protected sites close to the MOTH. There is therefore the potential for impacts on birds during construction.

During construction there will be a loss of intertidal habitat used by some of the birds that are part of the designated populations of The Wash SPA and Ramsar site. The habitat is outside of the SPA/Ramsar site boundary, but The Haven as a whole is considered to provide a refuge for birds as a functionally connected habitat to the protected sites. There is, therefore, the potential for effects on a proportion of the bird population from the SPA/Ramsar site as a result of construction works.

ES Chapter 17 (Marine and Coastal Ecology) identifies that there is the potential for sporadic presence of harbour seal within The Haven and potentially close to the Project. Furthermore, vessels moving through The Wash to reach The Haven could disturb seals, therefore the potential for effects on seals during the construction phase at the Project was assessed by the Applicant in the HRAR.

The following potential effects were identified for the construction phase for bird populations that are a feature of The Wash SPA and Ramsar site.

- noise effects from piling and dredging activities impacting on designated species using the land adjacent to the Project;
- effects arising from a loss of habitat (mudflat and saltmarsh habitat, which are functionally linked to the SPA and Ramsar site) in the area of the application site; and
- disturbance effects from an increase in vessel numbers.

The following potential effects were identified for the construction phase for harbour seal populations that are a feature of The Wash and North Norfolk Coast SAC:

- underwater noise effects from piling and dredging activities impacting on seals using the section of The Haven adjacent to the Project;
- disturbance effects from an increase in vessel numbers;
- disturbance effects at seal haul-out sites from an increase in vessel numbers; and
- increased risk of collision from an increase in vessel numbers.

For the operational phase, the following were considered as having the potential to have an effect on the qualifying features (and/or the supporting habitats of qualifying species) of all three of the protected sites:

- changes in vessel traffic and movements leading to increased collision risk and above ground and underwater noise and visual disturbance to birds, seals and otter; and
- nitrogen oxides (NOx), sulphur dioxide (SO2), nitrogen, acid and ammonia deposition within the boundaries of the protected sites as a result of the emissions from the Project.

Screening matrices are provided in HRAR Appendix A17.1.1 for each of the three protected sites. Each matrix includes footnotes that set out evidence to support the Applicant's conclusions in relation to LSEs. An updated version [REP3-018] was provided at Deadline 3 in response to the ExA's third written questions ("ExQs") ExQs 3.1.18, 3.1.19 and 3.1.20, and comments made by NE [REP2-048] at Deadline 2 in respect of the England Coast Path ("ECP")[18]. Impacts from the decommissioning phase were not considered in the HRAR, as the Applicant stated that the wharf would remain in place after the Project was decommissioned and the vessel movements arising from the operational phase would cease.

No IPs identified any other protected site that may be affected by the Project. The Applicant's conclusion of potential LSEs on the three protected sites and their qualifying features identified in Table 1 were not disputed by any IPs during the Examination [ER 1.2.11 App. C]. However, IPs and the ExA considered that additional effect pathways and qualifying features of the SPA and Ramsar site should be included and taken forward for further assessment. These are considered in footnotes to Table 1.

NE confirmed at Deadline 9 [REP9-063] that the Applicant had identified all relevant protected sites and qualifying features. The ExA [ER 1.2.23 App. C] was satisfied that the correct impact-effect pathways for each protected site had been assessed and was satisfied with the approach to the assessment of alone and in-combination LSEs.

The ExA concluded that LSEs could not be excluded either alone or in-combination with other plans or projects for all three protected sites. This was not disputed by IPs including NE during the Examination [ER 1.2.24 App. C]. Table 1 presents the sites for which the Secretary of State

[18] Renamed as the 'King Charles III England Coast Path' on 1 May 2023: https://www.gov.uk/government/collections/england-coast-path-improving-public-access-to-the-coast

considers that significant effects cannot be excluded either alone or in-combination, alongside the relevant site features and impact pathways.

The ExA report and the RIES provide further information regarding protected sites and qualifying features which were considered, but for which LSEs were screened out (notably for Bewick's Swan, common tern, little tern, pink-footed goose and otter). The Secretary of State is satisfied to adopt the rationale and conclusions of the ExA for those sites and features screened out of the LSE assessment and has not duplicated this assessment here.

The ExA was satisfied [ER1.4.35 App. C], based on the information provided in the application and during the Examination that the correct impacts have been assessed.

Table 1: Protected sites for which likely significant effects cannot be excluded.

Protected site	Supplementary Advice on Conservation Objectives	Distance from the Project	Qualifying feature	Impact Pathway and Development Phase (C,O) C = construction; O = operations and maintenance;	LSE alone or In-combination
The Wash SPA[19]	See footnote[20]	3 km	Bar-tailed godwit Black-tailed godwit Common scoter Curlew Dark-bellied brent goose Dunlin Gadwall Goldeneye Grey plover Knot Oystercatcher Pintail Redshank Sanderling Shelduck Turnstone Waterbird assemblage[21]	Disturbance effects (C,O) Changes to noise levels (C,O) Direct habitat loss (C,O)[22] Changes to water quality[23]	Alone

[19] The Ornithology Addendum [REP1-026] contained an updated screening exercise, based on additional survey data collected during the Examination for both the application site and the MOTH. It had regard to NE's 'Supplementary Advice on Conservation Objectives' for the SPA. As a result, a number of additional features were screened in for assessment. At the application site non-breeding waterbirds that are an individual feature or part of the (non-breeding) waterbird assemblage of the SPA / Ramsar site were considered to potentially experience a LSE if they were present in numbers exceeding 1% of their population within the SPA/Ramsar site. On this basis redshank and the waterbird assemblage at the application site were screened in. At the MOTH non-breeding waterbirds that are an individual feature or part of the waterbird assemblage of the SPA / Ramsar site were considered to potentially experience a LSE according to the importance of 'The Haven local area' and the MOTH 'site' for the species according to the Wetland Bird Survey ("WeBS") counts, and recorded mean and peak counts of the species disturbed during project-specific surveys at the MOTH. It was confirmed that dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone and the waterbird assemblage were screened in.

[20] https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9008021&SiteName=the%20wash&SiteNameDisplay=The+Wash+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=21

[21] The RSPB [REP4-026] commented that golden plover had not been identified as a SPA feature in its own right. The Applicant disagreed and stated at Deadline 10 [REP10-020] that in relation to disturbance sensitivity it had been identified as one of the two key species that was repeatedly disturbed and returned to the site. Accordingly, an assessment of energy usage had been undertaken for golden plover in its own right and was reported in Section 7.2 of ES Chapter 17 (V1.0) [REP9-011] and the HRA Update [REP5-006]. NE provided a response at Deadline 10 [REP10-036] clarifying whether golden plover is a feature of the SPA in its own right (as well as a waterbird assemblage feature). NE stated that it agreed with the RSPB that the numbers of golden plover within The Wash SPA justified their protection and that was currently being considered as part of a review of the SPA designation. NE suggested that until the review was complete measures should be taken to avoid/mitigate impacts on golden plover.

[22] NE [REP9-063] noted that habitat loss (mudflat and saltmarsh) from construction of the wharf had not specifically been identified by the Applicant as a potential LSE on SPA and Ramsar site features at the application site. However, it was considered by the Applicant at the AA stage. The Secretary of State has screened in direct habitat loss and carried this impact pathway forwards to the AA.

[23] Both NE and the RSPB raised a concern in their RRs [RR-021 and RR-024, respectively] that there was insufficient information on water discharge from the application site to demonstrate that it would not affect water quality in The Haven and the SPA, SAC and Ramsar site. This LSE pathway is screened in on a precautionary basis and carried forwards to the AA.

			Wigeon		
The Wash Ramsar	See footnote[24]	3 km	Bar-tailed godwit Black-headed gull Black-tailed godwit Common eider Curlew Dark-bellied brent goose Dunlin Golden plover[21] Grey plover Knot Lapwing Oystercatcher Redshank Ringed plover Sanderling Shelduck		
The Wash and North Norfolk Coast SAC	See footnote[25]	3 km	Harbour seal	Increased collision risk (C,O) Disturbance effects (C,O) Changes to noise levels (C,O)	Alone
				In-combination effects (C) – changes to noise levels; increased collision risk	In-combination
			Atlantic salt meadows Coastal lagoons Large shallow inlets and bays Mediterranean and hermos-Atlantic halophilious scrubs	Changes to air quality (O) Changes to water quality[23]	Alone

[24] In the absence of Conservation Objectives for Ramsar sites, the generic objectives were assumed in the HRAR for The Wash Ramsar site. No IPs made any comments on this approach [ER 1.3.1 App. C].

[25] https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0017075&SiteName=the%20wash%20and&SiteNameDisplay=The+Wash+and+North+Norfolk+Coast+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=2

			Mudflats and sandflats not covered by seawater at low tide Reefs Salicornia and other annuals colonising mud and sand Sandbanks which are slightly covered by sea water all the time		

The Secretary of State has considered the potential effects of the Project on all qualifying features of the protected sites listed in Table 1, taking into account their Conservation Objectives, to determine whether there will be LSEs in the context of the Habitats Regulations.

With regards to the ruling of the European Court of Justice (ECJ) in People Over Wind, Peter Sweetman v Coillte Teoranta (C-323/17) (the "Sweetman Judgement")[26], in reaching his conclusions regarding LSE, the Secretary of State took no account of measures intended to avoid or reduce effects on any protected site.

3.1 Likely Significant Effects alone assessment

The Secretary of State agrees with the recommendations of the ExA and concludes that LSEs cannot be excluded at the three protected sites listed in Table 1, when the Project is considered alone. These sites are taken forward to the AA to consider whether the Project will result in an AEoI of these sites.

3.2 Likely Significant Effects in-combination assessment

Under the Habitats Regulations, the Secretary of State must consider whether other plans or projects in-combination with the Project might affect protected sites.

The Applicant addressed potential in-combination effects ("ICEs") arising from the Project within HRAR Section A17.5 [AS-006], which sets out the methodology applied. Details of the other plans and projects included in the in-combination assessment are provided in HRAR Table A17-5.1.2.14, consisting of:

- Boston Tidal Barrier;
- PoB Maintenance Dredging & Disposal 2015;
- Wolferton Pumping Station;
- RNLI Skegness - Emergency Works Application for Beach Re-Profiling;
- The Wash Tide Gauge (decommissioning, construction and maintenance), including scour protection;
- Eel monitoring in The Wash;
- Hunstanton Beach Recharge;
- Boston Barrier Phase 2 Ground Investigation;
- Havenside Flood Defence Scheme;
- Triton Knoll Offshore Wind Farm; and
- Viking Link Interconnector B/17/0340.

The HRAR explained that, due to the wide-ranging nature of the harbour seal, which may forage at considerable distance from their principal haul-out site, there was the potential for ICEs from projects at a larger distance from the application site. Therefore, projects that are within the same reference population (the south-east England Management Unit; Special Committee on Seals

[26] ECJ case reference C-323/17, available: http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN

(SCOS), 2018) and that had the potential to overlap temporally were screened in for further assessment.

Of the plans and projects identified it was concluded that there was potential for ICEs with one project, the Viking Link Interconnector, on the harbour seal feature of the Wash and North Norfolk Coast SAC, resulting from underwater noise (from piling and dredging) and an increased risk of vessel collision, and this was taken forward for further assessment.

The scope of the in-combination assessment was disputed by NE, which raised several concerns in Appendix C of its combined Relevant Representation ("RR") / Written Representation ("WR") [RR-021]. It considered that the assessment was:

- incomplete, particularly in relation to baseline disturbance (such as arising from changes to the route of the ECP);
- limited, as it only considered sites and features where "project alone" impacts were identified so did not account for plans or projects that could have small effects alone but that become significant when combined; and
- failed to take into account projects in the full foraging range of the protected site interest features, i.e. in relation to marine mammals: Norfolk Vanguard and Norfolk Boreas Offshore Wind Farms, Great Yarmouth Port, and Lowestoft Port and Operations and Maintenance for operational windfarms.

Despite NE's comments, the sites and features for which LSE were identified were not disputed by any IPs including NE. The ExA was satisfied [ER 6.10.3] that the correct protected sites and qualifying features had been identified for the purposes of the assessment, and that all potential impacts which could give rise to significant effects had been identified.

The Secretary of State agrees with the recommendations of the ExA and concludes that LSEs cannot be excluded when the impacts of the Project are considered in-combination with other plans or projects. Further consideration of ICEs is presented in the AA.

The three protected sites listed in Table 1 are taken forward to the AA to consider whether the Project alone and in-combination with other plans or projects will result in an AEoI of these sites.

4 Appropriate Assessment Methodology

The requirement to undertake an AA is triggered when the competent authority determines that a plan or project is likely to have a significant effect on a protected site either alone or in-combination with other plans or projects. Guidance[27] states that the purpose of an AA is to assess the implications of the plan or project in respect of the site's Conservation Objectives, either individually or in-combination with other plans and projects, and that the conclusions should enable the competent authority to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus is therefore specifically on the species and/or habitats for which the protected site is designated.

In line with the requirements of Regulation 63 of the Habitats Regulations:

"In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given.".

The purpose of this AA is to determine whether AEoI of the features of the three protected sites as a result of the Project alone or in-combination with other plans or projects in can be excluded, in view of the site's Conservation Objectives and using the best scientific evidence available.

In accordance with the precautionary principle embedded in the integrity test and established through case law, the Secretary of State may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the protected site, and this must be demonstrated beyond all reasonable scientific doubt[28]. If the Secretary of State cannot exclude AEoI of the affected protected sites beyond all reasonable scientific doubt, then he can only agree to a plan or project if it complies with the requirements of Regulation 64 of the Habitats Regulations. Regulation 64 provides that the Secretary of State may agree to the plan or project only if satisfied that there are no alternative solutions, and that the plan or project must be carried out for IROPI. In addition, Regulation 68 requires compensatory measures to be secured which maintain the overall coherence of the NSN.

4.1 In-combination Assessment Methodology

The assessment presents effects from the Project in-combination with other plans and projects. Due to the range of receptors being assessed, the projects which are relevant to the in-combination assessments will be different for each receptor.

When assessing the implications of a plan or project in light of the Conservation Objectives for protected sites, it is necessary to consider the potential for ICEs (i.e. the effects of the project

[27] https://www.gov.uk/guidance/appropriate-assessment#what-must-an-appropriate-assessment-contain

[28] CJEU Case C-127/02 Waddenzee 7 September 2004, Reference for a preliminary ruling from the Raad van State (Netherlands) in the proceedings: Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij.

combined with potential effects of other planned projects), as well as effects due to the project in isolation.

PINS Advice Note 10[4] provides guidance on what should be considered within in-combination assessments and, states that other plans or projects should include:

- projects that are under construction;
- permitted application(s) not yet implemented;
- submitted application(s) not yet determined;
- all refusals subject to appeal procedures not yet determined;
- projects on the National Infrastructure's programme of projects; and
- projects identified in the relevant development plan (and emerging development plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and a degree of uncertainty may be present.

The Applicant noted that in some circumstances it may be appropriate to include plans and projects not yet submitted to a competent authority for consideration but for which sufficient detail exists on which to make judgements on their impact on the protected site. In undertaking an in-combination assessment it is important to consider the potential for each plan or project to influence the site. The Applicant stated that, for an ICE to arise, the nature of two effects does not necessarily have to be the same.

The Applicant stated that its ICEs assessment, therefore, focused on the overall implications for the site's Conservation Objectives, regardless of the type of effect. In addition, the Applicant's in-combination assessment had adopted the following principle: for the Project to have the potential to contribute to ICEs, there must be sufficient cause to consider that a relevant habitat or species is sensitive to effects due to the project itself (e.g. because of a particular influence or sensitivity, or the presence of a species in notable numbers on at least one survey occasion, rather than individuals being simply recorded within the site).

A list of plans and projects that have the potential to give rise to an ICE with the proposed scheme was compiled by the Applicant from the MMO Public register and through checking of the Local Planning Authority public register. Details of each plan or project alongside the distance from the Project are presented in Table A17-5 of [AS-006]. From this a decision was taken by the Applicant as to whether it is likely to have a combined effect on qualifying interest features of the protected site with the Project. The plans and projects have, therefore, been screened in or out of further assessment on this basis.

The Applicant stated that due to the wide-ranging nature of the harbour seal, and that they may forage at considerable distance from their principal haul-out site, there is the potential for ICEs from projects at a larger distance from the Project. Therefore, for harbour seal, projects that are within the same reference population (the south-east England MU; SCOS, 2018) as the Project, and that have the potential to overlap temporally, were screened in for further assessment.

The Applicant considered in the HRAR whether there could be an ICE arising from the Viking Link Interconnector project together with the Project on the SAC harbour seal population. It concluded that an AEoI could be excluded for the SAC from the project in-combination with other plans and projects. No IPs disputed this conclusion [ER 1.4.43 App. C].

NE and the RSPB initially questioned whether there were other plans and projects which should be considered in the ICE assessment. By the end of the Examination, they agreed that there were none [ER 1.4.44 App. C].

The ExA [ER 1.4.37 App. C] was satisfied that an assessment of AEoI from the Project in-combination with other plans or projects can be based on the information provided in the application and during the Examination and that no other plans or projects are required to be considered.

5 Stage 2: Appropriate Assessment

The Secretary of State has undertaken an objective scientific assessment of the implications of the Project on the qualifying features of the protected sites identified in his screening assessment, using best scientific evidence available. The assessment has been made in light of the site's Conservation Objectives, which are set out in Table 1, Section 1.3 and the following sections of this HRA Report.

The ExA [ER 6.10.9] considered that there is sufficient information before the Secretary of State to enable him to undertake an AA. The Secretary of State agrees with the ExA in this regard.

5.1 Effect pathways

The impacts considered by the Applicant in its final HRAR [AS-006] to have the potential to result in LSE are:

- The Wash SPA and Ramsar:
  - habitat loss;
  - disturbance from construction noise;
  - vessel disturbance (visual, presence and noise) during both construction and operation; and
  - disturbance from construction and operational lighting at the application site and on vessels in transit through The Wash and The Haven.

- The Wash and North Norfolk Coast SAC:
  - underwater noise from piling and dredging during construction - harbour seal;
  - increased underwater noise and disturbance from changes in vessel traffic and movements during construction and operation - harbour seal;
  - increased collision risk - harbour seal; and
  - changes to air quality during operation - potential emission/deposition of NOx, SO2, nitrogen, acid and ammonia - Annex I habitats.

5.2 Ornithological survey data

NE considered [RR-021] that insufficient ornithological data had been provided with the application, however it acknowledged that additional bird counts were due to be undertaken. The RSPB raised the same concern [RR-024].

The Applicant stated [REP1-035] that additional bird survey information was included in the HRA Ornithology Addendum [REP1-026] and would be included in the derogation case to be submitted at Deadline 2. The Applicant confirmed that data had been collected at both broad (the MOTH) and narrow (application site) sections of The Haven that demonstrated how disturbance to foraging or roosting birds from vessel movements (whether visual disturbance from presence or physical disturbance through producing a wake) was attributed to the different types of vessels using The Haven at the different channel widths (presented in Section 6 of the Ornithology Addendum). Additional data that had also been collated for the Wetland Bird Survey ("WeBS") sectors around and along The Haven was discussed in the Ornithology Addendum.

The Ornithology Addendum [REP1-026] contained updated information and assessment in respect of baseline information on estuarine birds and provided an update to the HRAR in respect of the SPA and the Ramsar site. It generally referred only to the SPA but did state that the assessment also applied to the Ramsar site. It explained that it focussed on disturbance effects at the application site and within the designated sites, including at the MOTH where vessels enter The Wash from The Haven. Appendix A1 contained an analysis of WeBS data and an assessment of the potential effects of the additional vessel disturbance at the MOTH; Appendix A2 contained 2019 – 2021 winter bird survey data for the application site; and Appendix A3 contained Changes in Behaviour (CIB) 2021 survey data (March to July) for the application site (A3.1) and November 2019 – July 2021 survey data for the MOTH (A3.2). It concluded that there were no changes to the designated features and assemblages or to the Conservation Objectives of the designated sites identified in the HRAR.

The RSPB [REP2-051] noted that it was unclear whether all the qualifying features of the Ramsar site had been considered within the Ornithology Addendum. The Applicant clarified [REP6-032] that all the Ramsar site features were also SPA features and so had been considered within the assessment in the Addendum.

NE [REP3-029] welcomed the additional survey data and commented that although it did not represent two full years survey according to best practise, it did extend the surveyed period considerably and now included part of two winter seasons. The RSPB [REP2-051] noted that further data had been provided but considered that it was limited and did not comprise two winters' worth or two full years of ornithological data.

In NE's response [AS-001] to issue specific hearing ("ISH") 2, Question 4.d about whether it agreed that the Applicant had identified all relevant protected sites and features in the HRA, NE highlighted that the additional survey data and assessment only related to The Wash SPA over-wintering birds and did not recognise that the SPA is also designated for passage birds. The RSPB supported this comment [REP3-033]. NE advised that The Wash passage periods were between March and May and August and October.

The Applicant stated [REP3-023] that spring passage birds had been included within the survey work and the assessments already undertaken, and that additional survey data had been collected for autumn passage birds (in the area of the application site). This was submitted at Deadline 3 [REP3-019]. Twelve surveys of Sections A and B, depicted on Figure 1, were undertaken at high and low tides in August, September and October 2021. Section A incorporates the PAS and approximately 700 m of The Haven (70-75 m wide) up to Section B; which incorporates the HMA, see Section 5.7.2.1) and approximately 670 m of The Haven (70-80 m wide) immediately downriver of Section A. Sections A and B are also referenced in other Examination documents, particularly survey reports, as Areas A and B or Sites A and B.

The number of individual bird species recorded in each survey is presented in Tables 1 – 5 of [REP3-019] and their locations are depicted in Appendix 1, Figures 5 - 16. It was considered by the Applicant that most birds did not occur in significant numbers, however ruff (part of the waterbird assemblage) were highlighted. They were observed on seven visits, with a peak count of 32 in Section A equating to 40% of The Wash population; and 51 across both Section A and Section B equating to 63.75% of The Wash population, based on the current five-year mean. It was concluded in the survey report that these count numbers were significant.

The Applicant commented [REP9-027] that although these numbers were significant, the numbers of ruff visiting the site were atypical and generally much lower numbers would be expected. It was also noted that ruff are not site-faithful. The Applicant explained that the proposed mitigation for redshank would equally provide mitigation for ruff. The Applicant highlighted that although the SPA Citation mentions the importance of the site for early autumn moulting waders and wintering passerines, the SPA features with qualifying numbers are the breeding little tern and breeding common tern and wintering populations of waterbirds; the Citation does not list any qualifying numbers of passage birds. Nevertheless, it had undertaken surveys of, and assessed the potential for, impacts on passage birds.

NE agreed [REP5-013] with the Applicant's conclusion and advised that impacts on ruff in the area of the application site (in addition to the MOTH) needed to be considered in the HRA in respect of the SPA. NE considered that further work was required to ensure that the impacts were avoided, reduced, mitigated, and compensated for if necessary. It advised that measures proposed to manage risks to redshank would also manage risks to ruff. NE confirmed at Deadline 9 [REP9-063] that it agreed that the Applicant had identified all the relevant protected sites and their features.

In response to ExQ 3.3.1.31, NE confirmed [REP7-026 and REP7-027] that it considered Areas A and B comprised land that was functionally linked to the SPA and Ramsar site. It considered in [REP8-022], in response to the Applicant's HRA Update [REP5-006], that the text therein showed confusion about the consequences of impacts on FLL. It advised that a scaled, not binary approach was required and that further assessment was needed. It accepted that the strength of the functional linkage was uncertain due to a lack of information. It advised that in the absence of information connectivity should be assumed according to the precautionary principle, especially so given the utilisation of Areas A and B by 150 plus birds on a regular basis; and incomplete understanding of redshank utilisation of The Haven, strength of connectivity, and consequences of loss of a portion of the population. Where effective mitigation cannot be provided for impacts in the Haven, to ensure continued functionality is provided by functionally linked areas, compensation should be. NE disagreed with the conclusion that the functional linkage of redshank or the habitats they use at the application site could be determined according to the Applicant's quoted studies, on the basis that they did not reflect the linear habitat of The Haven. As a result of the uncertainty it did not agree that redshank or the habitats they use at the application site were not functionally linked to the SPA.

The Applicant responded at Deadline 8 [REP8-017] to NE's comments in REP7-027 (and reflected in [REP8-022]) on the HRA Update [REP5-006] that, while exposure to pressure of 1% of a protected site population is often used as a threshold for identifying FLL, it should not be assumed to be definitive. Where populations are declining impacts affecting 1% could have wider ecological implications than when the population is increasing and more resilient. The Applicant noted that, as discussed in ES Chapter 17, FLL land was defined in Law Insider 2022 as land outside the boundary of a NSN site that provides habitat critical to supporting the interest feature or features for which the site is designated (in this case the non-breeding redshank in particular). Among other criteria it advises that it should be large enough to support 1% of a NSN population; which the Applicant applied to its assessment of the functional linkage of areas of The Haven. The Applicant recognised that the assessment of functional linkage is scaled and was not endorsing a binary approach. Its assessment considered whether the SPA species were likely to be using the habitats at the application site and if so in what numbers. It utilised the survey and other sources of data on redshank movements between roosting sites in The Wash, which

included assessing numbers of birds at the localised level and comparing to the wider SPA populations. Where there was insufficient information to inform the assessment the precautionary principle was applied, i.e. to the central section of The Haven. Sufficient evidence of the ornithology baseline had been collected for Areas A and B, having surveyed waterbirds over two winter and two breeding seasons. The central section of The Haven, from downstream of the application site to the MOTH, was surveyed during winter 2021/22. The Applicant stated that NE's reference to 150 plus birds appeared to have confused the number of individual redshank in Areas A and B (62 mean count across all autumn/winter surveys and tides; 76 mean count across high tides) with the total count of all bird species for those areas. Area A was observed to be used by less birds than Area B, which is larger.

The RSPB confirmed in its response [REP7-031] to ExQ 3.3.1.31 that it considered that Areas A and B were functionally linked to the SPA and Ramsar site. It pointed to the gaps in survey coverage identified in its WR and highlighted that all areas of The Haven could be used by SPA and Ramsar site features. The Applicant's own surveys had identified that SPA and Ramsar site features were present along The Haven and could occur in significant numbers. Although redshank and ruff were most notable the full importance of The Haven for waterbirds had not been assessed by the Applicant. It had failed to apply the precautionary approach to the HRA, especially relevant where there are data deficiencies. It was the Applicant's responsibility to prove beyond reasonable scientific doubt that there would be no AEoI of the qualifying features of the SPA and Ramsar site.

NE noted, in its comments [REP8-022] on [REP5-006] Table 5-4 (waterbird assemblage WeBS counts for The Haven area 2014 – 2019) that no project-specific data, as is standard best practice, has been provided to support the WeBS counts. NE also pointed out that no metadata was presented on the WeBS data to determine the levels of disturbance on the days the counts were taken, to help determine if the assigned levels of importance were accurate and therefore advised caution in the interpretation of the counts data.

At Deadline 8 The RSPB commented [REP8-029] on the Applicant's HRA Update [REP5-006], particularly Section 4 (about connectivity between the SPA and Ramsar site and both The Haven and the application site). It considered that the Applicant had misinterpreted/misrepresented some of the data in the quoted studies. It had focussed on the Burton study ringed redshank data (probably mainly at high tide when birds are close enough for rings to be read) rather than the Burton radio tracking data which concentrated on low tide, which provides a more representative view of redshank movements. It was clear from Burton that the birds moved between sites that were 4 km apart, so it was incorrect to suggest they would not travel between the application site and the SPA and Ramsar site (up to approximately 3.6 km apart). Another (unpublished) study (Winter 2015-2016) by the RSPB of the same survey area as Burton indicated that redshank regularly travelled approximately 15 km. The quoted 1996 Rehfisch study focussed on the movement of birds between high tide roost sites rather than the daily movements of birds through the tidal cycle, so was not representative. The RSPB fundamentally disagreed that for land to be functionally linked there needed to be a specific percentage of the SPA population being supported by it. Any supporting habitat connected with or functionally linked to the life and reproduction of a qualifying species should be considered in an HRA.

The Applicant commented at Deadline 8 [REP8-014] that data had been collected for this area over two years to show that the site does support overwintering redshank. This and other available data supported the finding that Areas A and B are not functionally linked to the SPA.

Where there was uncertainty, the precautionary approach was applied i.e. for the central section of The Haven between the SPA boundary and Areas A and B, where it was concluded that there could be a functional link. It maintained its Deadline 6 position that redshank and other features of the SPA populations showed no connectivity with the application site population.

In response to ongoing comments from the RSPB and NE, the Applicant submitted breeding bird survey data covering April to June 2020 and 2021 (two full breeding seasons) at Deadline 7 (within a summary report and a full report [REP7-014] and [REP7-015] respectively]). It covered the spring wader passage season and geographically covered the application site and adjacent stretch of The Haven (i.e. the same stretch as the wintering bird surveys).

The draft SoCG with NE [REP7-020] reflected NE's concerns about gaps in the data relating to Annex I passage birds. The Applicant's position was that the survey data included two years' worth of survey data at peak times for waterbirds (i.e. overwinter) and that it was supported by the WeBS data obtained predominantly for count sectors at the MOTH. It stated that it had undertaken 19 months of counts at the wharf site (winter/breeding bird and passage surveys), four months of counts at the central/intervening section of The Haven (between the application site and the MOTH) with another month's count planned for March 2022, and 16 months of disturbance surveys at the MOTH.

NE [REP8-021] welcomed the survey reports [REP7-014] and [REP7-015] and accepted that there was no evidence that the area of the application site provided breeding bird support for the SPA other than foraging avocet (part of the SPA waterbird assemblage). NE identified, in Annex 1 of [REP8-021], the features of each of the protected sites for which it remained concerned, their location, and whether it considered that there would be an AEoI alone and/or in combination. Most of NE's concerns related to an AEoI alone on SPA and Ramsar site features (including the waterbird assemblage) at the MOTH; in respect of the application site its concerns related to redshank (it did not specifically identify ruff, however they are part of the waterbird assemblage).

The RSPB, in Appendix 1 of [REP7-031], identified the features in the different parts of The Haven about which it had concerns and for which it considered data was missing, i.e. the application site; The Haven central section; at the MOTH; and between the MOTH and the PoB anchorage area (replicated from [REP5-018]). It did not identify any potential ICE. It considered that there were significant data gaps for The Haven central section and the area of The Wash out to the PoB anchorage area and noted that the more surveys conducted the more interest was observed, such as significant numbers of ruff using The Haven in September 2021, as well as redshank. The additional surveys heightened its concerns that The Haven is an important area for waterbirds associated with the SPA and Ramsar site and that appropriate measures would need to be implemented to ensure adverse effects were avoided.

The Applicant stated at Deadline 8 [REP8-014] that the winter 2021-22 survey programme sought to close the geographic data gap for waterbird use of the central section of The Haven. It enabled the importance of The Haven for waterbirds along the length transited by project-related (and baseline) vessels, to be assessed. It reiterated that no programme had been proposed for surveys of The Wash or anchorage area, as previously justified, on the basis of safety, practicality and time limitations. It acknowledged that additional survey effort captures additional interest but suggested it was a general fact of survey effort, which can be demonstrated to be decreasingly influential. It highlighted that more recent observations from baseline surveys typically did not require any change to assessment outcomes or management

plans, e.g. the autumn counts and observation of greater numbers of ruff did not require movement of the proposed seasonal window for piling activity.

The Applicant submitted the outstanding winter 2021/2022 baseline waterbird survey report at Deadline 9 [REP9-032]. A summary of the data contained within it was submitted at Deadline 8 [REP8-018]. The stretches of The Haven between: i) the downstream limit of the application site and the SPA boundary ('Section C') (the remaining stretch outside the protected sites to be surveyed); ii) from the SPA boundary to HMP North Sea Camp ('Section D'); and iii) at the MOTH ('Section E'), were surveyed over December to March 2021/2022 at high and low tides. Sections D and E are both within the SPA. The survey sections are shown on Figure 5-1 of [REP8-018]. Table 4-1 contains the project-specific winter survey results at high and low water for Sections C, D and E. Tables 4-2 and 4-3 identify the peak high water counts, and the peak counts across all tides, respectively, according to the project-specific winter and Changes In Waterbird Behaviour ("CiWB") survey results for Sections C – E, and also for the application site and adjacent area (Sections A and B, respectively), and the relevant WeBS data for Sections D and E. The Applicant made the following observations [REP8-018]:

- the surveys of Sections C & D at high and low water overall showed SPA features were present at high water in low numbers (relative to the SPA population). Only gadwall and redshank occurred in numbers exceeding 1% of their SPA five-year peak mean WeBS count in Section C and only dark-bellied brent goose ("DBBG") and gadwall exceeded 1% in Section D;
- while numbers of redshank in Section C at both high and low tide were higher than for other shorebirds, a high tide roost or a count above the 1% five-year peak mean occurred on single occasions across surveys. DBBG were generally absent or in low numbers during high water apart from a group of 43 on one occasion. All other SPA features were present at 14 individuals or less at high or low water. Mixed gulls and ruff (SPA assemblage features) were generally present in numbers similar to those recorded at the application site. Disturbance was recorded at high tide due to pilot boats (DBBG and mixed gull took flight and returned to the same spot), large commercial vessels (redshank, turnstone and ruff were displaced to on-Haven lagoons where a high tide roost was noted on one occasion subsequently), and recreation (quad bikes), similarly to the application site. Additional SPA features were recorded at the application site over a longer period, it was assumed that the diversity is similar in Section C;
- a similar species assemblage was present at high tide within Section D as within Section C, but numbers were generally lower (all species except DBBG were present at 14 individuals or less). No substantial or repeatedly used wader high tide roosts were observed. Approximately 170 DBBG were present on two high tides, mainly on saltmarsh adjacent to The Haven. A similar assemblage composition of waterbirds was present at low tide, but in greater numbers, in particular due to large flocks of DBBG;
- vessel-based disturbance recorded in Section C (on one occasion per species across all surveys) did not affect significant numbers of individuals. At high water no individuals out of 58 redshank on a lagoon set back from The Haven in Section C, and out of 173 DBBG on saltmarsh beside The Haven in Section D, were disturbed by vessels. Disturbed birds were generally species within the assemblage, broadly similar to those at the application site, i.e. ruff (up to 15 present within Section C) and a mixed aggregation of gulls (up to approximately 150 present). Not considered significant on the basis it is a fraction of the SPA waterbird assemblage (400,367 individuals according to the December 2015 update of the SPA Citation);

- a higher diversity and number of SPA species (predominantly due to DGGB aggregations) were recorded on the central section of The Haven at low water when vessels serving the Project would not be transiting; and
- no wader species other than redshank displayed roosting aggregation (redshank high tide roost locations are shown on Figure 5-1). Surveys at Sections C and D recorded single instances of redshank roosting at three locations with no recurrently used roost sites recorded. The recurrent roost sites are at Sections A and B and the MOTH, as reflected in the HRA.

The Applicant confirmed [REP8-018] that between 2019 and 2021 The Haven in the area of the application site was surveyed at low and high (except during the breeding season in April to June) tides in January to June and October of two calendar years, and August, September, November and December in one calendar year. CiWB high tide surveys were previously undertaken at the MOTH in January, February, March and November of two calendar years, and in May to October and December of one calendar year. The MOTH was subsequently surveyed at high and low tide during December to March of winter 2021/22. CiWB surveys were also undertaken at the application site.

NE [REP8-024] considered the additional CiWB 2021 survey report submitted at Deadline 6 [REP6-034] a useful start to quantifying responses to vessel presence, and clearly demonstrated that large cargo vessels cause disturbance responses. However, it was of the view that further survey data was required to provide the evidence needed to support the application. NE believed that the report supported its concerns that vessels entering The Haven displace birds from their roosts, and in some cases foraging grounds both in The Haven and at the MOTH; and that as large cargo vessels are more disturbing than smaller vessels, movements associated with the Project were likely to significantly increase the disturbance of birds. It considered that there was clear evidence of birds swapping between Area A and the adjacent Area B (site of the proposed HMA) which further supported the need for project-specific mitigation measures to provide a local network of sites. It noted that the most significant source of disturbance was the presence of large vessels, causing 99.88% of disturbance events at the MOTH and 95% at the application site, with wake disturbance being secondary. It pointed out that the response varied between species but the predominant response to the presence of cargo vessels was to abandon roosts and relocate to more distant roost sites; with repeated flushes some birds moved considerable distances along The Haven. NE noted that as only daytime surveys had been undertaken the sensitivity at night was unquantified.

At Deadline 9, NE [REP9-059] confirmed that its comments on [REP8-018] remained unchanged from its comments made at Deadline 8 in [REP8-024]. It welcomed the additional information contained within [REP8-018] but considered it was only indicative as it was a single season survey and anything less than two years was only partial. It was reassured by the indication that the intermediate stretches of The Wash were less utilised. However, it highlighted that although sector-by-sector the intermediate areas were less well utilised than the MOTH or application site, the sector-by-sector totals needed to be added together to confirm the total number of birds at risk, particularly in relation to redshank and ruff. Although some individual sectors did not exceed 1%, the newly surveyed ones were additional to already-surveyed sites.

In response to NE's concerns, the Applicant [REP9-027] stated that two years of survey data had been provided for the overwintering counts, spring passage, breeding season and disturbance behavioural responses, and one year for autumn passage ([APP-112, REP1-026 Appendices, REP3-019, REP6-034, REP7-014, REP7-015, and REP8-018]). Together with the

WeBS data it considered that this provided extensive data for the count sectors within the SPA and along The Haven, and that the data collated during the Examination had confirmed the assessments made in the earlier documents. It believed that this data represented the best available evidence to support the assessment and a conclusion that an AEoI could be excluded beyond reasonable scientific doubt.

In relation to SPA breeding populations of little tern and common tern, the Applicant stated [REP9-027] that little tern was not recorded across project-specific surveys of The Haven, including at the application site and the MOTH, and that there were no potential impact pathways. It had concluded in its Deadline 5 HRA update [REP5-006] that vessel movements along The Haven were beyond the distance considered likely to cause disturbance to common terns in the breeding colonies at the RSPB Freiston Shore and Frampton Marsh reserves (3.5 km and 1.8 km from the MOTH, respectively), and that the Conservation Objectives were unlikely to be compromised.

The Applicant explained [REP9-027] that previous survey coverage had not included the intervening section of The Haven between the application site and the MOTH as it had not been identified as an area that supported high numbers of birds. The surveys of this area subsequently undertaken [REP9-032] showed that SPA features use these areas but generally in low numbers. Redshank numbers at both high and low tide were higher than for other waterbirds but occurrence of a high tide roost, or a count above 1% of the SPA five-year mean peak WeBS count, was observed on a single occasion across all surveys. Where disturbance from vessels occurred, it did not affect significant numbers of individuals. No high tide roost sites were observed to be in repeated or consistent use by waterbirds in this section. It was considered that birds using this area were likely to be similar to those at the application site, i.e. likely to be more habituated to disturbance than birds at the MOTH, due to the proximity to The Haven. The Applicant stated that there were other roosting areas along this section above the high-water mark, where aggregations were recorded, however none of the birds in these aggregations were observed to be disturbed by vessels.

The Applicant acknowledged [REP10-020] that the survey period for the intervening section of The Haven covered a short time (one winter season) but believed that there were clear ecological similarities between that section and the application site, so that the longer-term data for the application site could be utilised for that section in relation to informing compensation requirements. In addition, it considered that the wider survey data (covering two seasons for overwintering, spring passage and breeding periods) showed that winter was the peak season for waterbirds and that very few were present in The Haven area in the breeding season. On that basis the survey season had covered the critical period for understanding waterbird use of this section of The Haven. In relation to NE's view that the sector totals should be added together the Applicant considered that could result in inaccuracies and risk overestimating the numbers.

In NE's comments [REP10-037] on the Final Waterbird Survey Report [REP9-032], it considered that while a single season's survey consisting of four high tide and four low tide visits a month was informative it was not comprehensive. NE did acknowledge that two sectors (westernmost around the application site and easternmost around the MOTH) overlapped with previous study areas and that the easternmost survey section included part of The Haven which is within the SPA. It considered that the report provided some context and clarification of the importance of The Haven in supporting the SPA including 10 species found in numbers that exceeded 1% of their SPA populations. It noted that these were all part of the waterbird assemblage and

considered they would be at risk from the Project resulting from disturbance along The Haven. It believed that the varying numbers of birds observed between high and low tide surveys within each month supported the assumption that The Haven is one functional area rather than formed of functionally self-contained sectors. It considered that evidence gaps remained in relation to directional bird movements between the SPA and non-SPA parts of The Haven, impacts from night-time vessel movements on birds' nocturnal activities, and disturbance pressures on bird populations during different tidal states.

The RSPB commented [REP10-044] on [REP9-032] at Deadline 10. It considered that the survey information contained in Tables 2 to 7 demonstrated that SPA and Ramsar site features were present in all of The Haven survey sections, and that the number of each species changed between low and high tides and survey dates. The recording of DBBG (an exclusively coastal/marine species) in all sections reinforced that the application site was functionally linked to the SPA and Ramsar site. It identified what it considered to be the most significant bird counts (i.e. above 1% of the SPA/Ramsar site population), identifying the location and tidal stage. These included DBBG, redshank, ruff, golden plover, lapwing, dunlin, oystercatcher and turnstone. It considered that the data highlighted the importance of The Haven for supporting important numbers of SPA and Ramsar site features. It drew attention to the Applicant's statement that "Sites A and B" could be of more value to redshank than the "current SSSI boundary along The Haven", and considered it demonstrated the significance of that area in supporting and maintaining the SPA and Ramsar site features. It believed that the Applicant's surveys justified the need to consider more fully the area indirectly impacted by the application in addition to the area directly affected.

The ExA [ER 1.8.42 App. C] considered that during Examination, the Applicant had addressed some data gaps that were identified in the Application. The ExA noted that the survey information for the central section of The Haven covers a single winter season only, however the ExA was satisfied that this evidence, together with that from previous surveys which included part of this section, is sufficient to inform an assessment of potential effects on the SPA and Ramsar site features along this stretch of The Haven. The ExA [ER 1.8.43 App. C] considered that the results of the surveys indicated that the SPA/Ramsar site redshank population and the waterbird assemblages could be affected at the application site (see Section 5.7.2), the: DBBG; black-tailed godwit (SPA only); oystercatcher; redshank; turnstone; and waterbird assemblages at the MOTH (see Section 5.7.3), and the waterbird assemblages along the central section of The Haven (see Section 5.7.4). The ExA was also of the view that the survey information and evidence presented to the Examination indicates that bird species found at the application site and along the central section of The Haven are part of the SPA and Ramsar populations, and that those areas comprise FLL.

Having considered the bird survey data provided and updated by the Applicant during Examination, and the responses of all IPs, the Secretary of State agrees with the ExA and other IPs, and considers that based on the information available bird species found at the application site and along the central section of The Haven are likely to be part of the SPA and Ramsar population and that therefore these areas should be considered as FLL.

5.3 Worst-case scenarios

NE stated [RR-021] that it did not agree with the worst-case scenarios ("WCSs") presented and the conclusions drawn from them in relation to indirect consequences of the Project, such as the relocation of fishing boats and increased dredging. The RSPB [RR-024] and LWT [RR-011] also considered that the WCS had not been sufficiently defined.

The Applicant responded [REP1-035] that relevant WCSs were defined in ES Chapter 17 [APP-055] and that where such scenarios were considered to have an impact on features, they were addressed within the impact assessment on that feature within ES Chapter 17, the HRAR [APP-111] or both documents. The Applicant stated that to remove any doubt or ambiguity, the basis of all assessments and the basis for their derivation would be confirmed in a consistent format to stakeholders during the Examination. NE [REP1-035] welcomed this clarification. The Applicant also acknowledged that the passages in the ES discussing impacts on birds did not relate back to the definitions of the WCSs explicitly and explained that this was addressed in the Ornithology Addendum [REP1-026].

NE did not agree [REP2-045] that the approach to assessing impacts in the Ornithology Addendum represented the WCS. This was on the basis that the predicted vessel movement numbers should be rounded up; by averaging impacts across all navigable tides within a year it failed to distinguish between the variation in total numbers of vessels that could use different tides; and the number of predicted vessel movements at night was unclear. NE considered that a more detailed assessment was required to identify the maximum number of vessels that could use any tide throughout a year and how the variation in vessel movements could affect the SPA and Ramsar site features. The RSBP [REP2-051] raised similar concerns.

The Applicant responded [REP6-032] that its use of decimalised values enabled a more accurate estimation of average daily rates of disturbance. The arrival of vessels associated with the Project at the PoB would be at evenly spaced intervals, as occurred with commercial vessels currently. The assessment was based on a WCS of five vessels (total)/high tide on 100% of high tides, although that was considered to be unrealistic and it was anticipated that vessels would actually continue to utilise 75-80% of high tides as currently. The assessment had assumed a worst case of 100% usage of high tides at night by vessels associated with the Project.

In response to NE's concern that key operational impacts had not been clearly defined, the Applicant stated [REP9-027] that the potential for impacts resulting from the proposed increase in vessel numbers over the baseline levels had been assessed in detail, including for birds at the MOTH and the application site and for marine mammals within The Wash. It confirmed that WCSs had been used for all of the assessments and highlighted that information on operation was contained, in particular, in [APP-043, APP-055, REP1-026, and REP7-003].

The RSPB noted [REP8-028] that Sections 5 and 7 of the HRA Update [REP5-006] in respect of the impact of disturbance on waterbirds using The Haven focussed on energetics, i.e. that everything would be fine as long as the birds could get sufficient food to survive with the level of disturbance and number of resulting flight responses. The RSPB considered that this was a very mechanistic view and an inadequate approach, and that the assessment of disturbance impacts also needed to consider bird behavioural ecology, such as whether birds' behavioural responses to disturbance reduce the carrying capacity of the protected site if some birds completely avoid

areas with high disturbance. In addition the potential impact of stress, which can affect overall fitness/survival, should be considered.

The Applicant responded at Deadline 9 [REP9-033] that considering energetics as a percentage of daily intake was a valid approach to determining the severity of a disturbance impact, and that the conclusions had taken into account ecological needs and behavioural ecology. It considered that its conclusions were robust and that the potential magnitude and frequency of disturbance would not be enough to result in an AEoI of the SPA and Ramsar site.

The RSPB stated [REP9-065] that it disagreed with the averaging of vessel movements along The Haven, as reflected in its comments [REP4-026] on the Ornithology Addendum [REP1-026]. It considered that the approach was overly simplistic and failed to consider the full scale of potential impacts, and that any assessment had to be based on a WCS of five vessels/tide. The RSPB also considered [REP2-051] that no new information had been presented to demonstrate that the full suite of WCSs had been assessed. It raised particular concerns about a failure to assess the maximum noise levels, maximum vessel movements and the impact of night-time operation of the Project. It believed that no information had been provided on how birds were using The Haven at night and highlighted various studies that indicated that waders, including some of the SPA species, undertook night foraging.

The Applicant acknowledged [REP2-006] that night-time observations on baseline vessel disturbance were desirable but pointed to the practical difficulties of observing birds during the hours of darkness. It confirmed that the assessment assumed that night-time disturbance was similar to that during the daytime.

The RSPB pointed out [REP9-065] that although there may be challenges to night-time assessment, it had become easier to survey sites at night. It had already highlighted several species that could forage at night, including redshanks and black-tailed godwits [REP4-026], and its concerns remained. Birds may be more sensitive to disturbance at night so assuming that day-time and night-time disturbance were the same risked underestimating the potential impacts.

The Applicant stated [REP9-027] that there was potential for birds to be less disturbed during the hours of darkness and that the inclusion of night-time disturbance in the assessment represented a WCS.

The RSPB commented [REP3-033] on the Applicant's response [REP2-008] to ExQ 1.3.1.8 [PD-008] that habitat loss had not been included in the HRA screening and integrity matrices because none would occur within the protected sites and the impacts of habitat loss resulting from construction of the wharf at the application site were expected to be low once the HMA was in place. The RSPB believed that the Applicant had underestimated the scale of habitat loss that could occur and that the habitat loss WCS remained uncertain as scour protection at the wharf site did not appear to have been considered.

The Applicant replied at [REP3-023] that the impact of scour protection had been allowed for in the WCS assessments and habitat loss calculations and that this was reflected in the Outline Landscape and Ecological Mitigation Strategy ("OLEMS") [REP3-007].

5.4 Water quality

The Applicant did not identify an LSE upon any protected site due to changes in water quality in its HRAR. Both NE [RR-021] and the RSPB [RR-024] initially raised a concern that there was insufficient information on water discharge from the application site to demonstrate that it would not affect water quality in The Haven and the SPA, SAC and Ramsar sites.

The Applicant responded [REP1-035] that there would be no operational discharge to The Haven from the application site and surface water would be discharged to the surface water drainage network at its current location. An Outline Surface Water Drainage Strategy [REP1-017] was submitted to the Examination at Deadline 1 which identified the discharge location, and the pollution prevention measures which would be incorporated within the site, including use of a Sustainable Urban Drainage System and penstocks to retain and slow water flows.

The RSPB [REP2-052] raised some concerns about the drainage strategy in relation to impacts on the SPA and Ramsar site features. This included requests for clarity on the volume of water that would be discharged from the Project into the drainage network and the volume that would be disposed of via infiltration, and for a water quality monitoring plan.

The Applicant [REP2-006] referred to discussion of potential water quality and quantity impacts in ES Chapters 15 and 17 [APP-053 and APP-055, respectively], and to the Outline Surface Water Drainage Strategy. It explained that it considered that there was no impact pathway between the Project via quality or quantity of water in the drainage system and the protected sites and therefore this was not considered within the HRA.

The final SoCGs with NE [REP10-033] and the RSPB [REP9-039] did not refer to water quality issues.

The ExA was satisfied that this LSE pathway will not result in an AEoI of the protected sites from the Project. The Secretary of State screened in the impacts of changes to water quality on a precautionary basis and is satisfied that an AEoI of The Wash SPA and Ramsar, and The Wash and North Norfolk Coast SAC alone and in-combination due to changes in water quality can be excluded.

5.5 In-combination effects

The Applicant considered in the HRAR [APP-111] whether there could be an ICE during construction arising from the Viking Link Interconnector project together with the Project on the SAC harbour seal population, resulting from underwater noise (from piling and dredging) and an increased risk of vessel collision. It concluded that there would not be an AEoI. In relation to underwater noise this was on the basis of the conclusion of the Viking Link project that a negative effect was unlikely, the mitigation it would provide, and the predicted “very low” number (up to 33.4 seals/1%) of the SAC seal population that could be at risk from the Project. In respect of collision, the Viking Link project predicted that the likelihood was very low and the WCS for the Project was that 1.7 seals could be affected.

NE stated [RR-021] that it did not agree with the WCSs presented or the in-combination assessment conclusions. NE considered that the in-combination assessment was incomplete and did not include other projects such as Norfolk Vanguard and Norfolk Boreas offshore

windfarms, Great Yarmouth Port, and Lowestoft Port and Operations and Maintenance (O&M) for existing windfarms. The RSPB [RR-024] expressed concern that the in-combination assessment was lacking and did not fully consider baseline disturbance effects.

The Applicant responded [REP1-035] that no likely causes of effect were predicted outside of the localised environment around the MOTH as reflected in the HRAR. Vessel numbers were so low relative to the numbers using the main areas of The Wash that there were not considered to be any drivers for impacts resulting from offshore windfarms and Great Yarmouth and Lowestoft Ports which are at considerable distances from the application site and The Wash. All the projects identified in the in-combination assessment were assessed in terms of any, including small, impacts that could occur that had the potential for interaction whether singly or combined. The Applicant maintained its conclusion of no ICE and no AEoI of the SPA in the HRAR. The Applicant [REP2-006] justified its position regarding the ICE assessment for each of the projects identified by the RSPB in its WR [REP1-060].

NE's response to ISH2 Question 4.c [AS-001] noted that no further projects had been identified by stakeholders for consideration within the ICE assessment and confirmed it had no outstanding concerns about its scope. However, it caveated that this was subject to change if an application was submitted for the nearby proposed Solar Farm during the Examination. Subsequently NE indicated [REP8-021] that it considered that there could be an in combination AEoI on the SAC seal population resulting from effects together with the Hornsea Project Three litter removal campaign which was not a project it had previously mentioned in any of its submissions. The RSPB acknowledged that the plans and projects included in the ICE assessment could be agreed but reiterated their concerns about recreational activities [REP3-033].

NE considered, in its comments [REP2-045] on the Ornithology Addendum [REP1-026], that an updated assessment was required that considered impacts on redshank both at the application site and the MOTH alone and then the two in combination, as they could be impacted at both of these locations.

The Applicant responded [REP6-032] that the assessment of impacts at the application site and the MOTH in turn was the correct approach. It argued that the connectivity between the two locations was in doubt (as set out in the HRA Update [REP5-006] and it was likely that only the redshank at the MOTH were features of the European sites; redshank at the application site had been included in the (shadow) AA on a precautionary basis. Due to this and the unlikely connectivity, ICEs of activities at the application site and at the MOTH were not considered likely to affect an individual redshank. It also highlighted that impacts at the two locations would relate to the same project.

The RSBP [REP2-051] considered that there had been no assessment of recreational pressure or other activities that could be causing disturbance along The Haven and that it was required to inform the in-combination assessment and the suitability of areas along The Haven to be developed as compensation sites. At least 12-24 months of further survey effort was needed to provide the necessary data. Although the Applicant had explained that recreational activities had been included within the baseline description it was unclear what data had been used and how it had informed the assessment [REP3-033]. The RSPB confirmed at Deadline 9 [REP9-065] that it remained a concern.

In response to ExQ 2.3.1.7, NE stated [REP5-012] that it remained unclear whether all ICEs had been identified and/or appropriately assessed, with the exception of air quality, which it

considered had been addressed in the Addendum to Chapter 17 and Appendix 17.1 - Benthic Ecology, Fish and Habitats [REP1-028].

The RSPB reiterated their concern at Deadline 5 that not all potential projects that could have ICE with the Project had been considered and that it was not appropriate to rule out ICE at screening stage [REP5-019]. It drew particular attention to the Boston Solar Park. It also reiterated that the Applicant had not assessed recreational disturbance, and that this was particularly relevant to the viability of the proposed HMA and any additional compensation sites.

The Applicant responded that the in-combination assessment considered all projects that were in planning at the time it was undertaken, and the solar park was not in planning when the application was submitted [REP6-030]. It questioned the relevance of baseline recreational disturbance to the in-combination assessment and explained that potential sources of change, such as the diversion of the ECP, had been considered. It stated that the compensation options had taken the recreational interest of the areas into account.

At Deadline 9 the Applicant explained [REP9-027] that the ICE assessment did not include the assessment of baseline effects because such effects were considered to be part of the site characteristics. The ICE assessment included all projects known to be planned or proposed within an area within which it considered there was potential for ICE, including those with “small” effects when considered alone. It was concluded that there were not likely to be any causes of effects outside of the localised environment around the MOTH. Vessel numbers were so low relative to the number using the main areas of The Wash that there were no “drivers for impact” from offshore wind farms and Great Yarmouth and Lowestoft Ports, which are a considerable distance from the application site and The Wash.

At Deadline 10 the Applicant highlighted [REP10-020] that NE had confirmed in a meeting in February 2022 (minutes within Appendix A of the final SoCG [REP10-033]) that in relation to in combination (and cumulative) effects there would be no concerns about the wider Wash area if the vessels associated with the Project used only the existing navigational routes in The Wash.

Based on the findings of the Examination, the ExA was satisfied [ER 1.4.45 App. C] that an AEoI of all of the qualifying features of the protected sites can be excluded from the project in-combination with other plans or projects.

The Secretary of State is satisfied that the Applicant’s in-combination assessment has considered all relevant plans and projects and that he can exclude an AEoI in-combination with other plants or projects (see Section 5.8.2).

5.6 Key findings

The Applicant’s HRAR concluded that the Project would not result in an AEoI of any of the three protected sites, alone or in-combination. These conclusions were not agreed with the SNCB [ER 1.4.38 App. C]. At the time of the Application submission there was a high level of disagreement between the Applicant and IPs such as NE, the RSPB and LWT in relation to the HRAR. This included concerns regarding the scope of and approach to the assessment, the robustness and extent of the survey data, the Applicant’s conclusions, the adequacy of the proposed mitigation and the need for compensation [ER 6.3.7].

The conclusions in the Applicant’s HRAR were subject to Examination though ExA’s Written Questions, an ISH and a Rule 17 request [ER 1.4.39 App. C].

The ExA [ER 1.8.113 App. C] was not satisfied on the basis of the information available at the end of Examination, that an AEoI of any of the protected sites could be excluded alone.

The ExA concluded [ER 1.4.41 App. C] that an AEoI from the Project alone could not be excluded beyond all reasonable scientific doubt for the following protected sites and qualifying features:

- The Wash SPA – redshank, DBBG, black-tailed godwit, oystercatcher, redshank, turnstone, the waterbird assemblage features;
- The Wash Ramsar site – redshank, DBBG, oystercatcher, turnstone, the waterbird assemblage features; and
- The Wash and North Norfolk Coast SAC – harbour seal feature.

The Secretary of State's consideration of protected sites and qualifying features for which there was not clear agreement at the end of Examination is presented in the following site-specific sections.

5.7 Appropriate Assessment: The Wash SPA and Ramsar

The Wash SPA is located approximately 3 km from the Project.

The Wash SPA covers an area of 62,211.66 ha and is composed of tidal rivers, estuaries, lagoons, mud and sand flats and in the centre, deep channels surrounded by shallower waters. These areas predominantly consist of saltmarsh, intertidal banks of sand and mud, sandy and shingle beaches and subtidal sandy sediments. Shallow coastal waters support small fish which are preyed upon by tern species. Intertidal mud and sand flats support a variety of polychaete worms and bivalve molluscs including cockle and mussel beds which alongside algae provide rich foraging grounds for several bird species. These include the DBBG, oystercatcher, common scoter, sanderling, gadwall, curlew, pintail, shelduck, dunlin, knot, bar-tailed godwit and black-tailed godwit.

Further inland, saltmarsh provides important roosting habitat at the site for a number of bird species, including redshank, curlew, pintail and dunlin. Additionally, saltmarsh provides an important foraging habitat for the DBBG, wigeon, pintail and dunlin, the latter of which also roosts alongside oystercatchers on arable fields. Bordering agricultural and pastureland provide foraging for pink footed goose and overspill foraging for curlew, oystercatcher, dunlin and black-tailed godwit during high tides. Some of the species roosting at the site require unrestricted views of the surrounding area and take advantage of bare ground and short vegetation to roost. These include redshank, grey plover and both black and bar-tailed godwit. Other species, such as common tern, little tern, sanderling and grey plover utilise the sandy, shingle and gravel beaches to roost. Wigeon roost at Wainfleet, Black Bout and Wolfreton Sands and pink footed goose can be found roosting at Freiston, Snettisham and Terrington. Roger or Toft, Gat and Seal Sands support roosting sanderling, and pintail roost on the flats of the rivers Nene and Ouse[29].

The SPA qualifying features for which the site is designated, and which have been carried forward to consideration of AEoI are:

[29] https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK9008021&SiteName=the%20wash&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&HasCA=1&NumMarineSeasonality=21&SiteNameDisplay=The%20Wash%20SPA#SiteInfo

- Bar-tailed godwit *Limosa lapponica*;
- Black-tailed godwit *Limosa limosa islandica*;
- Common scoter *Melanitta nigra*;
- Eurasian curlew *Numenius arquata*;
- Dark-bellied brent goose *Branta bernicla bernicla*;
- Dunlin *Calidris alpina alpina*;
- Gadwall *Anas strepera*;
- Common goldeneye *Bucephala clangula*;
- Grey plover *Pluvialis squatarola*;
- Knot *Calidris canutus*;
- Eurasian oystercatcher *Haematopus ostralegus*;
- Northern pintail *Anas acuta*;
- Common redshank *Tringa totanus*;
- Sanderling *Calidris alba*;
- Common shelduck *Tadorna tadorna*;
- Ruddy turnstone *Arenaria interpres*;
- Waterbird Assemblage; and
- Eurasian wigeon *Anas penelope*;

The Ramsar qualifying features for which the site is designated, and which have been carried forward to consideration of AEoI additionally to those which are also features of the SPA, are:

- Black-headed gull *Larus ridibundus*;
- Common eider *Somateria mollissima*;
- Golden plover *Pluvialis apricaria*;
- Lapwing *Vanellus vanellus*;

In addition to the generic Conservation Objectives for SPAs presented in Section 1.3, NE has published SACOs[20] relevant to all bird qualifying features of The Wash SPA. These are unique for each feature, but for Redshank for example these are to:

- maintain safe passage of birds moving between roosting and feeding areas;
- reduce the frequency, duration and/or intensity of disturbance affecting roosting and/or foraging birds so that they are not significantly disturbed;
- maintain the size of the population at a level which is above 4,331 individuals, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent;
- maintain concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk);
- maintain the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised;
- maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding). Intertidal coarse sediment (unknown), Intertidal rock (6.5 ha), Intertidal sand and muddy sand (23069 ha), Intertidal mud (5921 ha), Intertidal mixed sediments (unknown), Coastal lagoons (19 ha), Intertidal biogenic reef: mussel beds (500 ha), Freshwater and coastal grazing marsh (0.25 ha), Saltmarsh (5704 ha), which is not feature specific but is an aggregation of the following saltmarsh features: - Salicornia and other annuals colonising mud and sand - Atlantic salt meadows - Mediterranean and thermo-Atlantic halophilous scrubs - Spartina Swards;
- maintain the distribution, abundance and availability of key food and prey species (e.g. earthworm, leatherjacket, grassland/marsh invertebrates, *Hydrobia sp., Macoma sp., Corophium sp., Nereis sp*.) at preferred sizes;

- maintain water quality and quantity to a standard which provides the necessary conditions to support the SPA feature, where the supporting habitats of the feature are dependent on surface water. Current Water Framework Directive Ecological Quality; Moderate;
- maintain the availability of fresh water on mudflats within feeding and resting areas;
- maintain a high density of channel networks within intertidal feeding areas;
- maintain open and unobstructed terrain around nesting, roosting and feeding sites;
- maintain a vegetation structure of key roost sites dominated by bare ground or a short sparsely-vegetated sward;
- maintain a vegetation structure of key roost sites dominated by bare ground or a short sparsely-vegetated sward;
- maintain the availability of standing water of 1-5 cm deep, over at least 50 % of the total standing water area;
- restrict aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels;
- maintain the dissolved oxygen concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg per litre (at 35 salinity) for 95 % of the year), avoiding deterioration from existing levels;
- maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels; and
- maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat.

The Information Sheet on Ramsar Wetlands (May 2005)[30] for The Wash Ramsar site states that the site qualifies as a Ramsar site for the following reasons:

- Ramsar criterion 1 – The Wash is a large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels. It is the largest estuarine system in Britain.
- Ramsar criterion 3 – Qualifies because of the inter-relationship between its various components including saltmarshes, intertidal sand and mudflats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with the other organic matter, forms the basis for the high productivity of the estuary.
- Ramsar criterion 5 – Assemblages of international importance (292,541 waterfowl (five-year peak mean 1998/99-2002/03)).

The Applicant in its HRAR provided information for an AA for the following potential effect pathways:

- roosting habitat loss – for redshank and the waterbird assemblages at the application site;
- disturbance effects at or adjacent to the application site - disturbance to redshank and the waterbird assemblages from construction noise;
- disturbance effects at or adjacent to the application site - vessel disturbance (visual, presence and noise) to redshank and the waterbird assemblages during construction and operation at the application site;

[30] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK11072&SiteName=The

- disturbance effects at the MOTH - vessel disturbance (visual, presence and noise) on DBBG, black-tailed godwit, oystercatcher, redshank, turnstone, and the waterbird assemblages;
- disturbance effects along The Haven - vessel disturbance (visual, presence and noise) on the waterbird assemblages; and
- lighting - disturbance to redshank and the waterbird assemblages from construction and operational lighting at the application site and on vessels in transit through The Wash and The Haven.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.7.1 Disturbance effects on bird species

NE expressed concern [RR-021] about the Applicant's view that there would be no impacts along The Haven, in the absence of an assessment and supporting evidence. The RSPB [RR-024] raised the same concern. NE considered that seven SPA species were likely to be disturbed by increased boat traffic within The Haven: DBBG, shelduck, lapwing, dunlin, black-tailed godwit, redshank and turnstone.

NE disagreed with the Applicant's characterisation of the period of disturbance being limited to one-three and a half hours around high tide as minimising risk, and conversely considered that this period is when alternate sites will be most limited and therefore the most critical for roosting birds. It also considered that increased disturbance by a minimum of 20-25% due to a move to daily boat traffic, including an increase of 34% of days in the key winter period, was not insignificant and therefore should not be dismissed. NE and the RSPB also raised concerns that the effects of pilot boat movements had not been fully considered in the assessment.

The Applicant responded [REP1-035] that the period of disturbance is restricted through the limitation of draft for the vessels entering and leaving The Haven, and considered that this did minimise the risk as large vessels cannot access The Haven at other times of the tidal cycle. It stated that this is when birds currently utilise the alternate roost sites as observed during the disturbance surveys undertaken at the MOTH. It stated that the increased disturbance had been considered in detail within the HRAR in relation to the baseline situation, how birds responded to the existing levels of disturbance and how they could react to additional vessel movements, and that a fuller assessment was reported in the Ornithology Addendum [REP1-026]. In respect of pilot boat movements, the Applicant explained that the assessment had focussed on the cargo vessels as an increased number of pilot boats was not predicted because the existing boats would carry the additional pilots (out to the cargo vessels or back to port) [REP2-006].

At Deadline 9 the Applicant explained [REP9-027] that disturbance caused by the movement of large vessels would only occur around high-water periods as the vessels are too large to access The Haven on other tidal states, so this reduces the period of time when birds at the MOTH can be disturbed. It noted that alternative sites have provided a roosting area for birds currently disturbed by vessel movements, which occur on approximately 75-80% of tides. It emphasised that the disturbance issue had been investigated through survey work and drawing on other relevant research, with detailed assessments undertaken for each sensitive species. It explained that the suggested 20-25% increase in disturbance represented a worst case as it assumed that disturbance by large vessels would also occur at night, when visual disturbance would be much lower.

NE considered [RR-021] that the Applicant's assumption that when redshank, oystercatcher, black-tailed godwit and shelduck leave the roost they are no longer disturbed, was unsupported as there had been no monitoring of receiver roosts to understand disturbance risks and it could not be assumed that birds are able to occupy nearby alternate roosts or that they are not subject to additional energy depletion as a consequence of relocation. NE also considered that the characterisation by the Applicant of the anticipated increase in energy expenditure (from movement as a result of disturbance) as trivial for lapwing, golden plover and black-tailed godwit, was an unsupported conclusion without supporting evidence that birds are easily able to compensate for the additional energy needed. The RSPB also raised concerns about the potential effects of energy depletion [RR-024].

The Applicant responded [REP1-035] that the birds that were recorded as relocating in the disturbance area in the surveys at the MOTH were still within the count area and should there have been further disturbance during the same survey period they would have been recounted. It also explained that a fuller assessment of this issue had been undertaken and was reported in the Ornithology Addendum [REP1-026].

At Deadline 9 the Applicant stated [REP9-027] that the surveys observed how far the birds flew from their original roost sites and noted that many alternative roost sites were only 150-250m away. Some species flew up to 800m to alternative roost sites within the wider MOTH area, in particular to mudflats that remained exposed on neap high tides which gave birds greater distance and visibly less disturbance from vessels. These roosts were visibly the primary preference for redshank, curlew, black-tailed godwit and golden plover, which would settle there to forage when the tide was rising. Relatively few groups of birds flew further from The Haven (for which monitoring could not then be continued). The Applicant considered that the surveys would have in most cases detected if the birds had been re-disturbed at the closer alternative roosts; it appeared that once birds had been disturbed initially, they were not re-disturbed at the alternative roosts. The Applicant concluded that the observation that the birds currently utilised these alternative sites when they were disturbed by the baseline vessel traffic strongly suggested that the alternative roost sites were providing adequate alternatives. The Applicant also refuted that it had ever described the energy usage for lapwing and ringed plover (waterbird assemblage species) as trivial. It considered that energy usage from additional flights was particularly important for these two species, that returned to the same roost site following disturbance. It highlighted the calculation that the additional energy usage was approximately 0.39% to 0.51% of their daily energy intake requirements per additional disturbance flight and pointed to the investigation of energy usage set out in the HRA Update [REP5-006).

In relation to NE's and the RSPB's comments in their RRs [RR-021 and RR-024] about a lack of information on the effects that potential changes in fishing vessel activity, in order to avoid the potential delays caused by the additional vessels turning, could have on foraging and roosting birds, the Applicant stated [REP1-035] that it considered that the Project would not significantly affect fishing vessel movements. It was working on a Navigation Risk Assessment ("NRA") to be provided at Deadline 2, which would confirm the ability of fishing vessels to transit The Haven as currently and mitigation would be provided in the form of a Navigation Management Plan ("NMP"). A new Condition 14 was inserted in the DML within dDCO Schedule 9 that provided that a NMP must be submitted for approval by the MMO before commencement of any licenced activity. It required that the NMP must include details of the construction timelines, potential risks to navigation and how each stage of the construction process and operation of the authorised development would be managed to ensure a minimal impact on navigation safety in The Haven.

The RSPB raised a concern at Deadline 3 [REP3-033] that the NMP may contain information that was relevant to HRA but would not be produced until post-consent. It considered that a draft should be made available to the Examination.

In response to ExQ 2.10.0.1 the Applicant provided a 'Technical Note for Navigation Management and Ornithology' [REP6-033]. In [REP7-010] it stated that [REP6-033] set out the process to be followed and topics to be covered in developing the NMP, in lieu of a draft NMP, and had due regard to the potential impacts on bird species. It considered that it provided confidence that appropriate weight and consideration would be given to ornithology (specifically in relation to birds associated with the protected sites) in the development of the NMP, which also contained a commitment to monitoring and reporting. It would be a live document subject to update. The Applicant considered that [REP6-033] therefore provided confidence that the future navigation of vessels would take full account of key ornithological requirements within The Haven and The Wash and any new ornithology data that became available. In response to ExQ 3.10.0.18 a NMP template was submitted at Deadline 7 [REP7-012] and an updated version (to address PoB comments) was submitted at Deadline 8 [REP8-011].

NE noted [REP8-024] that the Technical Note for Navigation Management and Ornithology [REP6-033] suggested it could be used as an HRA-level impact management tool but considered that it contained no evidence that adaptation of vessel movement parameters would mitigate impacts and/or could be secured, especially as many aspects of vessel movement such as vessel speeds and tides, would be outside of the Project's control. It was concerned that the Applicant had not identified how the NMP would take birds into account, how it could be modified, and how appropriate nature conservation oversight would be achieved. Until the NMP was provided NE had no confidence that the impacts could be managed to suitably minimise the risk to nature conservation interests.

The Applicant stated in [REP9-033] that it had updated all relevant documents to take account of the PoB's view that vessel speeds must be in line with the 1972 'Convention on the International Regulations for Preventing Collisions at Sea' ("COLREGS") (i.e. a 'safe speed') and considered that none of the changes to the updated documents altered any of the assessments contained in the ES or other application documents. It pointed out that [REP6-033] stated that the final NMP would have to consider opportunities for managing vessel movements to reduce vessel speed and for minimising vessels being held at or near the MOTH. In addition, the NMP Template [REP8-011] identified a clear and overt linkage to [REP6-033], and dDCO Schedule 9 Condition 14(3)(e) required that the NMP should include: "measures for managing disturbance to designated bird species developed in accordance with the process in the Navigation Management Planning Process: Risk to Birds". (This is identified by the Applicant as [REP6-033] although that is titled 'Technical Note for Navigation Management and Ornithology'.) The Applicant stated that [REP8-011] identified NE as a statutory body that will be consulted in the development of the NMP, together with the RSPB, and set out the consultation process.

The Applicant considered in [REP1-035] that the impacts of increased vessel movements had been fully assessed in the HRAR. However, in response to the RSPB's request in their RR for a more detailed assessment and incorporation of data from more recent seasons of bird behavioural observations, the Ornithology Addendum [REP1-026] considered how the projected increase in high tides utilised by commercial vessels and commercial vessel movements per tide, including pilot boats, translated into number of disturbances and numbers of birds involved. Appendix A1 of the Addendum also contained the five most recent years of WeBS data (2014 -

2019) covering all the WeBS sectors within 800 m of The Haven as identified by the RSPB in their RR. It included the individual features and the waterbird assemblage species of the SPA and Ramsar sites.

In their initial comments on the Ornithology Addendum [REP2-053], the RSPB considered that waterbirds could be disturbed and displaced by vessel movements along the whole of The Haven and along the navigation channel out to the PoB anchorage area, in addition to the application site and the MOTH. The RSPB noted that no site-specific survey data had been collected for these areas and considered it was required to inform the assessment of effects on the qualifying features of the SPA and Ramsar site. Two years minimum of survey work was needed to cover all seasons and to account for annual variations. Insufficient data had been presented to provide an understanding of the abundance and distribution of, and impact of recreational activities and other plans and projects on the SPA and Ramsar site qualifying features that use the area along the whole of the navigation channel throughout the year.

The Applicant responded at Deadline 9 [REP9-027] that the SPA's qualifying interests are the numbers of wintering birds. Two years of data had been provided for overwintering, breeding and spring passage bird numbers and for disturbance responses at the MOTH. Numbers were highest during the overwintering period therefore that was considered to represent the WCS for disturbance impacts. It considered that the impact of baseline recreational activities was not relevant to the assessment but explained that it had been considered in selecting the potential compensation sites. It was not anticipated that recreational activities would change as a result of the Project and there were no known proposed plans or projects that would affect recreational activity. The potential for changes to the East Coast Path to have significant effects on SPA features was assessed by NE in 2018 and no sensitive areas were identified for birds along The Haven. Data submitted at Deadline 8 provides a summary of data collected for the central section of The Haven [REP8-018].

The Applicant noted at Deadline 2 that the central section of The Haven was not covered by WeBS counts and acknowledged that there was therefore a data gap in relation to its usage by waterbirds [REP2-006]. However, it considered that the lack of WeBS coverage and lack of inclusion within the SPA designation reflected low ornithological importance. As it had not been identified as an area for which there were potential concerns about bird disturbance bird surveys had not been commissioned. The Applicant also noted that it was narrow, did not have extensive areas of saltmarsh, was not recognised by any designations for its bird interest and had a footpath extending along the stretch which had the potential for causing disturbance, particularly to roosting birds.

At Deadline 9 the RSPB [REP9-065] commented that the WeBS data was useful in assessing the ornithological importance of sites, but needed to be supplemented by site-specific data to provide the evidence needed to inform the HRA. It considered that this was borne out by the Final Waterbird Survey Report [REP8-018], which reported that greater numbers of black-tailed godwit, redshank, golden plover, and lapwing were recorded than in WeBS sectors alone. The absence of information for areas within the central section of The Haven that were functionally linked to the SPA and Ramsar site should have highlighted the need for survey work to ensure there would be no evidence gaps. The RSPB considered that the Applicant's data reinforced its concern that ornithological surveys were essential to understand waterbird use along the whole of The Haven, and that the evidence provided was insufficient to support a conclusion of no AEoI of the SPA and Ramsar site beyond reasonable scientific doubt.

In response to ISH2 Item 5a (as set out in [REP3-023]) the Applicant confirmed that there were three locations where birds using The Haven could be disturbed by vessels at high tide: the MOTH, the application site and the central section of The Haven. It considered that the greatest potential for vessel disturbance was at the MOTH, which lies within the SPA and Ramsar site boundary, followed by the application site, and then the central section. It considered there was a lack of evidence to demonstrate that the central section had more than negligible value to waterbirds but recognised that there were data gaps and had undertaken an initial survey of non-breeding birds there.

The Applicant considered that it had demonstrated through its surveys that under baseline conditions a moderate number of birds roosting at the MOTH (mostly shorebird qualifying features of the SPA and Ramsar site) and the application site (mostly redshank and SPA assemblage waterbirds such as ruff and gull species) were regularly disturbed by cargo vessels and pilot vessels transiting The Haven. These birds exhibited small-scale behavioural responses, either moving to an alternative roost location up to a few hundred metres away or returning to the original location a minute or so after a vessel had passed.

The Applicant considered that according to the assessment presented in Appendix 1 of the Ornithology Addendum [REP1-026] the additional disturbance caused by the Project would not compromise the Conservation Objectives of The Wash SPA. Nevertheless, it acknowledged that any additional disturbance was undesirable. It considered that provision of one of more new roost sites close to the MOTH, that were of equal or greater attractiveness to roosting birds as the existing roosts, would allow for additional vessel traffic along The Haven without causing additional bird disturbance. It described this as a BNG solution.

At Deadline 9 the RSPB commented [REP9-065] that the Applicant had not commissioned any ornithological surveys of the application site for the Preliminary Environmental Information Report on the basis that there was a lack of evidence to demonstrate that it had any value to waterbirds. However, subsequent surveys of that area recorded significant numbers of redshank and ruff and the presence of other SPA and Ramsar site features. In addition, the surveys at the MOTH recorded significant baseline levels of vessel disturbance of waterbirds. The RSPB considered that these highlighted the need to understand the potential impacts of disturbance along the length of The Haven.

The Applicant addressed NE's and the RSPB's concerns about energy usage by birds disturbed by vessel movements in Section 7 of its Deadline 5 HRA Update [REP5-006]. Section 7.2 provides estimates of worst-case energy budget expenditure arising from the Project for redshank, black-tailed godwit, DBBG, lapwing and golden plover at high tides. Based on research by Collop et al. (2016)[31], redshank were predicted to expend an additional 0.186% of their daily energy requirement as a result of displacement from vessel disturbance at the MOTH, and 2.19 to 2.46% at the application site. Black-tailed godwit, DBBG, lapwing and golden plover were expected to expend an additional 0.29%, 0.077%, 1.77% and 1.78%, respectively, as a result of displacement at the MOTH. It was determined that the Project would place energetic demands of less than an additional 1% of daily energy requirements (but on an additional 25% of tides) on species prone to one-off displacement (redshank, black-tailed godwit and DBBG at

[31] Collop, C., Stillman, R. A., Garbutt, A., Yates, M. G., Rispin, E., & Yates, T. (2016). Variability in the area, energy and time costs of wintering waders responding to disturbance. Ibis, 158(4), 711-725. Available at: https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/ibi.12399

the MOTH); and energetic demands of an additional 1-2% of daily energy requirements on species prone to repeat displacement (redshank at the application site and lapwing and golden plover at the MOTH). It was concluded that the energetic demands of responses to disturbance arising from the Project would not be sufficiently severe or apply to a sufficient number of individuals to impact survival or subsequent breeding success of the SPA waterbird populations.

In relation to the number of disturbance events, the Applicant confirmed [REP6-032] that there would be an additional 1160 vessel movements/year associated with the Project if 100% of high tides were utilised, and that this had been adopted as the worst-case number of disturbance flights for bird species that returned to roosts and so were repeatedly disturbed.

In response to the Applicant's HRA update [REP5-006], NE [REP8-022] highlighted that golden plover and lapwing could be at energetic risk as a result of repeated disturbance. Based on a significance threshold of a 1% increase in background mortality and given the current golden plover population on The Wash, NE considered that increases in mortality above 41 birds would be of concern. If increases in energetic requirements directly translated into mortality of individuals at the MOTH this would equate to approximately 48 birds per annum. NE indicated that this approach was highly precautionary, however concluded that a risk of AEoI for golden plover could not be ruled out. Although the predicted impact on lapwing would be below the 1% threshold NE highlighted that both species are in decline on The Wash and so the loss of both was a concern. NE noted that golden plover were not included in the additional CiWB 2021 survey report [REP6-034] although they were described in the Ornithology Addendum [REP1-026] as responding to five of nine disturbance events by returning to their initial roost, and on four of nine occasions as abandoning it. NE noted the recognition by the Applicant that compensation may be required for effects on golden plover, and requested clarification of their observed responses to vessel movements and consideration of the implications of additional energetic requirements if compensation could not be provided.

The Applicant [REP8-017] referred back to the additional assessment of energy usage provided within the HRA Update [REP5-006) and its conclusion that the energetic demands of disturbance responses to project-related activities would not be of sufficient severity or affect a sufficient number of individuals to impact survival or subsequent breeding success of SPA waterbird populations. It highlighted that lapwing and plover are part of the SPA waterbird assemblage rather than individual qualifying species and identified in The Wash Information Sheet on Ramsar Wetlands as species/populations.

The RSPB commented [REP9-065] that the Applicant had not considered the vessel activity out to the PoB anchorage area and potential impacts on SPA features known to use that area of The Wash, i.e. common scoter, eider, goldeneye and red-throated diver, and that this remained a concern.

The Applicant responded at Deadline 10 [REP10-020] that it had not provided evidence of vessel and bird use of the anchorage area but that evidence of use of the open waters of The Wash close to the anchorage area was provided in the additional CIWB 2021 survey report [REP6-034]. It considered that the CIWB survey vantage point facilitated observation of birds and vessels around the anchorage area to the extent that any other land-based survey would have done. It anticipated that the Project vessels would not need to utilise the anchorage area as often as the commercial vessels using the PoB as the Project vessels could be managed so that arrival times would routinely match the tidal window.

The Secretary of States conclusions regarding disturbance to bird species at the application site, at the MOTH and along The Haven are recorded in Sections 5.7.2, 5.7.3 and 5.7.4 respectively.

5.7.2 Redshank; waterbird assemblages: Alone and In-combination

5.7.2.1 Roosting habitat loss at the application site

In the final updated HRAR [AS-006], the Applicant states that bird counts were undertaken throughout the winter and spring of 2019/20 and during the winter and spring of 2021 for the intertidal areas incorporating the PAS (Area A) and the adjacent area (Area B). Areas A and B are shown in Figure 2. Habitat loss resulting from the construction of the proposed wharf would be mostly confined to Area A with an area of scour protection on the edge of Area B.

The saltmarsh area on the wharf side of the river within Area A that provides a roosting area at high tide will be lost. The loss is calculated by the Applicant as a maximum of 1 ha (this includes a small area of loss (0.17 ha) that could potentially be lost on the edge of Area B to indirect loss and scour protection in the upper zone). This area of saltmarsh has been described as of poor quality due to its limited extent, low diversity and negligible zonation [AS-006]. The saltmarsh within Area A is a narrow strip of marsh (between 12 m and 28 m wide) that occurs between the seawall and an area of rock armour that occurs between the saltmarsh and the mudflat. The Applicant stated that, to put the saltmarsh loss into context, the area of saltmarsh in The Haven is estimated at 62 ha and the area of saltmarsh in The Wash is 5814 ha (including a small part of The Haven). The loss is therefore estimated to be 0.017 % of the saltmarsh in these two areas.

The Applicant stated [AS-006] that the bird counts revealed that a number of waterbirds use Area A for feeding and/or roosting, however, almost all species recorded were in numbers representing less than 1 % of The Wash population (based on the 5-year WeBS average counts for The Wash at the time of the survey, 2013/14 to 2017/18), and were therefore present in numbers not considered to be significant in the context of the wider Wash population. However, in both Area A and Area B the peak wintering counts of redshank and ruff were greater than 1 % of their respective 5-year average population in The Wash, indicating that, at times, significant numbers of these two species may forage within The Haven, including areas that may be lost during construction work.

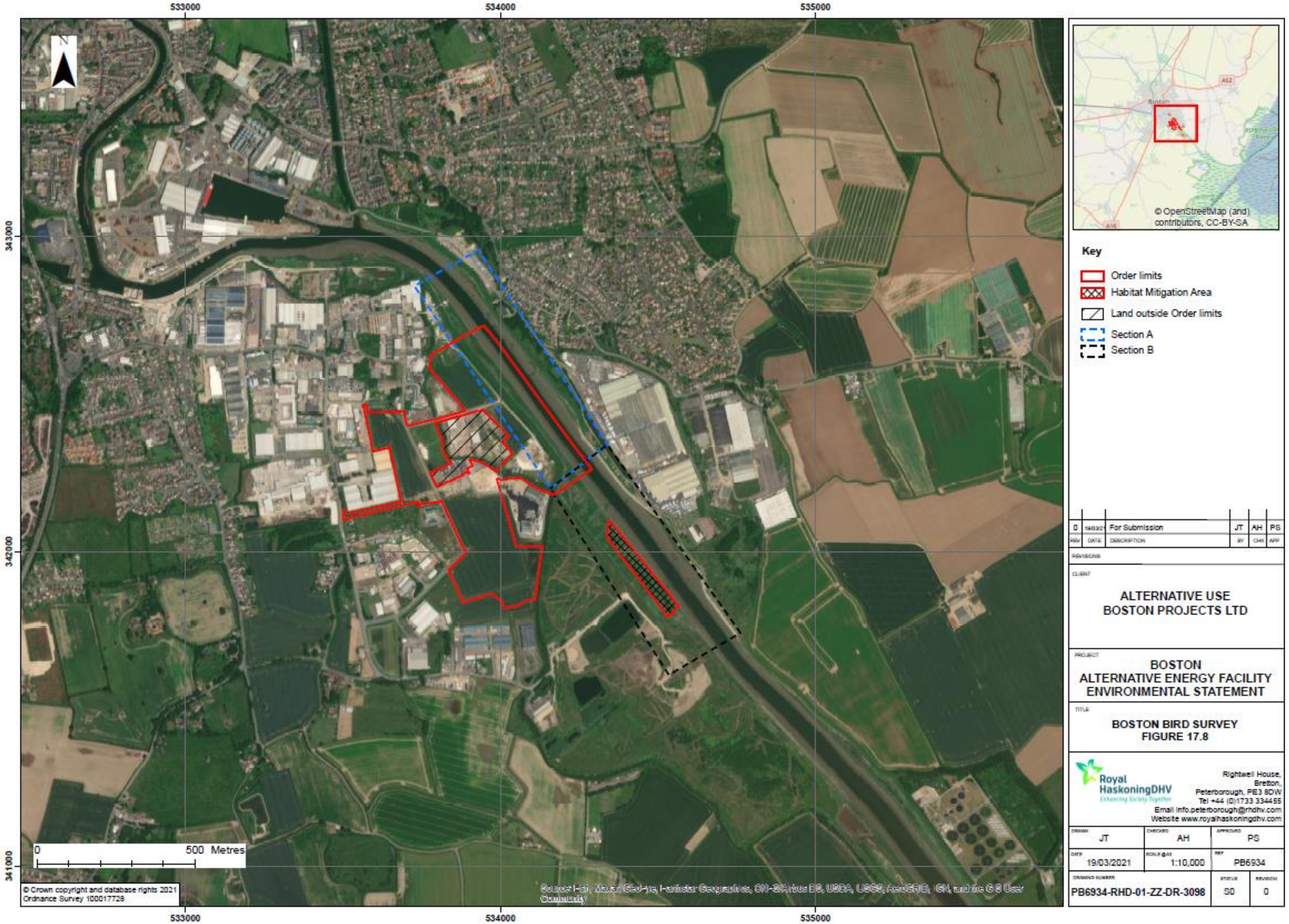

Figure 2: Bird survey Areas A and B at the application site. Areas C to E (see Section 5.2) are located downstream of Area B towards the MOTH and are shown on Figure 5-1 of [REP8-018].

The Applicant stated in its HRAR that to mitigate the loss of the roosting and foraging habitats for waders, in particular redshank, it proposed works to enhance the habitat within the HMA to improve the existing roosting and foraging habitat. The HMA would cover 1.5 ha and its location is comprised predominantly of saltmarsh with several small tidal creeks, within Area B (Figure 2). It is located approximately 170 m to the southeast of the PAS and over 250 m away from the closest edge of the proposed wharf. The proposed works would involve the creation of shallow pools (10-15 cm deep) in the existing marshy habitat, re-profiling the edges of existing pools and low profile banks and increasing the volume of 'roosting' rocks in the upper intertidal area. These are detailed in the OLEMS [REP10-014] and secured by dDCO Requirement 6 [REP10-004], which requires a final Landscape and Ecological Mitigation Strategy ("LEMS") to be approved which must be substantially in accordance with the OLEMS. The content of the OLEMS predominantly relates to the terrestrial parts of the application site but Appendix 1 contains (in addition to information on biodiversity net gain measures) information on intertidal mitigation measures relating to the HMA.

The Applicant concluded [AS-006] that mudflat and saltmarsh habitat loss would not constitute an AEoI of the SPA/Ramsar site. The habitat in the wider area (particularly with the mitigation measures outlined above) would be able to support feeding and roosting birds affected by the Project, with no negative effect on the supporting function that habitats within The Haven contribute to the structure and function of the SPA and Ramsar site.

NE initially considered [RR-021] that the HMA, involving the addition of coastal lagoons to existing areas of saltmarsh, would constitute a compensation rather than a mitigation measure. NE expressed concern that the required works for the HMA, such as reprofiling of some low banks and flattening/removal of an "old bank", could also affect the surrounding saltmarsh, which it considered is functionally linked to the SPA habitat, and therefore could affect the SPA species. NE raised concerns about the resulting loss of saltmarsh in the proposed HMA from the creation of the pools/scrapes in addition to the 1 ha lost due to construction of the wharf and berth. It also expressed concerns about the effectiveness of the HMA in providing sufficient mitigation for effects on qualifying features of the protected sites, and about the assessment of effects arising from its construction and existence. It considered that the description in the HRAR of the proposed works to compensate for loss of habitat important to redshank was insufficient to provide confidence that it would deliver the necessary compensation at the scale required. NE also advised [RR-021] that the works to the HMA would require annual management to prevent succession to poor quality (for redshank) saltmarsh and a mechanism to prevent access and associated disturbance from users of the nearby footpath. It raised a concern that there could be increased visual disturbance to redshank as a result of use of the proposed realignment of the ECP, which would pass the HMA, and questioned if the location of the HMA was appropriate. The RSPB [RR-024] considered that the potential change in use of the nearby footpath due to the proposed realignment of the ECP would have to be effectively managed to ensure the proposed mitigation would not be compromised.

The Applicant agreed [REP1-035] that ongoing maintenance would be necessary and explained that it would be detailed further in the updated OLEMS. It stated that there would be no change in the footpath adjacent to the HMA and it would not be any closer to the works area than previously, when the area has been used as a roosting site. Therefore, it was not expected that there would be any additional disturbance.

NE confirmed at Deadline 5 [REP5-012] its agreement that there would be no effect on SPA features resulting from the realignment of the ECP on the basis that the proposed route was through scrubby land that was nearer to Boston and in an industrial area not used by SPA birds.

NE noted [RR-021] that the loss of feeding grounds for 14-27 redshank at the application site has not been compensated for, and as a species that is site-loyal in winter there was no evidence to support the assumption that they would relocate to adjacent areas. It noted that it was unclear whether The Haven was at capacity for its redshank population, and that as a functionally linked population this impact would have a bearing on The Wash population, albeit a relatively small part of the wider population and relatively distant from the SPA.

The Applicant responded [REP1-035] that the proposed mitigation provided additional foraging areas as well as roosting areas to account for the loss of intertidal feeding habitat. It explained that the foraging areas would be provided through reinstatement of overgrown shallow ponds within the HMA but would be located far enough away to be “outwith the prescribed disturbance levels”. The Applicant considered that with these measures in place there would be no AEoI and therefore no need for compensation. It confirmed, however, that a 'without prejudice' derogation case was being prepared which would include compensation measures where considered appropriate. At Deadline 9 the Applicant stated [REP9-027] that the foraging habitat that would be lost was a very small area of intertidal mudflat, and that the same habitat existed all along The Haven and would provide sufficient habitat for the 14 to 27 redshank. It also highlighted that the HMA would provide additional foraging habitat through enhancement of the existing overgrown saltmarsh ponds.

The Applicant stated [REP1-035] that it agreed that the distance between the SPA boundary and the application site, combined with individual redshanks' winter site fidelity once a successful daily and seasonal strategy has been established, meant that redshanks roosting at the application site during high tide could include individuals which foraged within the SPA, and conversely that redshanks foraging at the application site when the mudflats are exposed could include individuals which roosted within the SPA. The Applicant stated that on this basis it had assumed throughout the HRA and the Ornithology Addendum that redshanks at the application site had connectivity with the SPA. At Deadline 9 the Applicant stated [REP9-027] that further analysis, as reported in the HRA Update [REP5-006], demonstrated that it was not connected habitat according to the definition of functional connectivity set out within Section 4.2 of [REP5-006].

NE noted [REP2-045] that the Applicant had acknowledged the need to provide redshank-specific features in the proposed HMA and to undertake annual maintenance to secure the roost habitat, but information on how the HMA would be managed had not yet been provided at Deadline 2. The bird surveys had confirmed that the location of the HMA is subject to vessel disturbance and is within the expected disturbance zone of vessels using The Haven to access the application site, which could negate its efficacy as a roost. The Addendum confirmed that alternative provisions for redshank were being sought but that information on those was yet to be provided. NE considered that the risk to the SPA was low if the mitigation was secured and proved to be suitable roosting habitat but still had significant doubts about its efficacy. It reiterated that in the absence of such security a conclusion of no AEoI could not be concluded beyond all significant doubt as the scale of the impacts on the SPA remained unknown.

The RSBP [REP2-051] reiterated its position as set out in their WR that the HMA constituted a compensation rather than a mitigation measure and that there was no certainty that it would be effective as it would be subject to disturbance from vessel movements.

The Applicant stated [REP2-006] that it did not consider that the provision of the HMA should be defined as compensation, it noted that further information on roost design and additional options for provision of alternative roost sites for redshank would be included in the updated OLEMS to be submitted at Deadline 3. It also explained that the provision of increased roosting areas in the HMA was designed to increase the existing roosting area, which forms part of the existing roost site, rather than provide a new site, and anticipated that this would provide sufficient habitat for the birds.

The RSPB stated at Deadline 3 [REP3-033] that its concerns with the proposed HMA remained and insufficient evidence had been provided to demonstrate that it would be effective and was in an appropriate location.

The Applicant submitted an updated OLEMS at Deadline 3 [REP3-007]. It reflected the outcomes of modelled noise level contour mapping for the construction and operational periods. For the construction period it provided details of additional mitigation proposed (including seasonal restrictions on piling activity), monitoring of birds within 250 m of construction activity, and actions to be taken in the event that 1% or more of the five-year peak mean number of any SPA or Ramsar site qualifying species showed behavioural response signs of disturbance. It explained that during operation ongoing monitoring (such as of the condition of the saltmarsh habitat and scrapes in the HMA) and maintenance measures would be undertaken.

In its comments [REP5-017] on the updated OLEMS, NE raised concerns in relation to the HMA works that the proposals to decrease the gradient of one bank and flatten/remove the old bank could increase visual and noise disturbance arising from the footpath and The Haven to the birds using the saltmarsh in the HMA. NE requested that further details of the works were provided, including on the methods to be used and the volume of material to be removed. It also noted that the frequency of the proposed post-construction surveys was unclear.

The Applicant considered [REP9-027] that it had addressed NE's concerns. It explained that the detailed design for this area was not yet finalised but, as set out in the updated OLEMS [REP7-037), the plans for any works would be developed (in discussion with NE, the EA and the RSPB) with the aim of improving the area for birds and other wildlife and undertaking no works that would have an adverse effect.

The RSPB remained concerned at Deadline 5 [REP5-019] that the HMA was described as mitigation rather than compensation. It stated that it would be unable to agree the SoCG if this did not change.

In relation to the HRA Update [REP5-006], NE [REP8-022] continued to seek clarification on the HMA, in respect of the removal of the low-profile banks; location of the created three shallow pools; and placement of rocks from the application site to the HMA to facilitate roosting of redshank, and queried whether these would function in the same way as the remaining banks (Old Sea Wall). It raised a concern that it may restrict visibility of predators. It also suggested the use of fencing to restrict access to the HMA from the Coastal Path, to minimise disturbance of this area which would potentially be utilised more regularly by roosting birds.

The Applicant stated at Deadline 7 [REP7-008] that the comments provided by NE [REP5-017] on the Deadline 3 OLEMS in respect of mitigation and monitoring had been addressed in the

updated OLEMS (Appendix 1) (V2.0) [REP7-037] submitted at Deadline 7. It would implement an adaptive management strategy; additional measures would be initiated in the event that the HMA did not provide sufficient habitat for the birds that could be displaced as a result of the loss of the habitat in the wharf area. This could include further management within the HMA and/or creation of a freshwater wetland area in an agricultural field approximately 1 km downstream from the HMA, which could provide an alternative area for roosting.

The Applicant further commented at Deadline 8 [REP8-017] that the updated OLEMS stated that plans for the HMA works would be developed to provide optimal benefits for biodiversity, in discussion with NE, the EA and the RSPB. This was to ensure any works undertaken would aim to improve the area for birds and other wildlife and no works would be undertaken that would have an adverse effect.

In relation to NE's concerns about the ability of the HMA to provide adequate mitigation the Applicant stated [REP9-027, REP10-020] that the design of the HMA took into account disturbance distances for redshank based on peer-reviewed research, i.e. the IECS Waterbird Disturbance Mitigation Toolkit, 2013. In [REP9-033] it stated its view that the HMA would provide sufficient habitat for the number of birds using the area. In the event that the DCO was granted, regardless of whether it was determined that compensation was required, a network of sites each separated by less than 1 km, between the HMA and the RSPB Frampton Marsh reserve (as identified in [REP8-006]), would be provided two years ahead of the operational phase and associated increase in vessel movements. These would be suitable for redshank, ruff, golden plover and lapwing. They would be provided as BNG measures if not required as compensation.

NE, in response to ExQ 3.3.1.34 [PD-013], confirmed its view that the HMA would constitute mitigation, not compensation [REP8-023]. At Deadline 9 NE reiterated their position [REP9-063] that the proposed enhancement of the HMA would not on its own provide sufficient mitigation for the potential changes to supporting habitat along the Haven resulting from the Project. It also stated that it considered that the HMA was a compensation measure on the basis that mitigation is something that reduces/minimises the severity of an impact, whereas what the Applicant is proposing is compensation to offset impacts, and therefore to describe it as a HMA was incorrect.

The Applicant explained at Deadline 9 [REP9-027] that the proposed mitigation involved re-using the existing rocks that provide roosting habitat and moving them along the intertidal area out of Area A and into the adjacent Area B (containing the proposed HMA). It considered that the works represent mitigation as existing artificial structures would be relocated into the same overall roosting area to continue to be used as roosting habitat and would enhance existing habitat in the roosting area.

NE provided a response at Deadline 10 [REP10-036] to Question 3 in the Rule 17 letter [PD-015] asking it to reclarify whether it considered the HMA comprised mitigation or compensation. It noted that it was rare for there to be a need to offset effects on an SPA species both within the SPA boundary (the MOTH) and on FLL (The Haven), which made it challenging to differentiate between mitigation and compensation. It considered that the HMA would mitigate for the FLL habitat loss, but not the likely disturbance from associated activities (i.e. vessel movements), which would need to be considered in relation to the compensation site, as birds were likely to move between the two areas. NE were also concerned that uncertainties remained around whether management of the HMA would continue over the lifetime of the project to ensure it continued to mitigate effects and did not return to its original state. In addition, NE considered that the impacts of creating the HMA on UK (BAP) priority saltmarsh habitat had not been

addressed by the Applicant. In relation to the proposed compensation for the potential AEoI from disturbance at the MOTH, NE considered that the Applicant had amalgamated the mitigation and compensation measures within its derogation case but had not determined their requirements or evidenced that the compensation package would address the effects.

The ExA [ER 1.8.73 App. C] considered that the HMA would comprise a mitigation rather than a compensation measure on the basis that Areas A and B form part of the same larger roosting site, in which the HMA would be located, and the HMA would potentially reduce impacts on the part of that wider area from which there would be habitat loss (due to construction of the proposed wharf). However, the ExA stated that it agreed with NE, in that although the HMA could mitigate the effects of habitat loss, it would not be sufficient to mitigate the effects of disturbance on redshank and the waterbird assemblage at the application site from construction of the Project and increased vessel movements during operation, for which compensation would be required (see Section 5.7.2.3 for consideration of disturbance at the application site).

The ExA concluded [ER Table C2, App. C] that an AEoI of The Wash SPA due to effects of habitat loss at the application site on redshank and waterbird assemblages can be excluded, both alone and in-combination with other plans or projects.

5.7.2.2 Additional information

To be certain of NE's position regarding the sufficiency of the HMA as mitigation for the effects of roosting habitat loss, in his first consultation letter the Secretary of State invited NE to confirm whether it considers that the HMA is sufficient to mitigate the effects of the loss of FLL at the application site. NE responded on 9 November 2022[32], stating that its position remained unchanged to that in [REP9-058], that: *'…the identified sites are unlikely to support all impacted species but should be sufficient to* ***mitigate development site impacts*** [original emphasis] *and would potentially compensate for a substantial part of the impacts at the Mouth of the Haven."*.

NE also stated that: *"… In addition we highlight that much of our advice and queries raised within our detailed comments table provided in Appendix B5 at Deadline 8 [REP8-23] remain unaddressed by the Applicant including points 8, 12 and 13 relating specifically to the mitigation area."*.

In his first consultation letter, the Secretary of State requested the Applicant to provide without-prejudice additional mitigation measures and/or enhancements to the existing proposed mitigation measures to reduce disturbance effects to bird species of The Wash SPA. The Applicant responded on 11 November 2022[33] and proposed an additional enhancement measure for the HMA, of palisade fencing around the landward edges of the HMA to prevent disturbance from people and dogs using the footpath and intrusion of workers, which was thought to have a high / high to moderate disturbance effect, if this was considered necessary. The Secretary of State notes that during Examination NE [REP8-23] suggested additional mitigation to restrict access by members of the public and dog walkers onto the HMA using

[32] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001397-SoS-14-October-Questions-to-NE.pdf

[33] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001394-9.107-Applicants-Response-to-Secretary-of-States-Letter-of-14th-October-2022.pdf

fencing, to minimise disturbance if this area is being used more regularly by roosting birds. The Applicant proposed wording to secure this measure in the OLEMS.

In the second information request, the Secretary of State invited the Applicant to comment on NEs response to the first information request. The Applicant stated[34] that it had provided a response to [REP8-23], including points 8, 12 and 13 in [REP9-033]. The Secretary of State notes that responses in Table 2-7 of [REP9-033] refer to Table 2-2 of [REP8-017] (no. 1, 3 and 5), and that this response refers to the OLEMS [REP7-037].

In his second consultation letter, the Secretary of State invited NE to comment on the sufficiency of the proposed mitigation measures for disturbance effects to bird features of The Wash SPA, in light of the Applicant's response to the first consultation letter. NE responded on 8 December 2022[35,36]. With regards to the Applicant's proposed enhancement to the HMA, NE stated that it agrees that palisade fencing could mitigate human disturbance, but that this does not address concerns it raised in relation to long term habitat management and waterborne disturbance.

The RSPB reviewed the submissions provided by the Applicant, NE and the EA to the Secretary of State's first consultation letter and provided its position in response to the second consultation letter, on 9 December 2022[37]. With regards to the proposed palisade fencing, the RSPB stated: *"… This would need planning permission. It should also be of a type appropriate to the location. It is not clear that the specification of the fencing has been provided by the Applicant or that discussions regarding planning permission have taken place."*.

In response to the third information request, the Applicant[38] responded to NE and the RSPBs comments. With regards to NEs queries regarding long-term habitat management and water bourn disturbance, the Applicant restated that it had already agreed within the OLEMS to undertake ongoing monitoring and maintenance of the HMA, for as long as the wharf structure is present. This would be undertaken as an adaptive management strategy whereby the results of monitoring would record the condition of the saltmarsh habitat and determine the frequency and requirement for maintenance to maintain the scrapes. Initially, the monitoring would be undertaken annually, during the summer, to record saltmarsh species and size of the scrapes. Results would be reviewed to ensure that the scrapes are still present and whether any changes have occurred to the marsh area. Annual reports of the monitoring results would be provided to NE and the RSPB, followed by discussion of any changes necessary as part of the adaptive management strategy under which the sites will be managed (Appendix 1 of the OLEMS). The works to enhance the HMA were designed to be far enough from the working areas of the Project to have a significant effect. It is acknowledged by the Applicant that there will be more vessels using The Haven adjacent to the Project but the birds that currently use the facility are already

[34] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001404-Applicants-Response-to-SoS-Letter-25-November-2022.pdf

[35] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001400-NE-response-to-SoS-25-November-Questions.pdf

[36] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001402-NE-Updated-Ornithology-Advice-to-SoS-Dec-2022.pdf

[37] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001403-RSPB-comments-on-SoS-25-November-information-request.pdf

[38] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001423-9.111-The-Applicants-Response-to-Comments-Raised-by-Natural-England-and-the-RSPB.pdf

adapted to the presence of vessels in this area. Monitoring is proposed within the OLEMS to ensure that the objectives were being met. The OLEMS also states that should the proposed measures not be effective at providing habitat for the same number of birds as displaced then additional measures would be undertaken.

The Secretary of State notes that NE advised that the identified sites should be sufficient to mitigate development site impacts. The Secretary of State agrees with the ExA and the Applicant and considers the HMA to be sufficient to mitigate impacts resulting from the loss of habitat at the PAS. He is supportive of the proposed palisade fencing to reduce disturbance of the HMA, and he is satisfied that, based upon the mitigation measures and adaptive management secured in the final updated OLEMS[39], an AEoI of The Wash SPA from the effects of roosting habitat loss on redshank and the waterbird assemblage at the PAS from the Project alone and in-combination can be excluded. The Secretary of State is satisfied that a final LEMS will be produced prior to commencement of any part of the Project, following consultation with the EA, SNCB, LWT and the RSPB, which must be substantially in accordance with the OLEMS. This is secured though Requirement 6 of the DCO and Condition 18 of the draft DML.

5.7.2.3 Disturbance effects at the application site and adjacent area – construction noise and vessel disturbance (visual, presence and noise)

The Applicant in its HRAR [AS-006] considered that construction noise at the application site could disturb some of the bird species that use the saltmarsh and mudflats for feeding and roosting and form part of the assemblage of waterbirds that make up The Wash SPA and Ramsar site or are qualifying species for the protected sites. The most likely cause of disturbance is the noise and vibration associated with construction activity, but mostly with regard to piling activities and potentially rock armouring for scour protection. This impact is assessed in detail in Section 17.8 of Chapter 17 of the ES.

The Ornithology Addendum [REP1-026] considered potential effects at the application site on redshank and the waterbird assemblage (for which the Applicant had identified an LSE) arising from habitat loss and disturbance through construction noise, vessel disturbance (visual, presence and noise during both construction and operation) and lighting.

Construction noise (e.g. piling)

In relation to disturbance to birds from piling during construction the Applicant submitted an updated version of the dDCO at Deadline 1 [REP1-003]. Condition 13 of the DML contained in Schedule 9 had been updated to require that the post-consent piling method statement included details of the timing of piling activities to ensure that they would be undertaken during non-sensitive periods for overwintering birds, i.e. May to September, as set out in the Register of Environmental Actions and Commitments (“REAC”) [REP1-014].

NE acknowledged [RR-021] the Applicant’s justification for a 250 m monitoring zone for noise and visual disturbance effects on birds and considered that this appeared to be appropriate for the Project considering its distance from the SPA and the reduced numbers of birds using the upper stretches of The Haven. However, NE noted that data had shown that numbers of ruff and

[39] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001415-7.4(4)-Outline-Landscape-and-Ecological-Mitigation-Strategy-Clean.pdf

redshank in Sections A and B had exceeded the 1% threshold during monitoring and requested assurance that it remained appropriate for ruff and redshank.

The Applicant responded [REP1-035] that the buffer zones for works to avoid and minimise disturbance to species were taken from Cutts et al (2008), which provides peer reviewed data on disturbance distances for waders, but that site-specific surveys were also used to provide site-specific information on actual disturbance levels. The Applicant [REP2-006] referred to information contained in ES Chapter 17 [REP1-026] about EA monitoring of ground investigation ("GI") works in 2019, and the resulting suggestion by the EA that 250 m was a more reasonable distance (than 500 m) to consider potential disturbance effects of GI activities on non-breeding waterbirds. The EA had considered that there was no evidence of any visual or noise disturbance affecting birds over 250 m away. The Applicant considered this to be a sound approach and that its proposed mitigation, i.e. monitoring and stopping works if a threshold number (to be agreed with NE) of birds was exceeded within a 250 m radius, would successfully reduce disturbance to waterbirds.

In NE's response [AS-001] to ISH2 Question 4.b, it stated that the comments made in its Deadline 1 and Deadline 2 Risk and Issues Log [REP2-048] remained unchanged, i.e. NE were still awaiting demonstration that the proposed 250 m buffer zone was appropriate for ruff and redshank, and the behavioural response information included in the bird survey data should be reviewed to see how distances compare, and whether following Cutts was appropriate, precautionary, or not sufficiently precautionary.

The RSPB commented [REP3-033] that it was unclear whether the activities proposed by the Applicant would be of a similar nature to the GI works undertaken by the EA and requested more detail on the similarities and differences between the works, such as the scale and duration of the works and the equipment required. At Deadline 9 the RSPB expressed [REP9-065] its view that this had not been addressed by the Applicant and remained outstanding.

In response to NE's comments in [RR-021] and [REP2-048] about the proposed 250 m buffer zone, the Applicant submitted a technical note, 'Noise modelling and mapping relating to bird disturbance at the Principal Application Site' at Deadline 4 [REP4-015]. It was described as providing further quantitative information on the predicted noise levels associated with each phase and scenario of the Project, the areas over which the higher noise levels associated with bird disturbance would occur, and the effective distances from activities within which waterbirds may be disturbed or excluded (compared to the proposed 250 m monitoring zone).

Figure 1-1 of [REP4-015] depicts the bird survey areas. Table 1-1 presents a summary of the baseline noise levels in those areas. Table 2-1 presents the noise thresholds (for either where disturbance was likely or 'caution' was suggested), as set out in Cutts et al., associated with disturbance responses for three waterbird species. These are redshank, ringed plover and mallard (the latter two of which form part of the SPA/Ramsar site waterbird assemblage) which are recorded on The Haven near to the application site during the winter, when redshank would be roosting in peak numbers. Figures 2-1 to 2-6 depict the daytime and night-time modelled noise contours for the construction phase (with and without piling) and the operational phase of the Project.

The Applicant stated that the modelling indicated that the Cutts et al. thresholds were not exceeded and that the noise levels at which disturbance would occur did not extend beyond the proposed 250 m monitoring zone, except during piling in the construction period. "Caution" noise

levels were predicted to occur over at least 300 m from the application site, including at the location of the redshank roost in the HMA. The Applicant highlighted that the piling period was seasonally restricted to June, July, August and September when temperatures are higher, daylight foraging opportunity for waterbirds is greater so energy budgets are less constrained, and several SPA waterbirds (particularly redshank) are recorded as absent or infrequent near the application site (according to the Autumn survey of waterbirds [REP3-019]). It also noted that data from the Autumn counts of non-breeding waterbirds at The Haven adjacent to the application site showed that some birds are present in the final week of September in similarly significant numbers to the main winter months, including ruff, and that the application site breeding bird and vessel disturbance surveys [REP01-026] showed that waterbird numbers on The Haven are considerably lower in April to July.

NE noted [REP5-013] that piling represented the highest risk activity. It agreed the proposed seasonal restriction would limit exposure to over-wintering birds and expressed support for it as a mitigation measure if it can be appropriately secured in the DCO/DML or a named plan. However, NE highlighted that peak numbers of redshank in the UK generally occur in September and suggested that, where possible, piling activity should first be undertaken in areas near to The Haven and in more distant areas later. NE agreed that operational noise was unlikely to be detrimental to the redshank roosting site.

NE agreed with the Applicant's proposed monitoring during construction of a 250 m zone and to reduce, pause or postpone works where bird disturbance occurred. It advised that the survey area should be increased if persistent disturbing noise levels extended more than 250 m from the point source and advised that the risk zone for piling activities should extend to 450 m until bird responses were known. NE queried how this mitigation would be secured and suggested it should be in the DCO/DML or a named plan.

The Applicant responded [REP6-032] that the restriction on piling activity in the intertidal area between June to September (inclusive) is secured by Condition 13 of the DML contained in Schedule 9 of the draft DCO, which provides that the piling method statement approved by the MMO in consultation with NE as the SNCB must include: "*details on the timing of piling activities throughout the year to ensure they are undertaken during non-sensitive periods for overwintering birds and juvenile fish (June – September inclusive)*". The Applicant also stated that the adaptive management (250 m monitoring zone) measures for birds around construction noise/visual sources of disturbance apply to all construction activities, and are secured within the OLEMS [REP3-007], which is secured by Requirement 6 of the dDCO, and requires the approval of a LEMS which must be substantially in accordance with the OLEMS.

Vessel disturbance (visual, presence and noise)

In respect of vessel disturbance of redshank in Sections A and B (shown on Addendum Figure 3-2 of the Ornithology Addendum [REP1-026]), the bird counts (between October 2019 and July 2021) showed that numbers at high tide frequently exceeded 1% of The Wash SPA population and exceeded 1% at low tide on two occasions (presented in Table 6-2). They were disturbed on 100% of the three high-tide periods watched during the baseline disturbance study at the application site in winter, with five vessel disturbance events witnessed. Two of the disturbance events were caused by large cargo vessels, one was caused by the transit of a pilot boat, and two were caused by transit of a fishing boat. The mean and peak numbers of redshank showing a disturbance response was 46 and 120 birds, respectively, which equate to approximately 1.1% and 2.8% of The Wash SPA population, respectively. Between February and July 2021 the

number of redshank disturbed by vessels exceeded 1% of The Wash population during only one of the seven high tide periods monitored at the application site and was less than 0.2% on two of the periods. It was concluded that there was a high likelihood that any redshank roosting at Sections A and B will be disturbed by passing vessels.

It was observed [REP1-026] that the response of redshank to vessels was predominantly to fly to an alternative site, estimated to be between 100 m – 400 m away in the vast majority of cases. In all cases involving a cargo vessel or pilot boat some roosting birds returned to their original location within 60 seconds. For one of the cargo vessel disturbance events this was undertaken by two birds compared to 13 that moved elsewhere; for the other cargo vessels this was 77 birds compared to 40 that moved elsewhere. It was concluded therefore that repeat disturbance to redshanks was a possibility at the application site.

It was explained [REP1-026] that it was not apparent that there were alternative roost sites locally available to redshank which could potentially avoid disturbance from vessel movements. The disturbed redshanks that relocated to alternative roost locations between 150 – 300 m away moved between area Sections A and B, at both of which disturbance from vessels was recorded. It was anticipated that re-using the rocks from Section A to provide additional roosting areas in Section B would provide enough roosting habitat to support all of the redshank using this area but would not mitigate the disturbance in this area caused by the increased vessel numbers.

It was considered [REP1-026] that given that the majority of vessels appeared to cause disturbance to the birds in this area it was likely that they were habituated to it. However, to offset the loss of saltmarsh and mudflat as a result of construction of the wharf in Section A, the Applicant was seeking areas in which habitat enhancement and creation could take place and these would be designed to also provide additional foraging and roosting habitat for redshank. Sites were being sought within 3.5 km but as close as possible to the application site and would be of a suitable scale to support the redshank. It was intended that they would be secured and in place before construction of the Project began.

It was concluded [REP1-026] that roosting redshank at the application site that were disturbed by vessels would be able to either resettle on the roosting area in Section B or relocate to the nearby alternative roost sites created to offset the habitat loss. The distances that vessel-disturbed redshank would be required to fly in relocating to the alternative roost sites was considered to be relatively small, based on a 1996 analysis of ringing data of redshank wintering in The Wash (Rehfisch et al., A Guide to the Provision of Refuges for Waders: An Analysis of 30 Years of Ringing Data from the Wash, England.) that demonstrated that redshank refuges (roost sites) should be no more than 3.5 km apart to be within reach of at least 90% of individuals.

It was concluded by the Applicant [REP1-026] that the additional vessel disturbance at the application site resulting from the Project would not compromise The Wash SPA Conservation Objectives for redshank. This was based on a number of premises. Redshank are absent from the application site area in spring and summer, and it was considered that those likely to show a disturbance response in winter form only a small proportion (on average 1.1%, largest event witnessed 2.8%) of the SPA population. It was thought that they were habituated to vessel disturbance. They would have access to additional alternative local roost locations created through the habitat loss offset measures by the time the increase in vessel numbers resulting from construction and operation occurred. The number of redshank at risk of disturbance from the predicted additional vessel movements was anticipated to be the same as that under baseline conditions. The great majority of the birds affected were thought to be roosting birds as

vessel movements are restricted to high water; therefore the additional disturbance was not anticipated to materially affect foraging time and energy intake and expenditure rates. The birds affected by additional vessel disturbance were not likely to be exposed to a materially higher predation risk, as the range and density of potential predators at the alternative roost locations within 1 km of the roost site adjacent to the application site were unlikely to be materially different, and the additional time spent in flight (when individuals may be more vulnerable to birds of prey) was anticipated to be very small.

In relation to the waterbird assemblage at the application site, Table 6-3 of the Ornithology Addendum [REP1-026] presented the sources and rates of vessel-based disturbance to birds at the application site (based on the CiWB 2021 survey data contained in Appendix A3.1), according to vessel type and bird activity. It indicated that it was largely roosting birds which were disturbed by vessel activity, resulting from visual impacts of cargo and fishing vessels. Cargo vessels caused the majority of disturbance events for foraging and land-roosting birds, while pilot boats were a “disproportionate” source of disturbance to birds on the water or bathing. In respect of successive disturbance from cargo vessels it was observed (between March and July 2021) that the number of birds exhibiting a response on the first and second passages of a vessel did not strongly differ, indicating that repeat disturbance was possible at the application site.

It was considered by the Applicant [REP1-026] apparent that there were alternative roost sites available to some of the assemblage species, (i.e. bar-tailed godwit, cormorant, curlew, herring gull, lesser black-backed gull, ruff and shelduck), which relocated 200 – 400 m away from the application site, within Sections A and B (where disturbance had been recorded). Roosting cormorant and shelduck that were disturbed by vessels moved 500 m or more to a new roost site. In a significant proportion of instances gull species and ruff returned to their original location after having taken flight, so there was a likelihood of repeat disturbance within a tide. It was considered that the flight distances to alternative locations were short and would not have a significant effect on the birds’ energy usage.

It was stated [REP1-026] that the proposed habitat offset measures and re-use of roosting rocks (in the HMA) would be designed to also provide additional foraging and roosting habitat for assemblage birds within the localised area. It was considered that this could provide refugia for species otherwise prone to repeat disturbance.

It was considered [REP1-026] that the potential additional vessel disturbance from the Project would not compromise The Wash SPA Conservation Objectives in relation to the waterbird assemblage. This was based on similar premises to those in respect of redshank: the availability of alternative roosting locations (in Sections A and B and the wider local area) available to the birds; the proposed habitat loss offset measures; the view that the great majority were likely to be roosting birds and so the additional disturbance was not anticipated to materially affect foraging time and therefore energy intake rates; and the view that the affected birds were not likely to be exposed to a materially higher predation risk.

In its initial comments [REP2-053] on the Ornithology Addendum [REP1-026], the RSPB requested that the Applicant provide noise contour maps representing the baseline and for noise resulting from the construction and operation of the Project.

The Applicant responded [REP2-006] that noise monitoring and thresholds and noise contour plots would be developed further and included in an updated OLEMS, which was submitted at

Deadline 3 [REP3-007]. It had been revised to take account of the noise monitoring results and included information on proposed noise mitigation and monitoring measures.

In a summary of NE's position (post-Deadline 4) on the potential impacts on the SPA passage and overwintering birds, NE [AS-002] welcomed the Applicant's provision of survey data for the wharf area along The Haven and stated that it demonstrated the importance of this area as supporting habitat for the SPA bird species. NE confirmed that its advice in respect of the need to mitigate direct habitat loss arising from the construction of the Project remained unchanged. NE considered that if the impacts to the FLL could be remedied within the existing FLL land the Applicant would have mitigated risks to the SPA features. However, NE advised that if the proposed mitigation didn't satisfactorily minimise the impacts it would become an additional compensation issue.

The Applicant confirmed its view at Deadline 5 that there was no clear link between the redshank at the application site and the SPA/Ramsar site population and that the application site was not functionally linked to the SPA [REP5-006 and REP5-008]. Notwithstanding, it referred to its proposed works to the HMA to ensure it was suitable for redshank, ruff and other bird species in the area and to its BNG proposals to provide additional habitat along The Haven for waterbirds.

The RSPB acknowledged [REP5-018] the latest survey reports (Sections A and B, August to October 2021) submitted by the Applicant [REP3-019] and stated that although redshank and ruff were of most concern to them the assessments also needed to consider other species, i.e. shelduck, oystercatcher, turnstone, lapwing, black-tailed godwit, curlew and the waterbird assemblage. The RSPB acknowledged that the provision of the HMA had potential to mitigate some of the impacts on redshank at the application site but considered that insufficient evidence had been provided to demonstrate that it would be an effective alternative roost, and that it did not address the loss of waterbird foraging habitat. It was of the view that it should be included in the compensation measures within the Applicant's derogation case.

The Applicant responded [REP6-032] that at the application site ringed plover, lapwing, cormorant, mallard, black-headed gull, herring gull, lesser black-backed gull and great black-backed gull had been considered in the (shadow) AA as part of the SPA waterbird assemblage. Dunlin, turnstone, oystercatcher, black-tailed godwit, curlew, grey plover and shelduck (individual SPA features) had not been included as counts had recorded them infrequently and in small numbers.

The RSPB responded at Deadline 9 [REP9-065] that although some features may have been recorded in small numbers such species should still be included in the assessment to ensure that a full assessment had been made of the SPA waterbird assemblage, particularly shelducks and turnstones, which have restoration targets.

On the basis of the above information, the ExA was not satisfied that an AEoI resulting from these LSE pathways could be excluded for the Project alone and considered that a derogation under the Habitats Regulations is engaged.

5.7.2.4 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to provide without-prejudice additional mitigation measures and/or enhancements to the existing proposed mitigation measures to reduce disturbance effects to bird species of The Wash SPA, specifically mitigation of impacts as a result of:

- **construction noise and vessel disturbance at the application site;**
- disturbance along The Haven; and
- disturbance at the mouth of The Haven.

The Secretary of State also requested the Applicant to provide associated updates to documents such as the template NMP [REP8-011]. The response was asked to include, but not be limited to consideration of concerns raised by NE [REP8-024], regarding the Technical Note for Navigation Management and Ornithology [REP6-033] and evidence that adaptation of vessel movement parameters would mitigate impacts and/or can be secured [REP9-063].

The Applicant[33] responded on 11 November 2022[33]. Regarding vessel disturbance at the application site, the Applicant reiterated that the NMP was to be finalised post-consent in consultation with the PoB, the SNCB and EA, and must include measures for managing disturbance to bird species. No mitigation measures were considered to be necessary by the Applicant. It proposed 'toolbox talks' for pilots navigating The Haven with the aim of increasing awareness of the bird species and their international significance, as a possible enhancement to mitigation measures if deemed necessary by the Secretary of State. The Applicant considered that this could reduce potential for vessel disturbance that occurs through a possible lack of understanding of how disturbance by vessels can affect birds. The Applicant proposed wording to insert to the Technical Note for Navigation Management and Ornithology, and to the DML to add additional certainty that vessel management measures are secured in the DML and will be implemented. The Applicant reiterated that the HMA provides mitigation for disturbance to birds at the PAS and proposed an additional enhancement measure of palisade fencing around the landward edges of the HMA to prevent disturbance from people and dogs using the footpath and intrusion of workers, which was thought to have a high / high to moderate disturbance effect, if this was considered necessary. The Applicant proposed wording to secure this measure in the OLEMS if this was considered necessary.

Regarding construction noise, the Applicant reiterated its view that mitigation has been proposed and that no further mitigation is considered necessary.

In his second consultation letter, the Secretary of State invited NE to comment on the sufficiency of the proposed mitigation measures for disturbance effects to bird features of The Wash SPA, in light of the Applicant's response to the first consultation letter. NE responded on 8 December 2022[35,36]. Overall, NE advised that no new information has been provided to change its advice and stated that the Applicant has only chosen to respond on selective points NE have previously raised. NE continued to advise that an AEoI on The Wash SPA cannot be excluded for the reasons set out in its WRs during Examination. Some of the amendments/commitments are considered by NE to be adequate in principle. But as currently set out these are not considered enforceable, and/or will not realistically sufficiently mitigate/compensate impacts, with many areas of concern remaining. Regarding the Applicant's proposed measure of 'toolbox talks', NE stated that it: *"remains unconvinced that raised awareness of protected species is sufficient to reduce disturbance when there is no alternative sailing route, unlikely to be able to change course in The Haven and its approaches and slowing vessels is unlikely to sufficiently reduce disturbance responses. Thereby, we do not consider this to be mitigation. For avoidance of doubt and for audit trial purposes Natural England doesn't support the inclusion of this condition as mitigation as set out above. We also highlight practical implementation issues with this condition with the Port being in control of operations."*.

NE stated that it is content that no further mitigation measures are required for construction noise disturbance, but that this is dependent on the requirement to undertake real time monitoring and any issues reported to the LPA and NE within 24 hours to agree adaptive management measures in consultation with the LPA and NE, should impacts be greater than predicted. In response to the third information request, the Applicant[38] agreed to adopt NEs suggestion of real-time monitoring and adaptive management based on the results and following discussion with the LPA and NE. This is included in the final updated OLEMS[39].

The RSPB[37] reviewed the submissions provided by the Applicant, NE and the EA to the Secretary of State's first consultation letter and provided its position in response to the second consultation letter, on 9 December 2022[37]. With regards to the proposed palisade fencing, the RSPB stated: *"… This would need planning permission. It should also be of a type appropriate to the location. It is not clear that the specification of the fencing has been provided by the Applicant or that discussions regarding planning permission have taken place."*. Regarding 'toolbox talks' the RSPB stated: *"Whilst we support information sharing to highlight the impact of disturbance on survival and breeding success of birds that use The Haven, 'toolbox talks' will not reduce disturbance impacts given that the visual presence of vessels, as well as their wash and noise, are all factors that result in responses by the different birds species using The Haven, as set out in in our comments on the Ornithology Addendum (REP4-026) and as summarised in January 2022 (REP5-018). This is not something that can be mitigated and certainly not an issue that can be addressed simply through 'toolbox talks'."*.

Having carefully considered all information presented to him in response to the consultation letters and taking account of the advice of NE, the RSPB and the recommendation of the ExA, and with regard to the Applicant's case, the Secretary of State is satisfied that the proposed mitigation as secured in the OLEMS are sufficient such that an AEoI due to construction noise disturbance at the PAS can be excluded. However, on the basis of the information available to him, he cannot exclude an AEoI alone of The Wash SPA and Ramsar due to vessel disturbance effects on the redshank and waterbird assemblages features at the PAS and adjacent area beyond reasonable scientific doubt. Whilst the Secretary of State agrees that the HMA is sufficient to mitigate habitat loss at the application site (see Section 5.7.2.1), he is not satisfied given the evidence available to him, that the HMA would be sufficient to mitigate vessel disturbance effects at the PAS or adjacent areas.

5.7.2.5 Disturbance effects at the application site and along The Haven – construction and operational lighting

The RPSB raised a concern [RR-024] about the potential impacts of lighting for the Project on bird species using The Haven. The Applicant responded in [REP1-035] that this was addressed in the HRAR and that artificial lighting would be targeted and minimised to only what was necessary to provide light for the operation of the Project; it was not anticipated that lighting would have an adverse effect on birds. The Applicant explained [REP2-006] that Requirement 10 of the dDCO (Code of Construction Practice ("CoCP")) [REP1-002] included the requirement for an artificial light emissions management plan during construction. It would detail the appropriate management and mitigation measures to be taken to manage artificial light emissions; outline details would be provided in the Outline CoCP. The Applicant highlighted its Outline Lighting Strategy [APP-124] that detailed the operational lighting requirements. It stated that a lighting effects assessment would be undertaken and submitted to the Examination.

The RSPB responded that a more detailed assessment was required, particularly in respect of the wharf area [REP2-051 and REP4-026].

In its comments on the Deadline 5 HRA Update [REP5-006], NE [REP8-022] welcomed the commitment that the Lighting Strategy would be designed to ensure impacts on birds at the application site would be minimised.

The ExA considered [ER 1.8.220 App. C] that Applicant addressed the RSPB's concerns and provided an assessment in [REP5-006]. It concluded that lighting during construction and operation, including from vessels, was unlikely to affect foraging or the availability of roosting sites for SPA/Ramsar site species, also taking into account the roosting area that would be provided in the proposed HMA.

On the basis of the above information, the ExA was satisfied [ER 1.8.222 App. C] [ER 1.4.45 App. C] that this LSE pathway would not result in an AEoI of The Wash SPA and Ramsar from the Project alone. The Secretary agrees with the ExA and is satisfied that, subject to the implementation of the CoCP and included artificial light emissions management plan, there will be no AEoI of The Wash SPA and Ramsar alone and in-combination resulting from disturbance due to lighting during construction and operation.

5.7.3 Dark-bellied brent goose; black-tailed godwit (SPA only); oystercatcher, redshank, turnstone, waterbird assemblages: Alone and In-combination

5.7.3.1 Disturbance effects at the MOTH - vessel disturbance (visual, presence and noise)

NE stated [RR-021] that it had significant concerns about the feeding/roosting area at the MOTH. It considered that disturbance to roosts at the MOTH could affect 24 of the SPA species including eight at greater than 1% of site population. This included over 20% of the SPA population of golden plover and black-tailed godwit and 7.5% of the lapwing SPA population. It also noted that significant numbers of the SPA/Ramsar waterbird assemblage use this area at low tide, including up to 28% of the black-tailed godwit SPA population. NE highlighted that risk pathways arising from repeated boat movements would be likely to result in changes to bird use behaviours in this area and usage of this area at high tide. NE considered that the data suggested that this results from visual/noise disturbance from the boats rather than from their wake.

The Ornithology Addendum [REP1-026] considered potential effects at the MOTH on the following bird species (for which an LSE had been identified) arising from vessel disturbance (visual, presence and noise during both construction and operation): DBBG, black-tailed godwit, oystercatcher, redshank, turnstone and the waterbird assemblage. In respect of the SPA populations of these species it reported that the WeBS data showed that during high tide periods the MOTH area held:

- 5-8% of DBBG;
- 1-5% of black-tailed godwit (although absent on 77% of high tide periods);
- over 1% of oystercatcher on 63% of high-tide periods, and over 5% on 25% of high-tide periods, with a peak count equivalent to 20%;
- over 1% of redshank on 83% of high-tide periods, and over 5% on 20% of high-tide periods, with a peak count equivalent to 13%; and
- over 1% of turnstone on 63% of high-tide periods, and over 5% of the population on 20% of high-tide periods, with a peak count equivalent to 29% of the SPA population.

In relation to all of these species it was stated that the birds' response to disturbance from vessels was to fly to an alternative site. The baseline change of behaviour study showed that vessel disturbance was caused by a single event in any one high tide period, as the birds' response to a vessel passing was to move to an alternative site, therefore they were not present when subsequent vessels passed. The birds affected were likely to be roosting birds, so the disturbance was not anticipated to materially affect foraging time and energy intake rates. The birds would relocate to alternative sites within 1 km (apart from one occasion when oystercatcher were observed to fly 3.3 km), within the MOTH and in the wider local area. The energy expenditure associated with a single flight to a location less than 1 km away was likely to require less than 1% of a bird's daily energy expenditure. On this basis it was determined that a number of alternative local roost locations were available to disturbed birds. It was therefore concluded that additional vessel disturbance at the MOTH from the Project would not materially affect local distribution or abundance of the bird species across the SPA and would not have an adverse effect on its Conservation Objectives.

In relation to the waterbird assemblage at the MOTH it was concluded that as lapwing and golden plover were not SPA individual qualifying features, although occurring in numbers considerably higher than many of those, the "*small to moderate local-scale changes*" (as described in Appendix A1) that could affect these two species as a result of increased vessel disturbance would not have an adverse effect on the Conservation Objectives for the SPA assemblage.

NE agreed at Deadline 2 [REP2-045] that the risk at the MOTH was to roosting birds subject to disturbance by increased vessel traffic and that this could result in species being displaced from roosts to alternative sites, and individuals of some species being subject to repeated disturbance because they do not relocate. It noted that Appendix A1 Table 2 of the Ornithology Addendum [REP1-026] indicated that, of the SPA waterbird assemblage, some 29,395 birds of at least 22 species are at risk of exposure to disturbance, with 20,208 birds of 22 species in the most sensitive area. Disturbance at high tide would increase from approximately 75-80% to 100% for those species that relocate in response to large vessel disturbance events, and for those species that return to the roosts and are subject to repeated disturbance the number of events per annum would rise from the current baseline of 840 to approximately 1160. NE noted that the majority of disturbed individuals abandon the roosts in response to vessel passage and do not return for the rest of the high tide period. NE considered therefore that the site's Conservation Objectives could be affected in respect of birds' individual fitness as a consequence of increased energy expenditure, and in relation to the distribution objective as a consequence of the loss (as a result of disturbance events occurring on 100% of tides) of a significant roost (at the MOTH).

The Applicant responded [REP6-032] that the ongoing use of the MOTH in the presence of daily commercial vessel traffic indicated that the SPA bird populations at the MOTH were resilient to vessel traffic and that the increase in vessel numbers associated with the Project had been assessed. The proposed BNG measures would increase the roosting habitat available to waterbirds, as set out in the OLEMS [REP3-007]. At Deadline 9 the Applicant commented [REP9-027] that the Ornithology Addendum [REP1-026] provided bird counts and the maximum count for individual species. It was not suggesting the maximums would ever occur simultaneously but that over time the roost site had supported this number of individuals. It noted that the response of the majority of the species (except lapwing and golden plover) to the disturbance events was to fly to alternative roost locations and anticipated that the birds would continue to display this behavioural response with the (average) increase in vessels of 1.6 per day.

NE commented [REP2-045] that within the Addendum the Applicant had considered the risk of an AEoI without reference to the objectives (maintain versus restore) of individual species, or their individual energy balances, and that the permanent loss of the MOTH roost area had not been considered. NE also noted that while consideration had been given to impacts on a number of individual species which are SPA features no assessment had been made of the non-breeding waterbird assemblage as a feature in its own right.

The Applicant expressed its view at Deadline 9 [REP9-027] that there would not be a permanent loss of a MOTH roost as there were alternative roost locations the birds already used on a regular basis and the birds would also return to the original roost. In relation to the waterbird assemblage, it stated that it had been considered further in the HRA Update [REP5-006].

NE also noted in [REP2-045] that the titles within Table 5-1 (Screening of SPA qualifying species for further assessment) of the Addendum suggested that the calculated % level of disturbance was based on the number of birds recorded as being displaced during the surveys as a proportion of WeBS counts. NE considered that this approach was incorrect (unless the surveys reliably matched local WeBS populations) and that the analysis needed to look at the number of birds disturbed as a proportion of those recorded in the bird surveys and then consider how this proportion of the population compared to WeBS counts from the survey area. NE sought clarification and stated that any changes could result in a change to the species to be taken forward for AA. It also noted that a number of species not taken forward had a high percentage disturbance response and considered that impacts on these species should be considered further.

The Applicant did not agree [REP6-032] that it had applied an incorrect approach. It stated that the methodology utilised the WeBS data as the CiWB surveys of bird responses to vessels did not include counts of birds on the ground.

In its final comments on the Ornithology Addendum [REP1-026] the RSPB noted that no surveys had been conducted at the MOTH during August, September and October [REP4-026]. It considered these to be the months when the numbers of some bird species on The Wash were at their highest due to the autumn passage period, when many birds stopped over to feed or moult before onward migration. The RSPB considered [REP5-018] that the Applicant's surveys had demonstrated that there was existing disturbance to waterbirds using the MOTH, and that any additional disturbance would add to this pressure. Its greatest concerns related to DBBG, shelduck, oystercatcher, golden plover, lapwing, turnstone, redshank, black-tailed godwit, and the waterbird assemblage. It believed it was not possible to mitigate the impacts of additional vessel movements and that additional compensation measures were required to support SPA and Ramsar site features. It also considered that evidence should have been provided on waterbird usage between the MOTH and the PoB anchorage area.

The Applicant provided an assessment of effects on the SPA/Ramsar site waterbird assemblage based on the WeBS counts and its high tide baseline observation sessions (November 2019 – March 2021) in its Deadline 5 HRA Update [REP5-006]. It anticipated that 1% of the five-year mean peak assemblage count were likely to be disturbed on approximately 12.5% of high tides, up from approximately 9% under baseline conditions. The Applicant concluded that the potential additional vessel disturbance resulting from the Project would not compromise the Conservation Objectives for the assemblage. This was based on the premise that the assemblage birds that used the MOTH during the high tide period, when they would potentially be at risk from vessel disturbance, formed only a small proportion of the assemblage, and that disturbed birds

relocated to a nearby alternative location (within 1 km) or 'quickly' (within approximately two minutes) returned to the original roost site once the vessel had passed. Notwithstanding, the provision of one or more artificial roost sites in the vicinity of the MOTH as part of the proposed BNG measures was highlighted as a measure that would benefit the waterbird assemblage.

The additional 2021 CiWB report submitted by the Applicant at Deadline 6 [REP6-034] provided data on CiWB due to vessel movements at the MOTH (and the wharf site). A total of 16 surveys were undertaken between January and November 2021 (nine at the MOTH and seven at the wharf site), so included the Autumn migratory period. The results are set out in Section 4 of [REP6-034].

NE, in its comments [REP8-022] on the Deadline 5 HRA Update [REP5-006], considered that the baseline vessel disturbance of the waterbird assemblage at the MOTH was significant and that an AEoI could not be excluded. It considered that it was clear that vessel disturbance was experienced by birds and that two responses were apparent: redistribution to alternate roosts (with repeated displacement of individuals in some instances); or temporary displacement which may be repeated if there were multiple boat movements. It was of the view that these would only be intensified by the Project. While the number of individuals impacted would be the same the frequency would increase, therefore the significance of the impacts would intensify and the ability of the birds to recover from the disturbance would diminish.

NE disagreed that the number of birds impacted at the MOTH would not be significant. The disturbance study demonstrated that the presence of large vessels routinely displaced birds to alternate roosts. They are currently displaced on 75% of high tides; they would be impacted on all high tides as a result of the Project. The distribution of the birds would be altered for the life of the Project, which should be considered as permanent. Even if birds adopted other pre-existing roosts in the SPA there would still be a net loss of one roost site from the assemblage roost network. NE disagreed that there was no likely risk to the Conservation Objectives for the SPA waterbird assemblage. It welcomed the Applicant's proposal to provide artificial roost sites in the vicinity of the MOTH but advised that SPA requirements and BNG are legally separate.

At Deadline 9 the RSPB commented [REP9-065] that the Applicant's counts (presented in the Final Waterbird Survey Report Summary of Data [REP8-018]) were greater for some SPA features than the WeBS counts, e.g. black-tailed godwit, redshank, golden plover and lapwings, and further highlighted the importance of The Haven for SPA and Ramsar site features. It considered that this reflected that WeBS counts take place monthly and over a long-term period, which allows an assessment of the trends in bird numbers over time but does not provide the full picture. The RSPB believed that the Applicant's survey results demonstrated the need to ensure site-specific surveys of suitable duration and focus were undertaken, and that the more survey work that was completed the more species were identified in significant numbers as affected by vessel disturbance.

The RSPB highlighted its view [REP9-065] at Deadline 9 that impacts on foraging and roosting birds from vessels' wake could be greater along The Haven than in the approaches to the MOTH. It considered that this had become a more significant issue following the Applicant's confirmation that vessels could not be restricted to six knots and may travel at 12 knots. It considered that this could have implications for the HRA in relation to direct impacts on waterbirds and indirect impacts resulting from erosion of intertidal mudflat and coastal saltmarsh and confirmed that it remained an outstanding concern. In its comments on [REP9-033] the RSPB accepted [REP10-045] that the Applicant's evidence showed that the visual presence of vessels causes the most

significant disturbance and displacement of waterbirds and that ship wash around the MOTH was not likely to have significant impacts on them. However, it argued that a full assessment of the effect of ship wash and visual disturbance had not been provided as data had not been collected for the central section of The Haven.

On the basis of the above information, the ExA [ER 1.8.169 App. C] was not satisfied that this LSE pathway would not result in an AEoI of The Wash SPA and Ramsar from the Project alone and considered that a derogation under the Habitats Regulations is engaged. The ExA considered [ER 1.4.41 App. C] the features for which this applies are: redshank; DBBG; black-tailed godwit; oystercatcher; redshank; turnstone; and the waterbird assemblage.

5.7.3.2 Further information

In his first consultation letter, the Secretary of State requested the Applicant to provide without-prejudice additional mitigation measures and/or enhancements to the existing proposed mitigation measures to reduce disturbance effects to bird species of The Wash SPA, specifically mitigation of impacts as a result of:

- construction noise and vessel disturbance at the application site;
- disturbance along The Haven; and
- **disturbance at the mouth of The Haven.**

The Secretary of State also requested associated updates to documents such as the template NMP [REP8-011]. The response was asked to include, but not be limited to consideration of concerns raised by NE [REP8-024], regarding the Technical Note for Navigation Management and Ornithology [REP6-033] and evidence that adaptation of vessel movement parameters would mitigate impacts and/or can be secured [REP9-063].

The Applicant responded on 11 November 2022[33]. It reiterated that the NMP was to be finalised post-consent in consultation with the PoB, the SNCB and EA, and must include measures for managing disturbance to bird species. No mitigation measures were considered to be necessary by the Applicant. However, it proposed 'toolbox talks' for pilots navigating The Haven with the aim of increasing awareness of the bird species and their international significance, as a possible enhancement to mitigation measures if deemed necessary. The Applicant considered that this could reduce potential for vessel disturbance that occur through a possible lack of understanding of how disturbance by vessels can affect birds. The Applicant proposed wording to insert to the Technical Note for Navigation Management and Ornithology, and to the DML to add additional certainty that vessel management measures are secured in the DML and will be implemented.

In his second consultation letter, the Secretary of State invited NE to comment on the sufficiency of the proposed mitigation measures for disturbance effects to bird features of The Wash SPA, in light of the Applicant's response to the first consultation letter. NE responded on 8 December 2022[35,36]. Regarding the Applicants proposed 10 knot vessel speed restriction, NE stated: *"Natural England understands that the vessel speed reduction to 10 knots for an unknown proportion of the vessels transiting down The Haven, is a suggestion to reduce existing background disturbance allowing more leeway with development associated impacts. While this is helpful and would have wider environmental benefits from reduced wash; we advise that it is unlikely to be sufficient as the proposal is to (more than?) double the existing vessel number/impacts and there no evidence presented to demonstrate that slow moving boats are less disturbing to birds. The inclusion of '…where practicable to do so' from an operational*

perspective is not Habitats Regulations compliant in relation to adoption of mitigation measures. Natural England queries what is the alternative/adaptive management measure if this can't be implemented." Regarding the Applicants proposed 'toolbox talks', NE stated that it remains unconvinced that raised awareness of protected species is sufficient to reduce disturbance when there is no alternative sailing route, unlikely to be able to change course in The Haven and its approaches and slowing vessels is unlikely to sufficiently reduce disturbance responses. Therefore, NE do not consider this to be mitigation. For avoidance of doubt and for audit trial purposes, NE stated that it does not support the inclusion of this condition as mitigation as set out above. NE also highlight practical implementation issues with this condition with the PoB being in control of operations. NE stated that it does not agree with the Applicant's position regarding disturbance from subsequent vessels at the MOTH and that its advice remains unchanged to that set out in the examination i.e. AEoI from vessel disturbance at the MOTH cannot be excluded.

Regarding the NMP, NE stated that it notes that the intention of the NMP is *"…to address nature conservation concerns, **where this does not conflict with safe operation of the vessels**, and, along with additional plans, will enable mitigation of impacts and adaptation of management measures if necessary, during the ongoing project development and operation…"*. Because of the inclusion of the text highlighted here in bold, NE are unable to advise that the inclusion of this post consent commitment to develop an NMP will exclude an AEoI from occurring.

The RSPB reviewed the submissions provided by the Applicant, NE and the EA to the Secretary of State's first consultation letter, and provided its position in response to the second consultation letter, on 9 December 2022[37]. Regarding vessel disturbance at the MOTH, the RSPB stated that: *"No mitigation measures were deemed possible given the vessels would have to pass through the area. The RSPB's position remains the same as at the close of the Examination. It cannot be concluded beyond reasonable scientific doubt that an adverse effect on the integrity of The Wash SPA/Ramsar site will not occur and therefore an appropriately robust package of compensation measures is required."*. Regarding 'toolbox talks', the RSPB stated: *"Whilst we support information sharing to highlight the impact of disturbance on survival and breeding success of birds that use The Haven, 'toolbox talks' will not reduce disturbance impacts given that the visual presence of vessels, as well as their wash and noise, are all factors that result in responses by the different birds species using The Haven, as set out in in our comments on the Ornithology Addendum (REP4-026) and as summarised in January 2022 (REP5-018). This is not something that can be mitigated and certainly not an issue that can be addressed simply through 'toolbox talks'."*.

Having carefully considered all information presented to him in response to the consultation letters and taking account of the advice of NE, the RSPB and the recommendation of the ExA, and with regard to the Applicant's case, the Secretary of State cannot, on the basis of the information available to him exclude an AEoI alone of The Wash SPA and Ramsar due to disturbance effects on redshank, DBBG, black-tailed godwit, oystercatcher, redshank, turnstone and the waterbird assemblage at the MOTH beyond reasonable scientific doubt.

5.7.4 Waterbird assemblages: Alone and In-combination

5.7.4.1 Disturbance effects along The Haven – vessel disturbance (presence, visual and noise)

The Applicant stated in its HRAR [AS-006] that in the more localised area focused on the MOTH, vessels will be moving into the MOTH at around high water in order to transit through to the Project. Given that the total number of commercial vessels is currently in the order of 420 per year through The Haven an increase of 580 vessels during the operational phase of the Project is considered to be high.

NE stated [AS-002] (post-Deadline 4) that the data collected for the assessment of the wider Haven area was insufficient to provide certainty of the potential effectiveness of any mitigation measures proposed along The Haven, for either land or water-based disturbance from existing activities and/or potential for indirect changes from increased erosion due to the presence of the wharf and/or increased boat traffic. It considered that the suitability of ornithological mitigation would need to be resolved, including the long-term management of mitigation areas, before any construction activities could commence. It advised that in the event that the DCO was granted a full set of pre-construction survey data covering a minimum of 12 months would be required to inform the discharge of any mitigation plan prior to the commencement of construction to ensure it remained fit for purpose for the lifetime of the Project.

NE stated [AS-002] that their position that an AEoI of the SPA could not be ruled out was unlikely to change. This was because of the proposed additional number of vessel movements which would be adjacent to known roost sites for birds which are known to: either be disturbed and leave but not return (therefore not maintaining the distribution of species within the SPA as required by the Conservation Objectives); or be repeatedly disturbed and return, resulting in potential impacts to energy budgets (which could affect abundance within the SPA in the long term).

The Applicant responded [REP5-008] that long term management of mitigation areas had been addressed in the updated OLEMS submitted at Deadline 3 [REP3-007]. Surveys of those areas would be undertaken once they were in place however their successfulness would only be known once construction had started as prior to this the birds would still be using the area.

At Deadline 9 the Applicant [REP9-027] stated that it was unclear to what pre-construction surveys NE were referring in [AS-002]. The HMA bird surveys had already been undertaken and had informed its development. Vegetation surveys prior to construction were proposed within the OLEMS [REP7-037]. Further bird surveys would be undertaken once the HMA was in place to ensure that it was delivering the anticipated benefit. The justification and rationale for any further surveys prior to the works to the HMA being undertaken, if that was to what NE were referring, were unclear. The requirement for further pre-construction surveys in the areas where it was proposed the without prejudice compensation sites would be located was understood.

The RSPB reiterated [REP5-018] their concerns set out in [REP4-026] that there was a significant gap in the Applicant's data on waterbird usage and the effect of disturbance between the application site and the MOTH. As a result adverse effects could not be discounted for DBBG, shelduck, wigeon, oystercatcher, avocet, ringed plover, grey plover, golden plover, lapwing, turnstone, redshank, black-tailed godwit, bar-tailed godwit, curlew, ruff and the waterbird assemblage. The RSPB considered that potential impacts could not be mitigated and that

appropriate compensation measures were likely to be required to avoid an AEoI of the SPA and Ramsar site. It believed that a minimum of 12 months survey work would be required to develop the evidence base, followed by an additional 12 months of survey work to inform annual variation in waterbird use.

The Applicant responded to the concerns about impacts on birds using the central section of The Haven at Deadline 5 [REP5-006]. As data for this stretch was unavailable, it was undertaking winter 2021/2022 abundance and distribution surveys of SPA waterbirds (December 2021 to March 2022), the data from which would be made available during late March 2022. In the absence of information on whether SPA populations would be impacted it had assumed that this stretch of The Haven qualified as FLL. The Applicant concluded that the proposed BNG/compensation measures would provide alternative habitat for any birds that were displaced by any additional disturbance. It acknowledged in [REP5-008] that there was a lack of data for this area and highlighted that it was not included in the WeBS counts.

The RSPB commented that it was unclear what could be gained from a one-off survey effort, noting that a year-round survey over two years was standard and that one year of survey effort would not reveal potential variation between years [REP6-041].

The Applicant submitted a summary of the winter bird survey report at Deadline 8 [REP8-018] and the full report at Deadline 9 [REP9-032].

At Deadline 9 the RSPB [REP9-065] stated that the additional survey information provided did not adequately address its outstanding concerns regarding gaps in survey coverage for the central section of The Haven and that it remained an outstanding issue.

The Applicant stated [REP9-027] that the intermediate area of The Haven comprised very narrow intertidal habitats adjacent to the area where vessels would travel. It pointed to a previous assessment by NE (2018) of the potential for proposals for the ECP in this area to have a significant effect on the SPA features. The Applicant stated that assessment did not identify any sensitive areas for birds away from the main designated sites and the RSPB reserves apart from arable fields which are sufficiently far away from the area potentially disturbed by vessels. The Applicant also considered that the absence of WeBS count sectors in this area indicated that it was not a key area for birds.

The Applicant reiterated its arguments at Deadline 4 [REP4-014] in respect of vessel speed as set out at ISH2 and in [REP3-023]. It explained [REP5-004] that the PoB had stated that they would not agree to a speed limit within The Haven that compromised vessel safety. Therefore, vessels associated with the Project would have to conform to current practice in the Haven and adhere to a maximum speed limit of six knots.

The RSPB considered [REP6-041] that this reinforced the need for compensation measures to address the impacts of vessel speeds as it was not possible for them to be adjusted to provide mitigation.

The Applicant responded [REP7-010] that vessel speed must comply with the navigational safety requirements of the PoB. It considered that the main impact relating to increased vessel speed was wave wash which rolls towards nearby birds and aggregations in the wake of a vessel movement and explained that pilot boats were the fastest vessels and responsible for most wave wash. However, it pointed out that the number of cases of disturbance recorded during baseline surveys (i.e. CiWB surveys) resulting from both the pilot boat and wave wash were relatively low, and considered that vessel speed was often secondary to visual presence in relation to bird

disturbance. It drew attention to dDCO Schedule 9 Part 14(1)(3)(e), which requires that the NMP must include details of measures for managing disturbance to bird species according to the process set out in in the 'Technical Note for Navigation Management and Ornithology' [REP6-033]. This states that opportunities to manage vessel movements to reduce vessel speed would be considered. On this basis the Applicant did not agree that there was no ability or mechanism to consider vessel speed.

The RSPB noted [REP8-028] that Appendix 1 of the Applicant's HRA Ornithology Addendum [REP1-026] stated that speed restrictions for vessels using The Haven were an appropriate measure to manage disturbance to all key species assessed. However, it was concerned by the latest information in the updated OMMMP [REP7-003] that a speed limit could not be enforced and that vessels currently travel up to approximately 12 knots (but could be faster). It considered that any measure proposed to manage speed would not be mitigation because it could not be enforced.

The RSPB set out a number of concerns. The information on vessel speed was only included in the OMMMP and was not mentioned in documents relating to impacts on birds and their supporting habitats. Vessels travelling at 12 knots would generate a greater wash and more noise. Given the width of The Haven, this had significant implications for erosion of foraging and roosting habitats and the disturbance and displacement of birds. No evidence had been provided to enable these impacts on SPA and Ramsar site features to be assessed. The rock armour protecting the edge of The Haven in its upper reaches is not very high and no assessment had been made of whether vessel wash inundates this area and impacts on birds using the rocks and area behind it. This had serious implications for the effectiveness of the HMA if the area is inundated when vessels pass as a result of the high speed and inability to mitigate impacts through speed restrictions. It was unclear how these higher speeds have been considered in the HRA for disturbance and displacement of waterbirds using The Haven, erosion of supporting habitats, scale and type of mitigation needed to avoid an AEoI, and scale and type of compensation measures needed to ensure the overall integrity of the NSN would be maintained. The change only heightened the RSPB's concerns about the potential effectiveness of the proposed HMA and failure of the Applicant to identify any compensation measures that could be considered to meet the ecological requirements of the impacted species. Clarity was needed on how it affected the HRA and derogation case.

The Applicant highlighted [REP9-033] that it had discussed potential erosion effects with the EA. It had submitted a response at Deadline 3 [REP3-020] to questions the EA had raised which was updated at Deadline 9 (V1.0) [REP9-024] to reflect the changes to maximum vessel speeds. The updated OLEMS (V2.0) [REP7-037] included a plan for monitoring erosion in the inter-tidal area, with which the EA were content. The EA confirmed in the final SoCG (V3.0) [REP10-032] that it was satisfied with the information provided in [REP9-024]. The Applicant referred [REP9-027] to the note of its meeting with the RSPB in February 2021, contained in the HRAR (V1.0) [AS-006], at which the RSPB stated that it was that the proximity of the larger vessels that caused the disturbance rather than ship wash. The Applicant stated that it recognised this and concluded that compensation measures that addressed visual disturbance were likely to be the most effective measures. Accordingly, it considered that an assessment based on a higher maximum speed with the same assumed number of vessels would result in similar conclusions to those previously made.

NE confirmed [REP9-063] at Deadline 9 that its concerns remained about the increased boat disturbance along The Haven, and that it disagreed with the Applicant's conclusion of no AEoI in relation to the waterbird assemblage as a whole, not just the component species identified. The Applicant [REP10-020] maintained its position that it had undertaken a valid assessment and that the increase of 1.6 vessels per day along The Haven would not result in the loss of a roost site or an AEoI for either the individual species assessed or the assemblage as a whole. It stated that the assemblage had been assessed as a feature in its own right in the Ornithology Addendum [REP1-026] and HRA Update [REP5-006], but that the CMD [REP8-006] focused on the assemblage species considered to be most at risk of repeated disturbance, i.e. golden plover and lapwing.

On the basis of the above information, the ExA [ER 1.8.216 App. C] was not satisfied that this LSE pathway will not result in an AEoI of The Wash SPA and Ramsar from the Project alone and considered that a derogation under the Habitats Regulations may be engaged.

5.7.4.2 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to provide without-prejudice additional mitigation measures and/or enhancements to the existing proposed mitigation measures to reduce disturbance effects to bird species of The Wash SPA, specifically mitigation of impacts as a result of:

- construction noise and vessel disturbance at the application site;
- **disturbance along The Haven;** and
- disturbance at the mouth of The Haven;

The Secretary of State also requested associated updates to documents such as the template NMP [REP8-011]. The response was asked to include, but not be limited to consideration of concerns raised by NE [REP8-024], regarding the Technical Note for Navigation Management and Ornithology [REP6-033] and evidence that adaptation of vessel movement parameters would mitigate impacts and/or can be secured [REP9-063].

The Applicant responded on 11 November 2022[33]. It reiterated that the NMP was to be finalised post-consent in consultation with the PoB, the SNCB and EA, and must include measures for managing disturbance to bird species. No mitigation measures were considered to be necessary by the Applicant. However, it proposed 'toolbox talks' for pilots navigating The Haven with the aim of increasing awareness of the bird species and their international significance, as a possible enhancement to mitigation measures if deemed necessary. The Applicant considered that this could reduce potential for vessel disturbance that occur through a possible lack of understanding of how disturbance by vessels can affect birds. The Applicant proposed wording to insert to the Technical Note for Navigation Management and Ornithology, and to the DML to add additional certainty that vessel management measures are secured in the DML and will be implemented.

In his second consultation letter, the Secretary of State invited NE to comment on the sufficiency of the proposed mitigation measures for disturbance effects to bird features of The Wash SPA, in light of the Applicants response to the first consultation letter. NE responded on 8 December 2022[35,36]. NE stated that: *"Overall, Natural England advises that no new information has been provided to change our advice and notes that the Applicant has only chosen to respond on selective points we have previously raised. We continue to advise, that an Adverse Effect on Integrity (AEoI) on The Wash SPA cannot be excluded for the reasons set out in our written*

representations during examination. Some of the amendments/commitments are considered by Natural England to be adequate in principle. But as currently set out these are not currently considered enforceable, and/or will not realistically sufficiently mitigate/compensate impacts. With many areas of concern remaining.". Regarding the Applicants proposed 'toolbox talks', NE stated that it remains unconvinced that raised awareness of protected species is sufficient to reduce disturbance when there is no alternative sailing route, unlikely to be able to change course in The Haven and its approaches and slowing vessels is unlikely to sufficiently reduce disturbance responses. Therefore, NE do not consider this to be mitigation. For the avoidance of doubt and for audit trial purposes, NE stated that it does not support the inclusion of this condition as mitigation as set out above. NE also highlight practical implementation issues with this condition with the Port being in control of operations.

Regarding the NMP, NE stated that it notes that the intention of the NMP is *"…to address nature conservation concerns, **where this does not conflict with safe operation of the vessels**, and, along with additional plans, will enable mitigation of impacts and adaptation of management measures if necessary, during the ongoing project development and operation…"*. Because of the inclusion of the text highlighted here in bold, NE are unable to advise that the inclusion of this post consent commitment to develop an NMP will exclude an AEoI from occurring.

The RSPB reviewed the submissions provided by the Applicant, NE and the EA to the Secretary of State's first consultation letter and provided its position in response to the second consultation letter, on 9 December 2022[37]. The RSPB's position regarding disturbance along The Haven remained the same as at the end of the Examination. The RSPB considered that the proposed increase in vessel movements would be significant, and no evidence had been presented by the Applicant to show the cumulative impact of all vessels along The Haven: cargo ships, fishing vessels and recreational craft. The RSPB stated that it is also "disingenuous" of the Applicant to suggest mitigation measures were not considered necessary (Paragraph 2.2.12, p.9) - no mitigation measures proposed could be enforced (e.g. speed limit) or deemed effective to address the visual and noise impacts of vessels. As such it cannot be concluded that an AEoI of The Wash SPA/Ramsar site will be avoided, beyond reasonable scientific doubt, and compensation will be required to address disturbance impacts to roosting and foraging features of The Wash SPA/Ramsar site. Regarding 'toolbox talks', the RSPB stated: *"Whilst we support information sharing to highlight the impact of disturbance on survival and breeding success of birds that use The Haven, 'toolbox talks' will not reduce disturbance impacts given that the visual presence of vessels, as well as their wash and noise, are all factors that result in responses by the different birds species using The Haven, as set out in in our comments on the Ornithology Addendum (REP4-026) and as summarised in January 2022 (REP5-018). This is not something that can be mitigated and certainly not an issue that can be addressed simply through 'toolbox talks'."*.

Having carefully considered all information presented to him in response to the consultation letters and taking account of the advice of NE, the RSPB and the recommendation of the ExA, and with regard to the Applicant's case, the Secretary of State cannot, on the basis of the information available to him, exclude an AEoI alone of The Wash SPA and Ramsar due to disturbance effects to the waterbird assemblages features along The Haven beyond reasonable scientific doubt.

5.8 Appropriate Assessment: The Wash and North Norfolk Coast SAC

The Wash and North Norfolk Coast SAC is located approximately 3 km from the Project.

The SAC covers an area of 107,761 ha and encompasses the largest embayment in the UK, as well as:

- extensive intertidal sand and mudflats;
- subtidal sandbanks;
- biogenic and geogenic reef;
- saltmarsh; and
- a barrier beach system, unique in the UK.

Subtidal sandbanks and reefs are widespread throughout The Wash and North Norfolk coast. Commercially important fish species use sandbanks as nursery grounds and reefs are associated with elevated biodiversity and species abundance. Further inland, saltmarsh and saline reedbeds cover 7,642 ha of the site. *Salicornia spp.* and saltmarsh communities colonise the sand and mudflats. Atlantic salt meadows form one of the most diverse and extensive examples of this habitat in the UK. The high diversity of these salt meadows is partly due to the variety of specialist species associated with the different habitats present in the site.

The salt meadow expanse within the site also includes the only location in the UK where all of the typically Mediterranean species that characterise Mediterranean and thermo-Atlantic halophilous scrubs occur together. Four SACs have been designated for this habitat in the UK, totalling around 155 ha, of which 107 ha is located along the North Norfolk coast.

Coastal lagoons on the North Norfolk coast are maintained by the barrier beach system and inland coastal lagoons provide habitat for unique invertebrate communities.

The site is also important for common (harbour) seals, providing key habitat for breeding and hauling-out. The site is home to the largest colony of harbour seals in the UK; around 7% of the UK breeding population, and they can be found hauling out on sand and mudflats in areas such as Blakeney Point[40].

The SAC qualifying features for which the site is designated, and which have been carried forward to consideration of AEoI are:

- Harbour (common) seal;
- Atlantic salt meadows;
- Coastal lagoons;
- Large shallow inlets and bays;
- Mediterranean and thermo-Atlantic halophilious scrubs;
- Mudflats and sandflats not covered by seawater at low tide;
- Reefs;
- *Salicornia* and other annuals colonising mud and sand; and

[40] https://designatedsites.naturalengland.org.uk/Marine/MarineSiteDetail.aspx?SiteCode=UK0017075&SiteName=the%20wash%20and&countyCode=&responsiblePerson=&unitId=&SeaArea=&IFCAArea=&NumMarineSeasonality=2&SiteNameDisplay=The%20Wash%20and%20North%20Norfolk%20Coast%20SAC&HasCA=1&NumMarineSeasonality=2&SiteNameDisplay=The%20Wash%20and%20North%20Norfolk%20Coast%20SAC#SiteInfo

- Sandbanks which are slightly covered by sea water all the time.

The Applicant in its HRAR provided information for an AA for the following potential effect pathways:

- collision risk for harbour seal - arising from changes in vessel traffic and movements during construction and operation;
- disturbance to harbour seal - arising from increased underwater noise and changes in vessel traffic and movements during construction and operation;
- in-combination effects on harbour seal during construction; and
- changes to air quality during operation on the SAC qualifying habitats.

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs[25] (as published and accessed on 12 December 2022) for the harbour seal feature of the sites, which include to:

- maintain the population size within the site;
- maintain the reproductive and recruitment capability of the species;
- maintain the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours;
- maintain connectivity of the habitat within sites and the wider environment to allow movement of migratory species;
- restrict the introduction and spread of non-native species and pathogens, and their impacts;
- maintain the extent and spatial distribution of the following supporting habitats: foraging and haul out sites;
- maintain the abundance of preferred food items required by the species;
- maintain the natural physico-chemical properties of the water;
- maintain all hydrodynamic and physical conditions such that natural water flow and sediment movement is not significantly altered or constrained;
- restrict aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels;
- maintain water quality to mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features avoiding deterioration from existing levels; and
- maintain natural levels of turbidity (e.g. suspended concentrations of sediment, plankton and other material) in areas where this species is, or could be present.

See Section 5.8.1.2 for further consideration of subsequent updates to the SACOs.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.8.1 Harbour seal: Alone

5.8.1.1 Collision risk - changes in vessel traffic and movements during construction and operation

The Applicant stated in its HRAR that there will be an increase of 89 large cargo vessels over 24 months during the construction phase, and an increase of 580 vessels per year throughout operation. This equates to a maximum increase of approximately 12 vessels per week. The total

number of vessels using The Haven would increase during operation from 420 large cargo vessels per year to 1000 large cargo vessels per year. It was concluded by the Applicant that there would be no AEoI of the SAC in relation to the Conservation Objectives for harbour seal considering the "small relative increase" in the number of vessels in the area, their slow speed (6 knots or less) and restricted area of the shipping channel and anchorage site, the likelihood that seals would be able to detect and avoid any vessels in order to avoid collision, and the small number of seals that could be at risk (0.04% of the SAC population).

The Applicant's conclusions were disputed by IPs. NE stated [RR-021] that, based on the information submitted, it was not satisfied beyond reasonable scientific doubt that the Project alone or in-combination would not have an AEoI of The Wash and North Norfolk Coast SAC in relation to harbour seal arising from additional vessel movements and anchorage. It advised that compensation measures would need to be considered as part of a derogation case once the alternative solutions and IROPI tests had been met.

NE advised [RR-021] that recent monitoring of The Wash harbour seal population had demonstrated that the numbers in The Wash had significantly declined along with the national population and considered that a 5-10% further decline in the population would be an AEoI. It queried from where the predicted area of impact (10.46 km²) for harbour seals was derived and believed that the assessment of collision risk was based on outdated survey data (Russell at al, 2017)[41]. The HRAR refers to the 2017 (Russell) data and also to 2018 seal count data (Thompson)[42] in relation to potential effects on seals arising from disturbance and collision risk. The HRAR states that 2018 data was used and explains why it was considered that there was no need to update the assessment to take account of the most recent 2019 data.

The Applicant explained [REP1-035] that 10.46km² included the shipping channel from The Wash to the application site, and the vessel anchorage area (as described in the HRAR and ES Chapter 17 and shown on Figure 17.6 [APP-091]). It stated that at the time of writing the HRAR there was no evidence to suggest that there was a decline in the harbour seal population within The Wash, and no risk was anticipated due to the anticipated low level of activity (the only impact being an increase in vessels within The Wash) and the proposed mitigation to ensure that there was no risk (including vessel speed limits and observers on all vessels). Mitigation would be secured by the requirement in the dDCO for a NMP (dDCO Schedule 2, Paragraph 14).

The Marine Mammals Addendum [REP1-027] included an update to the assessments to reflect the most recently published baseline information (SCOS, 2020) on harbour seal counts in 2019 in The Wash and on reference populations. It also noted that in relation to at-sea harbour seal density an updated report had been published in 2020 (Carter et al.)[43]. However, that presented predicted distribution maps according to relative density (i.e. percentage of the total at-sea population in each 5km x 5km grid at any one time) whereas Russell et al. presented absolute density (i.e. number within each grid at any given time). It confirmed that the assessments in the

[41] Russell, D.J.F., Jones, E.L. and Morris, C.D., 2017. Updated seal usage maps: the estimated at-sea distribution of grey and harbour seals. *Scottish Marine and Freshwater Science*, *8*(25), p.25.

[42] Thompson (2019) Preliminary report on the distribution and abundance of harbour seals (Phoca vitulina) during the 2018 breeding season in The Wash.

[43] Carter, M.I., Boehme, L., Duck, C.D., Grecian, J., Hastie, G.D., McConnell, B.J., Miller, D.L., Morris, C., Moss, S., Thompson, D. and Thompson, P., 2020. Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles: Report to BEIS, OESEA-16-76, OESEA-17-7.

Addendum relied on Russell et al. as it was considered that it represented the best available information on absolute harbour seal densities. It indicated that harbour seal usage was high in and around the shipping channel and the anchorage area (3.189 per km2), and lower within The Haven itself (0.80 per km2).

NE welcomed [REP2-043] the Applicant's consideration of the most recent seal count data. However, NE stated that there was no current evidence to suggest that the decline had plateaued and that they were working on an update to change the SAC Conservation Objective for harbour seals to "restore". On this basis NE advised that a more precautionary approach must be taken and impacts which could further hinder the restore objective should be avoided, reduced or mitigated. NE noted that the Marine Mammals Addendum and Outline Marine Mammal Mitigation Protocol ("OMMMP") [REP1-025] relied on Russell et al. (2017) rather than Carter et al. (2020) and requested that the assessment was updated accordingly.

In relation to the potential impacts of any increase in collision risk with vessels the Applicant stated [REP1-027] that, despite a significant decline in the population levels from the 2018 to 2019 counts, this resulted in only small changes in the percentage of the harbour seal population that could be impacted (from between 0.03 - 0.05% in the original assessment to between 0.05 - 0.07%) (although both the OMMMP and the final version of the HRAR [AS-006] state that 1.7 seals could be impacted, paragraph A17.6.133 of the HRAR equates this to 0.04% of the SAC population). The Applicant considered that these changes were not significantly different from the original assessment and did not result in any change to the overall magnitude levels and therefore no change to the impact significance.

At Deadline 4 the Applicant responded [REP4-014] in respect of NE's proposed change to the SAC Conservation Objectives that there was no publicly available information on this change, and that the current target set out in all relevant documents was to "maintain", against which the assessments within the HRAR had been undertaken. It stated that a precautionary approach based on WCSs had been applied to all of the assessments.

In relation to NE's comment that the harbour seal density numbers should have been based on Carter et al. (2020) the Applicant responded that it did not provide absolute density data as the updated seal density shapefiles were based on relative, not absolute, density estimates, unlike previous versions, such as Russell et al. Therefore, it considered that Russell et al. (2017) provided the best available information.

NE [RR-021] considered that due to the elevation of the vessels and the need for views directly adjacent to the vessel in addition to the 360-degree views, the Applicant's proposal to have an observer on vessels as mitigation for potential collisions was unlikely to provide the required mitigation.

The Applicant initially responded [REP1-035] that, in addition to having an observer onboard, all vessels would be required to travel at no more than four knots when transiting through The Wash and The Haven, and considered that this speed limit would effectively reduce the potential for any harbour seal collision with a vessel. It updated this statement to explain that it had subsequently identified that this would not be possible due to minimum speed requirements for safety and manoeuvrability, and that therefore the vessel speed limit needed to be six knots in both The Wash and The Haven.

The Marine Mammals Addendum [REP1-027] explained that the outline mitigation measures as set out in ES Chapter 17 had been used to inform the OMMMP [REP1-025], which set out the

measures proposed to mitigate the potential impacts of any physical injury or permanent auditory injury to marine mammals resulting from the construction and operation of the Project. It consolidated measures contained within the dDCO. These included:

- non-dedicated marine mammal observers ("MMObs") on board each vessel;
- monitoring for marine mammals as vessels travelled through The Wash and up The Haven;
- safety, weather and tidal conditions permitting, speed limits of six knots for all vessels travelling within The Haven and The Wash (considered to reduce the potential for fatal collisions with marine mammals); and
- safety permitting, vessels would maintain the same course (if possible) and speed to give, if required, any seal time to avoid the vessels. These measures would form part of the NMP.

NE commented on the Applicant's proposed mitigation measures in [REP2-042] and [REP8-025. It acknowledged that vessel crew members have the necessary training to be a MMOb but did not support having a non-dedicated MMOb as mitigation for a number of reasons:

- they are to undertake this duty when not undertaking other work;
- due to the size of the vessel they will not be able to have 360 degree views looking away from the vessel and vertical views downwards checking adjacent to the vessel;
- the cargo is likely to be in the way to scan across the vessel; and
- due to length of time marine mammals spend underwater it is unlikely that a singular non-dedicated individual will be able to detect signs of a marine mammal being present. This is especially true during times of poor visibility and high sea states.

LWT sought clarification [REP4-021] at Deadline 4 as to whether a MMOb would have a full view of the whole area around a laden vessel and whether the vessel would be able to change course to avoid a marine mammal should any be observed. It considered that the MMOb role should be undertaken by a dedicated crew member.

The Applicant responded [REP4-014] that the MMOb would be fully trained and may undertake other vessel duties while not required on watch or when the vessel was outside of The Wash or The Haven (as outlined in the OMMMP) but would be dedicated to undertaking the monitoring when required, such as when entering The Haven. They would be positioned to obtain the best view, and consideration would be given to having two MMObs on some vessels.

LWT stated [REP4-021] that it disagreed with the Applicant's conclusion in [REP2-013] in respect of harbour seal that the proposed mitigation measures would reduce any effects that could occur, on the basis of which no compensation measures were identified. No HRA matters were agreed in the final SoCG.

In relation to vessel speeds, NE considered [REP2-042] that further justification was required that vessel speeds could not be reduced and that there was no evidence to demonstrate whether committing to 6-knot vessel speeds was mitigation or just the agreed vessel speed limit within The Haven.

At ISH2 and in [REP3-023] the Applicant stated that reductions in lethal collisions of marine mammals with vessels had been found where a 10-knot vessel speed restriction had been in place. It also referred to a study into the impact of icebreaking vessels on phocid seals, which found that the probability of collision was significantly increased with increasing vessel speed. At a speed of 4 knots or less the potential for collision was very low, however it increased

significantly from 6 knots or higher. No further details of the studies were provided. The Applicant considered that there was no indication that a reduction from 6 knots to 4 knots would result in a further reduction to collision risk, however it would give rise to vessel safety and manoeuvrability concerns. It concluded that the evidence suggested that any speed below 6 knots provided a significantly decreased potential for collision.

The RSPB agreed with NE that the 6-knot speed limit would not constitute a mitigation measure and commented that the Applicant had not identified how it would be enforced [REP3-033].

The Applicant reiterated its arguments at Deadline 4 [REP4-014] in respect of vessel speed as set out at ISH2 and in [REP3-023]. It explained at Deadline 5 [REP5-004] that the PoB had stated that they would not agree to a speed limit within The Haven that compromised vessel safety. Therefore, vessels associated with the Project would have to conform to current practice in the Haven and adhere to a maximum speed limit of 6 knots.

An updated OMMMP [REP7-003], was submitted at Deadline 7 to take into account PoB comments on vessel speed, which included additional references to and descriptions of monitoring measures. It stated that subject to the pilotage requirements for navigational safety and efficiency and application of the "safe speed" principle, vessel speeds "as low…as reasonably practicable" were to be encouraged within The Haven and The Wash. As the potential for fatal collision with marine mammals was shown to be significantly reduced at vessel speeds of under 10 knots, Project vessels would aim to travel below that.

The OMMMP explained that the PoB had advised that although there was currently a general advisory speed limit of 6 knots along The Haven (to mitigate erosion from wash) it was not subject to enforcement, and cargo vessels travelled at up to approximately 12 knots, slowing as they moved further up The Haven to between 4 - 6 knots near the Port itself. The current speed limit is "safe speed at all times" in accordance with the COLREGS[44]. An enforced speed limit would be inconsistent with this, and would restrict the number of vessels able to transit to the Port on each tide and significantly increase the number of vessels within the anchorage area. Accordingly, the reference to the speed limit had been removed from the mitigation measures previously set out in the OMMMP.

Two monitoring options were proposed in the updated OMMMP:

- non-dedicated MMObs onboard all Project vessels transiting through The Wash and The Haven; and
- a land-based adaptive monitoring programme along the banks of The Haven (and potentially vessel-based within The Wash anchorage area) using observers to monitor all vessel and seal interactions over set periods.

High-definition, underwater and infrared cameras at each of the observer stations could also be used. Monitoring would take place prior to and during operation (a year was suggested for each). If changes were observed in the presence and behaviour of harbour seal during these periods, the monitoring programme may be extended. This would be decided in consultation with the MMO and NE and based on the recorded data.

In response to ExQ 3.2.1.5, NE stated [REP8-021] that it did not agree that the mitigation proposed in the updated OMMMP would avoid effects on harbour seal. In [REP8-025] it

[44] https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx

confirmed that the majority of concerns raised in its RR and in [REP2-043] remained. It also pointed out that the impact significance had been determined based on Environmental Impact Assessment ("EIA") matrices rather than according to the Habitats Regulations. NE suggested that a more precautionary approach, given its intention to change the SAC Conservation Objective to restore and that the number of harbour seals was declining, was to acknowledge a potential impact pathway and adopt appropriate mitigation measures to remove an AEoI.

The Applicant responded [REP9-033] that, as stated at Deadline 4 [REP4-014), the assessments of the SAC features were based on the current Conservation Objective of "maintain" which was the information available when the application was submitted. While NE had previously stated their wish to update the Objectives to "restore" [REP2-043] there was no publicly available information relating to this. Given the predicted low number of harbour seals that could be affected, and the relatively small potential ranges of effect, the Applicant considered there was no potential for an AEoI of the SAC. Mitigation would be implemented in any event to ensure as low a risk as possible and that any effect to the overall population would be insignificant.

NE [REP8-025] stated it was unable to support use of non-dedicated MMObs. In addition to points it had previously raised about this measure, it considered that due to the length of time marine mammals spend underwater it is unlikely that a single non-dedicated individual would be able to detect signs of a marine mammal being present, especially during poor visibility and high sea states. It also questioned the ability of observers to detect seals in front of the vessels so that vessels would slightly alter course, and stated that the space in The Haven could not allow anything other than a direct route along the deepest part of the river. It noted that vessel speed restrictions had been removed from the OMMMP and so could not be relied upon as mitigation. In relation to monitoring, NE stated that the suitability of the chosen locations would need to be evidenced to demonstrate that there is the most likelihood of monitoring vessel interactions; and where that evidence was limited the Applicant should increase the number of observation points.

At Deadline 9 NE [REP9-063] referred to the comments contained in its Deadline 8 response [REP8-025]. It remained concerned about the lack of secured vessel speed restrictions and considered it imperative that there were no additional impacts which could further reduce the harbour seal population, given that it was already declining.

The Applicant confirmed [REP9-027] the PoB advice that there was an advisory speed limit of 6 knots along The Haven that was not subject to enforcement and highlighted that the implications of this change for harbour seal were set out in the updated OMMMP [REP7-003).

The Applicant [REP9-033] referred to the statement in the OMMMP that Project vessels would aim to travel at below 10 knots, where it was safe to do so, and considered this would help to reduce potential impacts on marine mammals. It was secured by DCO DML Condition 17, which requires the approval of a final MMMP which must be substantially in accordance with the OMMMP. In addition, the NMP secured by DML Condition 14 would include measures for managing potential risks to marine mammals in accordance with the approved MMMP. In respect of monitoring, if fixed points were progressed as the preferred approach the monitoring plan would be designed to maximise the potential for monitoring interactions. If a camera system was used, cameras would be placed on land rather than vessels. Observers would be placed in locations with maximum potential for monitoring interactions. As stated in the OMMMP and DML Condition 17, the final MMMP, which included monitoring options, would be finalised in consultation with NE. At Deadline 10 the Applicant confirmed [REP10-020] its position that the

additional vessels would not impact on the harbour seal population and that the mitigation contained in the OMMMP was sufficient to address IP concerns.

NE provided a response at Deadline 10 [REP10-036] to Question 5 in the Rule 17 letter [PD-015], requesting that NE clarify the locations where it considered there would be an AEoI in relation to seal. NE considered that there were impact pathways from interactions with vessels in The Haven and The Wash which would not be fully mitigated by the Applicant's proposals.

In its final comments on vessel speed limits [REP10-038] NE stated that its concerns remained. It highlighted that the reference to vessels travelling at 4 or 6 knots had been removed from relevant documents [REP9-010, REP9-020, AS-005 and REP8-011] and replaced with references to 10 or 12 knots and travelling at a 'safe speed' as defined by COLREGS, which relates to navigational safety, not ecological impacts. The reduced vessel speed had previously been identified in the relevant documents as mitigation but the assessments had not been updated to consider the potential impacts of its removal. It had been indicated that the NMP secured by DML Condition 14 (dDCO Schedule 9) would control vessel speeds but the NMP template (V1.0) [REP8-011] contained no details of a speed limit and how one would be enforced. NE concluded that a WCS of a 12-knot vessel speed should be used to inform the assessments and that in the absence of a speed restriction, and vessels potentially travelling at 12 knots, the mitigation proposed by the Applicant could not be relied upon to sufficiently minimise impacts. NE also confirmed that the same considerations applied to the potential effect of vessel wash on intertidal habitats.

In response to Question 5 in the Rule 17 letter [PD-015] about mitigation to avoid or reduce collision risk for harbour seal, the Applicant stated that the assessments contained in ES Chapter 17 (V1.0) [REP9-011] and the HRA Marine Mammals Addendum (V1.0) [REP9-020] did not indicate that there would be any significant effects on marine mammals during construction or operation of the Project. Neither did the HRA indicate that there would be an AEoI on the SAC as a result of increased vessel presence. It explained that the measures within the OMMMP (V2.0) [REP7-003] (with which the final MMMP must substantially accord) were provided on a precautionary basis. The OMMMP states that vessel speeds "as low as reasonably practicable" are to be encouraged and Project vessel speeds should aim to be below 10 knots. The Applicant believed that this would help reduce any potential impacts on marine mammals, together with the other mitigation secured by DML Condition 17 (MMMP) and the measures (which must accord with the MMMP) included in the NMP secured by DML Condition 14.

The Applicant noted that there was no evidence to indicate that the recent decline in the harbour seal population in The Wash area was related to vessel activity and that the PoB had no recorded instances of vessel collision with harbour seal. It also commented that although NE had stated that there was anecdotal evidence of negative interactions between harbour seals and vessels within The Wash it had not provided any supporting evidence.

The ExA [ER 1.8.255 App. C] did not consider that the assessment of impacts on harbour seals had considered the potential operational WCS in light of the revised information on speed limits in The Haven, or that sufficient mitigation had been proposed to avoid an AEoI on harbour seal. The ExA was not convinced of the effectiveness of the proposed MMObs to spot seals in The Haven and implement course corrections. In the absence of the ability to enforce a speed limit and no certainty that vessels could or would reduce their speed to minimise the risk of collision, and on the basis of the available evidence the ExA was not satisfied that an AEoI of The Wash and North Norfolk Coast SAC due to collision risk on harbour seal could be excluded alone.

5.8.1.2 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to explain whether it considered that the assessment of impacts to harbour seal has accounted for an appropriate WCS, in light of its inability to enforce vessel speed limits. The Applicant[33] responded on 11 November 2022[33]. It reiterated that the original and updated assessments regarding vessel effects on harbour seals did not rely on specific vessel speed information to inform the assessment and conclusions. The assessments were based on an area of effect (i.e. the area at which harbour seal may be at risk of effects relating to increased vessel presence, including for increased risk of collision), rather than using any vessel speed in order to quantify that level of risk. This is said to be in line with the standard approach to collision risk assessments for marine mammals. While there is a higher risk of collision to mammals from vessels travelling at higher speeds due to the increased level of impact, the assessment assumes that harbour seal are at risk of collision from all vessels transiting, rather than from only those vessels that are travelling at a specific speed, and therefore represents a worst-case assumption. The Applicant stated that its assessment (Chapter 17 Marine and Coastal Ecology (document reference 6.2.17, APP-055)) uses an area of effect-based approach, assuming that 95% of harbour seals within that area would be able to avoid collision with vessels, and 5% would be at risk of collision, based on an estimated collision risk rate of 5% for marine mammals. This was based on the strandings data available through the Cetacean Stranding's Investigation Programme (CSIP), which identifies the cause of cetacean strandings in England. The methodology adopted also assumes that all seal-vessel collisions result in animal mortality. The Applicant stated that the use of a 5% collision risk rate is appropriately precautionary, as following a review of all harbour seal strandings from 2009 to 2020, as reported by the Scottish Marine Animal Stranding Scheme, the Applicant considers a potential actual collision fatality rate of 2.8% was revealed. As with the ES, the HRA [APP-111] was updated at Deadline 1 [REP1-027] and Deadline 9 [REP9-013] to take account of both the reduced harbour seal population within The Wash, and the removal of the vessel speed limits. The Applicant reiterated that this did not alter the overall outcome for the assessment for harbour seal.

In the same letter, the Secretary of State requested the Applicant to provide without-prejudice additional mitigation measures and/or enhancements to the existing proposed mitigation measures to reduce collision risk impacts to harbour seal, with particular regard to concerns raised by NE in [REP10-036] and [REP10-038]. The Applicant[33] reiterated that the mitigation already provided in the OMMMP are provided as a purely precautionary approach. However, the Applicant stated that since the close of Examination, further discussions have been held between the PoB and the Applicant. The PoB, as the statutory harbour authority, has offered on a without prejudice basis, subject to the pilotage requirements for navigational safety and efficiency (vessel management) and the application of the principle of 'safe speed' (application of COLREGS), that when reasonably practicable to do so, it will require that all ships that are subject to compulsory pilotage when moving between the PoB designated anchorage in the Wash and the Docks maintain a speed below 10 knots. This will apply to all vessels that are subject to compulsory pilotage (both existing shipping and the additional shipping resulting from the project) meaning that all commercial vessels over 30m in length will be subject to these new operating conditions. The Applicant's vessels will also follow the same vessel collision speed restrictions while transiting through The Wash, to the anchorage area; the Secretary of State notes that the Applicant anticipates Project vessels to be 100 m in length. The Applicant stated that all vessels travelling to the Project will abide by a vessel speed limit of 10 knots, subject to

the above same conditions regarding COLREGS and navigational safety, as far as is practicable. The Applicant will twice a year issue a toolbox note (or similar) to request all shipping agents and vessel masters associated with the Applicant's vessels to issue guidance on this matter. The Applicant stated that these measures limit any effect of the Applicant's vessels, but also reduce any baseline effect that may already exist. In response to the third consultation letter, an updated OMMMP[45] was provided by the Applicant to secure this the proposed 10 knot speed limit.

In his first consultation letter, the Secretary of State requested the Applicant to propose measures to increase the effectiveness of the proposed MMObs in The Haven. The Applicant[33] did not propose measures to increase the effectiveness of the proposed MMObs. The Applicant reiterated that there is no requirement to alter the course of the vessels, which the Secretary of State notes, as this would allow harbour seals to predict the heading of the vessel and move out of the way.

In his first consultation letter, the Secretary of State invited NE to comment on the implications for the Project of the proposed change to the SACOs for the harbour seal feature from 'maintain' to 'restore', with particular regard to when this change may come into effect. NE responded on 9 November 2022[32] that its advice remains unchanged to that submitted into the Examination. However, subsequently NE stated that it has completed its update to The Wash and North Norfolk Coast SAC SACOs for Harbour seal. NE stated that it hopes to publish the updated conservation advice at the next available opportunity in March 2023. However, NE enclosed a copy of the finalised draft advice[46] to aid in the undertaking of any HRA. The published SACOs[25] for the harbour seal feature of The Wash and North Norfolk Coast SAC referenced 'maintain' objectives throughout Examination and therefore informed the Applicant's assessment, which the Secretary of State acknowledges. The draft update provided by NE includes a change to a 'restore' target for the population size attribute.

In his second consultation letter, the Secretary of State invited the Applicant to comment, with regards to the updated SACOs provided by NE. The Applicant responded on 9 December 2022[34], stating that it: *"… has made an assessment based on the current and existing Conservation Objectives, at the time of submission. The Applicant considers this was the correct approach as information regarding future potential changes to Conservation Objectives would be highly speculative and has progressed assessment in full regard to the current legal position along with relevant guidance and best practice. The Conservation Objectives that were assessed within the Application documents are the current Conservation Objectives for The Wash and North Norfolk Coast SAC and provided there is no change prior to the Secretary of State making his decision are the relevant Conservation Objectives for the purposes of determining the appropriate assessment."*. Nevertheless, the Applicant's position is that the Project will not affect the integrity of the SAC with a maintain or restore Conservation Objective.

The Secretary of State notes that the updated SACOs were published on 9 May 2023.

[45] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001417-9.12(3)-Outline-Marine-Mammal-Mitigation-Protocol-Clean.pdf

[46] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001396-NE-Updated-SACO-for-The-Wash-and-North-Norfolk-SAC-Harbour-Seals-Final-Draft-Nov-22.pdf

In his second consultation letter, the Secretary of State invited NE to advise whether it considers that an AEoI of The Wash and North Norfolk Coast SAC could be excluded in light of the Applicant's response; including the proposed 10 knot vessel speed restriction as offered by the PoB. NE[35] responded on 8 December 2022. In summary, NE stated that: *"Natural England has reviewed the response provided by the Applicant to the 14th October 2022 SoS consultation and unfortunately there is insufficient information to materially change Natural England previous advice in relation … The Wash and North Norfolk Coast SAC Annex II Harbour Seals impacts."*.

Regarding the Applicant's response to the first consultation on the harbour seal assessment, NE stated[47] that its concerns with the ES remain unchanged. The relevance of the area-based approach and links to mitigation measures remains unclear. NE advised that mitigation measures and how that may reduce impacts is the requirement and the assessment of significance should take that into account. NE stated that while it recognises the wider ecological benefits of reducing vessels speeds i.e. reducing vessel wash; this alone is unlikely to provide sufficient mitigation measures for all of the potential impacts to marine mammals to be sufficiently reduced, with concerns of NE also remaining in relation to under water noise. NE stated that its advice remains unchanged from that provided into examination. NE stated that it understands that the vessel speed reduction to 10 knots for an unknown proportion of the vessels transiting down The Haven, is a suggestion to reduce risks to harbour seals allowing more leeway with development associated impacts. While this is helpful and would have wider environmental benefits from reduced wash, NE advise that there is only limited evidence presented to demonstrate that 10 knots is sufficient to mitigate boat disturbance/collision. While NE welcomed clarification that piloted vessels will maintain a speed below 10 knots; it remains unclear a) how many of the additional vessel movements associated with the development this mitigation will apply to and b) no evidence has been provided to demonstrate that a 10 knots restriction on some of the vessels will sufficiently reduce the disturbance/impact to seals from an ecological perspective.

Regarding the Applicant's response to the Secretary of State's request for measures to improve the effectiveness of the MMObs, NE stated that as set out during Examination it is difficult for a non-dedicated and trained MMObs to observe seals which spend a large proportion of their time under water. NE stated it would welcome the Applicant's sharing the results of the questionnaires as it believed that it is unlikely the Pilots who have filled in the questionnaires have been acting as dedicated trained MMOs.

Taking account of the advice of NE, the RSPB, LWT, the recommendation of the ExA, and with regard to the Applicants case, the Secretary of State cannot, on the basis of the information available to him, exclude an AEoI of The Wash and North Norfolk Coast SAC alone due to collision risk impacts on harbour seal beyond reasonable scientific doubt. The Secretary of State has considered the change to a 'restore' SACO for the harbour seal feature, and that this does not change the outcome of his HRA based on the current information available to him.

[47] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001401-NE-Updated-Harbour-Seal-Advice-to-SoS-Dec-2022.pdf

5.8.2 Harbour seal: In-combination

5.8.2.1 Collision risk - changes in vessel traffic and movements during construction and operation

The Applicant addressed potential ICEs arising from the Project within HRAR Section A17.5 [AS-006]. The HRAR explained that, due to the wide-ranging nature of the harbour seal, which may forage at considerable distance from their principal haul-out site, there was the potential for ICEs from projects at a greater distance from the application site. Therefore, projects that were within the same reference population and that had the potential to overlap temporally were screened in for further assessment.

The Applicant considered whether there could be ICEs during construction arising from the Viking Link Interconnector project together with the Project on the SAC harbour seal population, resulting from underwater noise (from piling and dredging) (see Section 5.8.3.3) and an increased risk of vessel collision. It concluded that there would not be an AEoI. In relation to underwater noise this was on the basis of the conclusion of the Viking Link project that a negative effect was unlikely, the mitigation that would provide, and the predicted “very low” number (up to 33.4% harbour seals which equates to 1% of The Wash and North Norfolk SAC population) of the SAC seal population that could be at risk from the Project. In respect of collision, the Viking Link project predicted that the likelihood was very low and the WCS for the Project was that 1.7 seals could be affected. This conclusion was not questioned by IPs.

The ExA was satisfied [ER 1.8.294 App. C], on the basis of the evidence provided by the Applicant, that this LSE pathway would not result in an AEoI of the SAC from the Project in-combination with other plans and projects.

5.8.3 Harbour seal: Alone and In-combination

5.8.3.1 Physical interaction between vessels and harbour seal within the anchorage area

NE stated [RR-021] that consideration of impacts to the SAC from anchorage of vessels in The Wash whilst waiting for an appropriate tidal window to enter The Haven had been omitted from the assessment. In particular, NE was concerned about the potential for seal pups to become entangled in propellors and anchor chains and requested that consideration was given to a requirement for all vessels associated with the Project to have guarded propeller ducts.

The Applicant responded [REP1-035] that the vessels using the anchorage areas would use the same methods as currently used in this area and that harbour seal, due to their small size, were not considered to be at high risk of entanglement in anchor chains.

The Marine Mammals Addendum [REP1-027] included an assessment of risk to adult and pup harbour seals as a result of interactions with vessels within the anchorage area awaiting a suitable tidal window. It also included an assessment of the overall effect on the integrity of the SAC in relation to the Conservation Objectives for harbour seal. It was considered highly unlikely that vessels would remain stationary (through the use of dynamic positioning (“DP”), which involves the continuous operation of the vessels propellers and/or thrusters), within the anchorage area due to the high levels of fuel that would be required by this method. In the rare event that DP was used, the Applicant concluded that the information available (based on a desk-based review of the risk) and resultant assessment indicated that it would be unlikely for

any seal (adult or pup) to be at increased risk of collision with DP propellers. This conclusion also relied on the view that harbour seal are very rarely attracted to vessels (Onoufriou et al. 2016)[48] and that any corkscrew injuries were more likely to be a result of grey seal predation than the use of DP or ducted propellers.

Similarly, in respect of entanglement in anchor chains, it was concluded by the Applicant, based on the additional information within the Addendum, that there would be no risk to harbour seals. It was stated that no information was available to support any view that harbour seal pups were more at risk from vessels within the anchorage area than adults, and that therefore the assessments were relevant to both harbour seal adults and pups. A summary of the conclusions of the updated assessments of potential effects on harbour seal is provided in Table 5-2 of the Marine Mammals Addendum. The Applicant stated [REP3-023] that DP systems are not generally fitted to cargo vessels and that the PoB harbour master had confirmed that no vessels calling at the port had such systems onboard. It was concluded that without taking the proposed mitigation into account that there was no potential for adverse effects on The Wash and North Norfolk Coast SAC in relation to the Conservation Objectives for harbour seal.

NE agreed [REP2-042] that there was unlikely to be a significant effect if anchorage was used rather than DP and suggested that the DCO include a 'condition' that only permitted the use of anchors within the Boston Anchorage Area whilst waiting for optimum tidal windows to enter The Haven. They advised that any use of DP should require ducted propellers. LWT made the same suggestion [REP4-021].

The Applicant reiterated [REP4-014] the points it made in [REP3-023] and stated that DP was used only on specialist vessels such as drill ships and rock dumping vessels, in order to hold their position in carrying out their work.

In relation to the Applicant's reliance on Onoufriou et al. (2016) to demonstrate that seals are not attracted to vessels in open seas, NE noted that its staff had observed seals and seal pups approaching several vessels associated with the Lincs Offshore Wind Farm cable installation within The Wash, and that fishing vessels often have regular interactions with seals [REP2-043]. NE commented that it would be helpful if further evidence from The Wash colony could be presented to demonstrate whether seals do avoid interactions with vessels within the SAC, thus reducing collision risk.

In response the Applicant stated [REP4-014] that an extensive review of the literature on harbour seal and vessel co-existence had not found any evidence to support seals being attracted to vessels specifically within The Wash and asked NE to provide any such reports or papers to inform any further response. It noted that it was plausible that the seals could be attracted to vessels with the potential to provide a food source but explained that this would not apply to cargo vessels. At Deadline 9 the Applicant reiterated [REP9-027] points it had made in [REP8-014] about anchoring. It explained that the need for anchoring for vessels associated with the Project would be less than for other large vessels associated with current commercial shipping because of the nature of its operation. The vessel movements would be more predictable and should require significantly less time at anchor than vessels that arrive on a spot basis. It would

[48] Onoufriou, J., Jones, E., Hastie, G. and Thompson, D., 2016. *Investigations into the interactions between harbour seals (Phoca vitulina) and vessels in the inner Moray Firth*. Marine Scotland Science.

be in the Applicant's interests not to have vessels at anchor so would be managed by routinely matching arrival times with tidal windows to keep anchoring to a minimum.

On the basis of the information available, the ExA [ER 1.8.291 App. C] was satisfied that potential impacts on harbour seal within the anchorage area would not result in an AEoI of The Wash and North Norfolk Coast SAC, alone and in-combination. The ExA does not state that its conclusion is dependent on a condition which only permits the use of anchors as opposed to the use of DP within the Boston Anchorage Area.

5.8.3.2 Additional information

In response to the third information request, NE[49] provided its updated advice on mitigation proposed for harbour seal. This included NE's advice on additional mitigation measures proposed by the Applicant (repeated in the Applicant's response to the third information request). Although the Applicant states that based on the currently available vessels in the charter market, vessels servicing the facility will not include any DP, the Applicant commits to using propellor guards if vessels using DP are ever used in the future. NE welcomed this commitment, which the Secretary of State notes is secured in the final updated OMMMP[45] provided in response to the third information request.

The Secretary of State considers that the Applicant's explanation as to why it is in the Applicants interest to not have vessels at anchor and that it was considered highly unlikely that vessels would remain stationary through the use of DP within the anchorage area, is reasonable. The Secretary of State also welcomes the Applicants commitment to using propellor guards and he agrees with the Applicant and the ExA and is satisfied on the basis of the information available to him, that an AEoI of The Wash and North Norfolk Coast SAC resulting from impacts to harbour seal within the Boston Anchorage Area in The Wash can be excluded.

5.8.3.3 Disturbance effects - increased underwater noise and changes in vessel traffic and movements during construction and operation

In relation to underwater noise impacts from piling and dredging during construction, the Applicant [AS-006] stated that the specific noise levels that will be generated by the piling activity is currently unknown, although it is anticipated that there will be approximately 310 piles. The assessment of effects indicates that a very small number of harbour seals (0.008) could be at risk of PTS or TTS onset under the cumulative threshold, and that less than 1% of The Wash and North Norfolk Coast SAC population of harbour seals could be affected as a result of piling and dredging activities. The Applicant stated that, as a precautionary approach, mitigation will be undertaken for piling works during high tides, to ensure that any potential for impact to marine mammals (and fish species) are reduced as far as is possible. These measures are secured by Condition 13 of the DML contained in Schedule 9 of the dDCO. This mitigation would include:

- pre-piling watch for marine mammals, when piling activities are undertaken during high tides, following the JNCC protocol for minimising the risk of injury to marine mammals from piling noise; and

[49] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001409-Natural-England-DAS-advice-on-seal-mitigation-and-derogations-case.pdf

- soft-start and ramp-up procedures, for piling activities undertaken during high tides, following the standard JNCC protocol for minimising the risk of injury to marine mammals from piling noise.

In relation to disturbance (presence and noise) from vessels during construction, the Applicant [AS-006] considered that any disturbance of harbour seals due to vessel noise would be temporary and could affect up to 33.4 harbour seals (or 1.0% of The Wash and North Norfolk Coast SAC population) based on the harbour seal density within the shipping corridor and anchorage area of 3.189 harbour seals per km^2 (Russel et al., 2017). The assessment of effects indicates that 1 % of The Wash and North Norfolk Coast SAC population of harbour seals could be temporarily disturbed as a result of vessel noise.

In relation to disturbance (presence and noise) from vessels during operation, the Applicant stated [AS-006] that it is unlikely that vessel noise would be sufficient to cause the onset of either a permanent auditory injury (PTS) or a temporary auditory injury (TTS) in harbour seals. The potential for disturbance from vessels during the operational phase would the same as within the construction period, with up to 33.4 harbour seals (or 1.0% of The Wash and North Norfolk Coast SAC population) based on the harbour seal density within the shipping corridor and anchorage area of 3.189 harbour seals per km^2. The assessment of effects indicated that 1% of The Wash and North Norfolk Coast SAC population of harbour seals could be temporarily disturbed as a result of vessel noise. The Applicant considered that, although numbers of vessels are much higher during operation than during the construction phase this impact is still considered to be minimal.

In relation to disturbance at harbour seal haul out sites, the Applicant [AS-006] stated that there are a total of 50 different harbour seal haul-out and pupping sites within The Wash. Of these sites, none are located within 600 m of the anchorage location and shipping channel to be used for the Project, with the closest site being the Friskney South site, approximately 840 m from the shipping channel. A 2018 count[50] of harbour seals of the three closest sites to the shipping channel and anchorage location recorded a total of 38 adults and 16 pups at Friskney South, seven adults and no pups at the Rodger site, and one adult and one pup at the Ants site. This equates to a small proportion (up to 1.2% of all adults, and 1.1% of all pups) of the total harbour seal count, of 3,747 adults and 1,498 pups in 2018. The Applicant concluded that, due to the distance of the haul out sites to the shipping channel and anchorage location, the low number of harbour seal (and pups) present at the nearest sites, and the ability of harbour seals and pups to move to any one of the other suitable sites nearby, harbour seal within The Wash would not be exposed to a disturbance effect, while hauled-out, due to the increased number of vessels using the shipping channel and anchorage sites.

The Applicant [AS-006] considered that there would be no AEoI of The Wash and North Norfolk Coast SAC in relation to the Conservation Objectives for harbour seal from the effects of disturbance.

In relation to the piling needed to construct the wharf at the application site, NE considered [RR-021] that, whilst appropriate for birds, the proposal to undertake the noisiest activities, such as piling, during periods less sensitive to birds using the mudflats and saltmarsh (i.e. between May and September) didn't take into account impacts to harbour seals when they are at their most

[50] SCOS (2018). SCOS Report. Scientific Advice on Matters Related to the Management of Seal Populations: 2018

vulnerable during the pupping and moulting period, i.e. June to August. NE also advised that if a hammer piling technique was used, mitigation measures would be required for marine mammals if works were undertaken outside of low tide.

The LWT [RR-011] also raised a concern that the impacts on harbour seal had not been adequately assessed in relation to visual and noise disturbance from vessels and piling activity, particularly during the breeding, pupping and moulting periods.

The Applicant confirmed [REP1-035] that the piling assessment was based on WCS assumptions for the piling works using the latest (published) thresholds for potential impacts to harbour seal, and therefore impacts were expected to be lower than predicted by the assessments. It considered that piling at the application site was not expected to cause a significant effect on harbour seals who are pupping or moulting as there was no evidence to suggest that either occurs within The Haven. Information was provided in ES Chapter 17 [APP-055] on the number of pups born in the most recent yearly count (2018) at the closest sites to the vessel anchorage and corridor. The Applicant explained that the closest of these sites was 840m from the vessel areas, beyond the distance at which disturbance had been recorded for harbour seal (less than 600m) in a study of the reactions of harbour seal from cruise ships (Jansen et al., 2010[51]). The Applicant considered that therefore there would be no potential for the increased presence of vessels to cause disturbance to pupping sites or flight into the water.

It was stated in the Marine Mammals Addendum [REP1-027] that the updated data resulted in only small changes to the original assessment of the percentage of the harbour seal population that could be impacted by underwater noise from piling and dredging activities during construction (an increase from between 0.000005 - 0.01% to between 0.000006 - 0.015%, presented in Addendum Table 5-1). It was considered that these were not significantly different and resulted in no change to the overall magnitude levels and therefore no change to the impact significance concluded in the original assessment.

The Applicant acknowledged [REP1-035] that harbour seals had been reported swimming within The Haven and observed to occasionally haul out on the sandbanks along its edges. It stated that mitigation would be put in place to ensure there would be no potential for auditory injury to seals, including the use of soft-starts and ramp-up for any piling undertaken during high tides. It explained that piling during low tide was not expected to generate significant levels of underwater noise due to the limited potential for noise propagation in very shallow water. The mitigation would include a piling pre-watch by a fully JNCC accredited observer over an area of up to 500 m, following the standard JNCC guidelines for reducing injury to marine mammals from piling works. The mitigation is contained within the OMMMP. It was noted in the Marine Mammals Addendum that there has been no change to the information on harbour seal haul-out sites and so there was no change to the assessments relating to haul-out sites.

The Applicant in its HRAR stated that best practice measures would be put in place to minimise disturbance to marine mammals from the presence of and noise from vessel traffic serving the Project during construction and operation, which would mainly consist of a non-dedicated observer on board each vessel looking out for marine mammals. It was explained that these measures are secured by dDCO Schedule 9 (DML) Condition 14, which requires that a NMP

[51] Jansen, J.K., Boveng, P.L., Dahle, S.P. and Bengtson, J.L., 2010. Reaction of harbor seals to cruise ships. *The Journal of Wildlife Management*, *74*(6), pp.1186-1194.

must be approved prior to construction which must include measures for managing potential risks to marine mammals. An outline version of the NMP was not provided with the application. A NMP template was provided at Deadline 7 [REP7-012], which was superseded by a final version at Deadline 8 (V1.0) [REP8-011]. It was concluded that, as the assessment indicated (based on a WCS) that 1% of the SAC population of harbour seals could be disturbed as a result of vessel noise during construction and operation, this would not be significant and would not result in an AEoI of the SAC in relation to harbour seals.

An updated version of the REAC was submitted at Deadline 1 that included reference to the Marine Mammals Addendum [REP1-027] and OMMMP [REP1-025] and the post-consent MMMP and NMP. An updated version of the dDCO [REP1-003] was submitted that included, in the DML contained in Schedule 9, updated and new provisions in respect of marine mammals. Condition 13 (Piling) had been updated to require the (post-consent) piling method statement to include measures that were in accordance with the OMMMP. Condition 14 (new) required the NMP to include measures for managing potential risks to marine mammals in accordance with the MMMP. Condition 17 (new) required that the MMMP to be submitted to the MMO for approval must be in accordance with the OMMMP.

In response to ExQ 2.10.0.1 [PD-010] the Applicant provided at Deadline 6 a 'Technical Note for Navigation Management and Ornithology' [REP6-033]. It explained that this was in the absence of submitting an outline NMP to the Examination as a NMP would be produced once a principal contractor had been appointed post-consent and it was considered that a draft version would not contain sufficient detail to inform HRA matters. It stated that the NMP would take into account the mitigation proposed in the finalised HRA documents at the end of the Examination, the measures in the approved MMMP and any decision by the Secretary of State on compliance with the HRA regulations and the likelihood of an AEoI. It considered that the process set out in the Note, secured by the DCO, would result in practicable and appropriate navigation management to ensure that an AEoI was not triggered. Regular monitoring and reporting would feed into adaptive management and the NMP would be updated as necessary throughout construction and operation. Article 14(1) of the dDCO required that NE were consulted on the NMP (including future iterations) in respect of birds and marine mammals.

NE commented at Deadline 9 [REP9-063] that the NMP should be considered during the consenting phase in order to provide the SoS with the necessary confidence that the AEoI would be managed. The Applicant responded [REP10-020] that it and the PoB considered that the post-consent ongoing development of a NMP and NRA was the most effective way to mitigate impacts on navigation safety, and consequently on ornithological features. This was because it allowed ongoing consultation with relevant parties and enabled them to respond to the detailed design, construction and operational proposals. The Applicant highlighted that this was consistent with the approach adopted by the EA (and agreed with the PoB) for the Boston Barrier Order 2017.

NE commented on the Applicant's proposed mitigation measures at Deadline 2 [REP2-042]. It advised that JNCC's 2010 guidance was developed to mitigate impacts resulting from large scale piling operations for offshore windfarm arrays. The smaller (pin) pile for the Project was likely to be installed before the completion of the 20 minutes soft start and the maximum hammer energy was likely to be reached almost immediately with no ability to ramp up. Therefore, this was not appropriate mitigation. It recommended that the Applicant further consider non-impact piling,

such as vibro piling, and questioned whether piling could be restricted to low tide only, thereby negating the need for MMObs.

LWT highlighted NE's comments about soft start up procedures and considered that the Applicant should provide information to support use of this as mitigation [REP4-021]. It considered at Deadline 4 that specific piling methodology, further underwater noise modelling, and assessment of the potential effects piling may have on harbour seal was still required and questioned if piling could be limited to low tides only.

The Applicant acknowledged [REP4-014] that a full soft start and ramp-up procedure may not be possible and referred to the information contained in para 3.2.5 of the OMMMP [REP1-025] in that event. This explained that the piling would commence with hammer energies as low as is reasonably practical, with a ramp-up to full hammer energy for as long a period as is possible. Monitoring for marine mammals would be undertaken prior to all piling and until a marine mammal was outside of the mitigation zone for 20 minutes and the full 30-minute pre-piling watch had been completed. The Applicant stated that this was the approach used for similar scale pile driving for wharf/harbour developments. In relation to consideration of non-impact piling the Applicant stated that a full review of potential pile and installation techniques would be undertaken once the final design of the Project was confirmed, and geotechnical information compiled. Any possible alternative piling options would be investigated further and confirmed in the final MMMP. In respect of restricting piling to low tide, the Applicant explained that this would require the piling period to be extended from the proposed period, which would potentially result in impacts on ornithological and fish receptors. It was not therefore possible to commit to only piling at low tide. However, it considered that the mitigation set out in the OMMMP would reduce the risk to marine mammals to an acceptably low level.

NE advised [REP2-042] that the advice on using MMObs had been updated and that project-specific underwater noise modelling should be undertaken at the wharf location to determine the PTS Zone rather than adopting the 500m observational zone as proposed by the Applicant. It noted the Applicant's statement that, due to a bend in the river, observations to the North (at the wharf location) would only be at a distance of 110 m, but as this was greater than the 90 m PTS range for seals this was unlikely to cause concern. NE did not support this conclusion and requested that further modelling and evidence was presented. LWT also took the view that underwater noise modelling should be undertaken at the wharf site to determine the PTS Zone, rather than adopting the 500 m zone [REP4-021]. It requested that the Applicant justify the PTS range being set at 90 m.

The Applicant responded [REP4-014] that the final MMMP would be developed post-consent, in consultation with the MMO and NE, once final piling design and methodologies are known. If required, it would include any site-specific underwater noise modelling to determine the PTS maximum impact range and the range over which monitoring by the MMObs would need to be undertaken. The Applicant submitted an updated OMMMP [REP6-020] at Deadline 6 to address comments made by the NE and the MMO, as explained in [REP4-014]. It included additional details of the information that would be included in the MMMP and confirmed the revised provision that piling would be undertaken between June and September only.

NE [REP2-042] did not support the use of Passive Acoustic Modelling ("PAM") as mitigation during times of poor visibility, as proposed by the Applicant. NE advised that PAM are used to detect clicks and vocalisations of cetaceans but that harbour seals do not vocalise like cetaceans, and therefore considered that it was unsuitable mitigation. It recommended that piling

was not undertaken during periods of poor visibility. LWT noted that PAM is generally used to detect cetaceans in low visibility conditions rather than pinnipeds like harbour seal, and also considered that it was not appropriate mitigation [REP4-021]. It also suggested that piling operations should be halted during periods of low visibility.

The Applicant stated [REP4-014] that piling (from June to September) would only take place in the daytime, from 7am – 7pm or 8am – 8pm, for up to 83.5 days in total. It explained that the limitations of using PAM, especially for seals, had been considered and that it had been included in the OMMMP on a precautionary basis and was unlikely to be relied upon. Where possible, piling would not be undertaken during periods of poor visibility or at night, when MMObs are unable to monitor the area. In the updated OMMMP [REP6-020] the unsuitability of PAM had been acknowledged and the reference to its use had been removed.

In relation to haul out, the Applicant stated at Deadline 9 [REP9-027] that while there was the potential for a small number of seals to be present within The Haven, the core haul-out sites are located only within The Wash, and it is only those sites that are used for breeding, pupping, and rearing pups. The closest haul-out site to the application site is at least 8km away. The Applicant highlighted at Deadline 9 [REP9-027] that, based on information about a decline in the local seal population and updated population estimates, updated assessments of the proportion of the SAC population that could be affected by the Project were provided in the updated Marine Mammals Addendum (V1.0) [REP9-020]. It found that up to 1.2% of the SAC population could be disturbed by vessel noise during construction and operation. The Applicant explained that the mitigation proposed to reduce disturbance is presented in the OMMMP (V2.0) [REP7-003] and secured in dDCO Schedule 9 DML Conditions 14 and 17.

In response to ExQ 3.2.1.5 [PD-013], NE [REP8-021] stated that it disagreed that the mitigation proposed in the OMMMP would avoid effects on harbour seal. In [REP8-025] it reiterated its comments in respect of soft-start piling about the Applicant's reliance on JNCC 2010 guidance and that it was not appropriate for the Project. In relation to MMObs at the wharf site, NE welcomed that project-specific underwater noise modelling would be undertaken to determine the PTS Zone rather than adopting the 500 m observational zone. However, it noted that the Applicant had highlighted that, due to a bend in the river to the North, the monitoring zone for some piling locations could be 150m radius. NE's concerns about this mitigation measure would remain until modelling and evidence was presented. It suggested that other mitigation measures to minimise underwater noise impacts, such as non-impact piling (i.e. vibro piling) should be further considered.

The Applicant [REP9-033] drew attention to the acknowledgement in the OMMMP [REP7-003] that full soft-start and ramp-up procedures may not be possible. It explained that once the final pile design was available the potential soft-start and ramp-up procedures would be based on that, in consultation with NE, as secured under DML Conditions 13 and 17. It was confident that these measures were sufficient to address concerns about the potential for effects on marine mammals. The potential would be investigated for reduced strike rate rather than reduced hammer energy as an alternative soft-start and for non-impact piling, e.g. vibro-piling. As provided in the OMMMP, if required, site-specific underwater noise modelling would be undertaken to determine the PTS zone for harbour seal. The final piling mitigation would be designed to ensure that there were no individuals within that zone. If required, the option for additional observers to be located around the bend in the river would be investigated, however the bend is likely to form an effective barrier to sound movement around it. Due to the bend in

the river being north of the piling location, inshore of the entrance to The Wash, the Applicant considered that it was highly unlikely that any harbour seal would be present.

NE provided a response at Deadline 10 [REP10-036] to Question 5 in the Rule 17 letter issued 30 March 2022 [PD-015] which asked it to clarify the locations where it considered there would be an AEoI in relation to harbour seal. NE considered that there would be impact pathways from underwater noise in The Haven and The Wash which would not be fully mitigated by the Applicant's proposals.

The ExA noted [ER 1.8.279 App. C] that [REP9-020] used updated seal count data to conclude that up to 0.015% of the harbour seal reference population could be impacted by underwater noise from piling and dredging activities during construction. The ExA was satisfied, on the basis of the proposed mitigation measures set out in the OMMMP [REP7-003] and secured by Conditions 13, 14 and 17 of the DML contained in dDCO Schedule 9 [REP10-004], that there can be sufficient certainty at this stage that the proposed measures would be effective in avoiding or minimising auditory injury to the SAC harbour seal population during construction. The ExA was satisfied that this LSE pathway would not result in an AEoI of The Wash and North Norfolk Coast SAC alone and in-combination with other plans and projects (see Section 5.8.1.1).

5.8.3.4 Additional information

NE's[47] updated advice on harbour seals submitted in response to the third consultation letter stated that concerns regarding underwater noise impacts due to piling remained. In response to the same letter, the Applicant[38,] responded to NE's comments. It restated that it considers that the mitigation secured in the OMMMP would reduce the risk to marine mammals to an acceptably low level, however in light of the request from NE, alternative options to impact piling are being investigated, which will be confirmed as further detailed design and site investigation is conducted. This is included in a final updated OMMMP[45]. In response to the fifth consultation letter, NE[52] stated that with the adoption of best practice, mitigation measures and positive environmental measures for Annex II Harbour Seal features of The Wash and North Norfolk Coast SAC, it has no outstanding issues in relation to impacts to harbour seal.

The Secretary of State agrees with the Applicant and the ExA and is satisfied that the mitigation measures secured, including in the OMMMP and NMP, are sufficient such that an AEoI of The Wash and North Norfolk Coast SAC from disturbance effects on harbour seal resulting from the Project alone and in-combination can be excluded. The Secretary of State notes that once the final pile design is available, potential soft-start and ramp-up procedures would be based on that, as agreed by the MMO following consultation with IPs including NE as the SNCB, and secured under DML Conditions 13 (Piling) and 17 (MMMP).

[52] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001467-Boston%20Alternative%20Energy%20EN010095%20NE%20June%208%20Deadline%20Response%20to%20SoS.pdf

5.8.4 Atlantic salt meadows; Coastal lagoons; Large shallow inlets and bays; Mediterranean and thermo-Atlantic halophilious scrubs; Mudflats and sandflats not covered by seawater at low tide; Reefs; Salicornia and other annuals colonising mud and sand; and Sandbanks which are slightly covered by sea water all the time: Alone and In-combination

5.8.4.1 Changes to air quality during operation

The Applicant considered the effects of increased emissions to air and deposition on marine and estuarine habitats from the operation of the project in its HRAR [AS-006]. For the saltmarshes linked to The Wash and North Norfolk Coast SAC, the predicted project-alone impact was greater than 1% of the Critical Load ("CL"). However, the Applicant considered that overall deposition of contaminants (specifically nitrogen) is generally of low importance for saltmarshes as the inputs are generally significantly below the large nutrient loadings from riverine and tidal inputs. Mature, upper areas of saltmarsh (like those found along The Haven) are also likely to be subject to direct run-off from the surrounding catchment.

Although there is limited information on the specific types of saltmarsh that are designated under The Wash and North Norfolk Coast SAC, the sensitivity review on MarLIN[53] for pioneer saltmarsh and *Puccinellia maritima* saltmarsh community habitats for the pressure 'changes in nutrient levels', which also addresses aerial deposition, states that moderate enrichment may be beneficial to plant communities within a saltmarsh. The Applicant stated that nitrogen is typically a limiting nutrient in saltmarsh ecosystems and added nitrogen resulted in increased primary production and decomposition (Valiela & Teal, 1974[54]; Long & Mason, 1983[55]). At a benchmark level, an increase in nutrients was concluded unlikely to have a significant effect on communities (Tyler-Walters, 2001[56]; Tyler-Walters, 2004[57]). NE's Advice on Operations[58] also states that the saltmarsh habitats of The Wash and North Norfolk Coast SAC are not sensitive at the pressure benchmark for 'nutrient enrichment', stating that *"…The benchmark for this pressure indicates that nutrient enrichment levels will be within acceptable levels, therefore it is unlikely that this habitat would be significantly affected by contamination at this magnitude"*. However, the Applicant stated that it is not clear what this magnitude/benchmark is (in a quantitative sense), and there is limited information available on the effect of other nutrients/pollutants on saltmarsh habitats.

[53] https://www.marlin.ac.uk/

[54] Valiela, I. & Teal, J.M., 1974. Nutrient limitation in salt marsh vegetation. In Ecology of halophytes (ed. R.J. Reimold & W.H. Queen), pp. 547-563. New York: Academic Press.

[55] Long, S.P., & Mason, C.F., 1983. Saltmarsh Ecology London: Blackie & Sons Ltd. [Tertiary Level Biology series]

[56] Tyler-Walters, H., 2001. Saltmarsh (pioneer). In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 15-10-2020]. Available from: https://www.marlin.ac.uk/habitat/detail/25

[57] Tyler-Walters, H., 2004. [Puccinellia maritima] salt-marsh community. In Tyler- Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 15-10-2020]. Available from: https://www.marlin.ac.uk/habitat/detail/350

[58] https://designatedsites.naturalengland.org.uk/Marine/FAPMatrix.aspx?SiteCode=UK0017075&SiteName=wash&SiteNameDisplay=The+Wash+and+North+Norfolk+Coast+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=2,2

With regards to deposition on to intertidal habitats (such as mudflats and shellfish beds that are exposed and covered at every state of the tide), the Applicant stated that, although deposition may occur in-between tides, this would be washed away with the tide; although there is the potential for this to contribute to a change in water quality, in the context of the wider water column, this is not considered to be significant. This is considered to be further supported by the fact that the Air Pollution Information System does not identify deposition as a main input of pollutants to the marine system, compared to other sources of pollutant inputs (such as discharge pipes).

The Applicant concluded that it considered that saltmarshes are of medium sensitivity to aerial deposition, and that the magnitude of impact is low. Based on the results of the air quality modelling, and that there are no exceedances of the in-combination CL, there was anticipated to be no AEoI of The Wash and North Norfolk Coast SAC in relation to the Conservation Objectives for coastal and marine habitats.

NE noted [RR-021] that ES Chapter 14 Table 14-30 [APP-052], described as presenting impacts on The Wash SAC, SPA, SSSI and Ramsar site during operation of the Project, showed that in combination Process Contributions ("PCs") of all pollutants were predicted to be above 1% of the relevant annual mean CLs. It requested further clarity on how impacts to the designated sites would be mitigated and any measures secured. It also queried what the effects of nitrogen (N) deposition on the HMA would be in the event that the Predicted Environmental Concentration ("PEC") CL was exceeded.

The Applicant responded in [REP1-035] that, although the PC exceeded 1% of the CLs, the PECs at all of the sites and at the HMA did not exceed the CLs. Therefore, it anticipated that significant impacts would not occur as the total predicted concentrations and deposition did not exceed the threshold above which the risk of harm to the habitats is increased.

NE confirmed [REP2-042] that they welcomed the inclusion of data on N deposition for the proposed HMA in the updated ES Chapter 14 [REP1-006] and considered that the matter was resolved. However, NE did query [REP5-014] whether the Applicant had up to date modelling to support its statement in [REP4-016], that actual N deposition levels would be lower than the worst-case figures set out in the updated ES Chapter 14 [REP1-006], and also suggested that it should be reflected in the information to inform an AA within the HRAR. In relation to the information contained in [REP3-015] on construction dust impacts, NE noted that the Applicant had not yet confirmed whether the proposed mitigation and monitoring measures would be in place at the HMA. In response to ExQ 2.3.1.7, NE confirmed [REP5-012] that it considered air quality ICEs had been addressed within the Addendum to Chapter 17 and Appendix 17.1 - Benthic Ecology, Fish and Habitats [REP1-028].

In respect of construction dust impacts on the HMA, the Applicant responded [REP6-032] that dust generation needed to be reduced at source so mitigation measures for dust impacts would be implemented at the construction site, not at the HMA.

In relation to the Applicant's statement about N deposition, the Applicant explained [REP6-028] that the assessment assumed that nitrogen oxides would be emitted at 100% of their permitted levels, but the emissions monitoring results of all EfW plants in the UK demonstrated that typical emissions of Nitrogen oxides (NOx) are at approximately 80% of the permitted levels. It also considered that the limits set by the EA in the Environmental Permit ("EP") for the Project would almost certainly be less than 100% of the allowable limits.

In response to NE's queries in [REP5-014], the Applicant clarified [REP6-035] that "permitted levels" referred to the 2019 Best Available Techniques-Associated Emission Levels (BAT-AELs), which specify the maximum allowable emission concentrations of contaminants in flue gases emitted from EfW plants. Plate 1 of [REP6-035] presents 2017 - 2020 data comparing the actual emissions from UK EfW plants with the permitted levels. Table 1 of [REP6-035] presents a comparison of in combination NOx emissions for the Project using the realistic emissions scenario, which reflects a reduction in nitrogen deposition compared to the WCS (as set out in ES Chapter 14). The in-combination PCs for nitrogen deposition at the SPA, SAC and Ramsar site are shown as less than 1% of the CL. The Applicant considered that as it had been concluded in the HRA that the Project would not result in significant effects according to a WCS, it was not necessary to update the HRA to reflect the realistic emissions scenario.

NE did not respond to [REP6-035]. However, it confirmed in the final SoCG [REP10-033] (as at previous deadlines) that it had been unable to review the Applicant's submissions in respect of air quality beyond Deadline 4.

On the basis of the above information, the ExA [ER 1.8.105 App. C] was satisfied that this effect pathway will not result in an AEoI of The Wash and North Norfolk Coast SAC, however it suggested that the Secretary of State may wish to consider inviting NE to update its advice on air quality issues [ER Appendix D].

5.8.4.2 Additional information

In his first consultation letter the Secretary of State invited the EA to provide an update on its position regarding Environmental Permitting, particularly on air quality. The EA responded on 20 October 2022[59], stating that there has been no further discussion with the Applicant since the EA's Deadline 10 submission [REP10-034], and so its position is unchanged. Regarding air quality, the EA stated that: *"With regards to air quality in particular, our position remains as set out in our Deadline 3 response (REP3-025). We are broadly satisfied with the type of evidence provided by the applicant regarding air quality, but we are unable to pre-determine any permit application, should one be made."*.

In his first consultation letter the Secretary of State invited NE to advise whether an AEoI resulting from changes in air quality can be excluded, in light of the Applicant's comments provided after Deadline 4 such as in [REP6-035]. NE responded on 9 November 2022[32] that it cannot advise that an AEoI as a result of air quality can be excluded. It stated that insufficient information had been provided on the air quality impacts of the protected sites to be able to rule out such adverse effects. Detailed comments are provided by NE[60]. Further information was said to be required on ammonia impacts during construction and operation, and impacts arising from nitrogen deposition (operation) and acid deposition (construction and operation) should be provided. It was stated that consideration of potential impacts of trace pollutants on the integrity of the sites should also be made. If AEoI of the sites cannot be ruled out, mitigation to reduce these impacts must be provided.

[59] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001398-EA-reply-to-SoS-BAEF-FINAL.pdf

[60] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001395-NE-Updated-Air-Quality-Advice-Nov-2022.pdf

In his second consultation letter, the Secretary of State invited the Applicant to respond to the concerns raised by NE regarding air quality. The Applicant responded on 9 December 2022[34] and provided further information and responses to points raised by NE and concludes that emissions from the Project would not result in an AEoI of the protected sites or any FLL.

The Secretary of State invited NE to advise on the further information provided by the Applicant. NE responded[61] on 10 March 2023 that whilst the Applicants further assessment is robust and an AEoI would be unlikely, a few issues remained before this would be 'beyond reasonable scientific doubt'. This including quantification of the emissions from the Project which could be offset due to loss of emissions from agricultural land, and justification of using the "grid average" background concentration to inform the PEC at the protected sites. NE also advised that due to residual concerns in relation to succession/coarse grasses, additional ecological monitoring should be undertaken. NE advised that the emission/ deposition monitoring strategy should include baseline pre-construction ecological survey during construction, and operational ecological surveying is required to determine if impacts are as predicted and if greater ensure further mitigation measures will be implemented. The Applicant responded on 15 May 2023[62] and provided further clarification regarding the quantification of loss of agricultural land due to the undertaking of works at the Application Site and compensation measures, which is 8.12 ha and 67.7 ha respectively. Indicative annual emissions from inorganic fertiliser application across all land would be expected to be between 14.02 and 23.09 kg NOx and between 41.46 and 493.75 kg NH_3. The cessation of primary emissions associated with agricultural activities will accrue from commencement of the initial site enabling works and will thereby provide some betterment to pollutant emissions loading upon the designated sites and habitats of concern. It also provided an updated Air Quality Deposition Monitoring Plan[63] which included a commitment as advised by NE, to ecological monitoring within saltmarsh and reference areas during pre-construction to establish a baseline and throughout operation, to determine whether additional mitigation measures may be necessary. The final methodology will be agreed with NE. In response to the fifth consultation letter in which the Secretary of State invited NE to confirm whether it is satisfied that adverse impacts could be excluded due to air quality impacts, NE[52] stated that: "*We believe that with the adoption of best practice, mitigation measures and positive environmental measures for Annex II Harbour Seal features of The Wash and North Norfolk Coast SPA [Our response to SoS dated 10th March 2023];* ***impacts to priority saltmarsh habitats (Section 40 NERC Act 2006) are the only other outstanding issue****."* (emphasis added). The Secretary of State understands that NE's concerns regarding impacts to priority saltmarsh under the NERC Act 2006 are related to habitat loss and erosion due to boat wash (see the Secretary of States Decision Letter for his consideration of these matters), and he notes that NE did not raise air quality matters as an outstanding concern. He therefore considers that NE are content with the information provided regarding air quality impacts.

[61] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001408-Natural-England-updated-Air-Quality-Advice.pdf

[62] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001429-9.114%20Applicant%E2%80%99s%20Response%20to%20Secretary%20of%20State%E2%80%99s%20Letter%20of%2024%20April%202023.pdf

[63] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001427-9.51(2)%20Air%20Quality%20Deposition%20Monitoring%20Plan%20(clean).pdf

The Secretary of State considers that the Applicants additional assessment is robust and that the responses of the Applicant are sufficient to demonstrate that the Project will not undermine the conservation objective to maintain the sites below relevant critical loads/levels, and that an AEoI of any protected site both alone and in-combination can be excluded due to changes in air quality.

5.9 Appropriate Assessment conclusions

As the competent authority under the Habitats Regulations for this Application under the Planning Act 2008, the Secretary of State has undertaken an AA in respect of the Conservation Objectives of three protected sites to determine whether the Project, either alone or in-combination with other plans or projects, will result in an AEoI.

The Secretary of State has carefully considered all of the information available to him, including the recommendations of the ExA, the advice of NE as the SNCB, the views of all other IPs, the Applicant's case and all responses to his consultation letters.

The Secretary of State requested further information and updates the consultation letters, however he has not identified any further mitigation measures proposed by the Applicant which would avoid the potential AEoI identified. The position of NE after reviewing the Applicants responses to the first consultation letter is summarised: *"Natural England has reviewed the response provided by the Applicant to the 14th October 2022 SoS consultation and unfortunately there is insufficient information to materially change Natural England previous advice in relation The Wash SPA Annex I Bird impacts and The Wash and North Norfolk Coast SAC Annex II Harbour Seals impacts."*. The position of the RSPB after reviewing the responses to the first consultation letter is summarised: *"We have not seen any new information presented by the Applicant that alters our position set out at the end of the Examination. We consider that an adverse effect on the integrity of The Wash SPA/Ramsar site cannot be ruled out beyond reasonable scientific doubt. A robust compensation package that can be shown to be ecologically viable and legally and financially securable must be in place."*.

The Secretary of State agrees with the recommendation of the ExA, in line with the advice of NE the RSPB and LWT, that based on the information available including all responses to the consultation letters, an AEoI cannot be ruled out beyond all reasonable scientific doubt in relation to:

- alone effects due to vessel disturbance on:
  - the redshank and waterbird assemblages features of The Wash SPA and Ramsar, at the application site;
  - the waterbird assemblages features of The Wash SPA and Ramsar, along The Haven; and
  - the DBBG, black-tailed godwit, oystercatcher, redshank, turnstone and waterbird assemblages features of The Wash SPA and Ramsar, at the MOTH.
- alone effects on the harbour seal feature of The Wash and North Norfolk Coast SAC, due to collision risk with vessels.

The Secretary of State concludes that the Project does not meet the integrity test and that the further tests set out in the Habitats Regulations must therefore be considered. These include

Stage Three (an assessment of alternative solutions), Stage Four (test for Imperative Reasons of Overriding Public Interest), and Stage Five (a consideration of environmental compensation).

The Secretary of State has proceeded to consider the information provided to inform the derogation provisions of the Habitats Regulations as presented in Sections 7 to 10 below, alongside his conclusions.

6 Transboundary assessment

The Secretary of State believes that it is important to consider the potential impacts on protected sites in other European Economic Area ("EEA") states, known as transboundary sites[64]. Further information on transboundary impacts and processes is available in PINS Advice Note 12[65]. The ExA also considered the implications for transboundary sites, in the context of looking at the wider EIA considerations. The conclusions of the ExA's considerations and the Secretary of State's own views on this matter are presented below.

On 25 September 2018, following the Applicant's request for an EIA scoping opinion, the PINS undertook a transboundary screening and consultation[66] on behalf of the Secretary of State pursuant to Regulation 32 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and the United Nations Environment Programme Convention on Biological Diversity 1992. A second and final screening was undertaken on 22 July 2021 following submission of the Application documents.

No transboundary consultation responses were received.

Potential transboundary impacts were considered in the Applicant's ES [APP-063] with relevant matters carried forward to the individual topic chapters of the ES. The Secretary of State notes that the Applicant considered non-UK protected sites in its Application and concluded that there would be no LSE from the Project alone and in-combination on any transboundary sites.

The Applicant did not identify any LSEs on transboundary sites in its HRAR [AS-006] or within its ES [REP9-011]. The ExA reported that no transboundary effects were raised for discussion by any IP during Examination [ER 6.3.4] and considered that no mechanisms whereby any conceivable transboundary effects could occur emerged during Examination [ER 3.7.2].

The Secretary of State has not been presented with any evidence to demonstrate that transboundary impacts would have an LSE on any protected site in other EEA states. As such, the Secretary of State is satisfied that the Project, either alone or in-combination with other plans or projects, would not have any LSEs on any transboundary protected site. He does not consider that further stages of a transboundary assessment are required.

[64] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408465/transboundary_guidelines.pdf

[65] https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-twelve-transboundary-impacts-and-process/

[66] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-000612-Boston%20Alternative%20Energy%20Facility%20-%20Regulation%2032%20Transboundary%20Screening.pdf

7 Consideration of case for Derogation

Based on the conclusions of the AA the Secretary of State cannot conclude, beyond all reasonable scientific doubt, the absence of an adverse effect from the Project alone on the integrity of certain waterbird features of The Wash SPA and Ramsar and the harbour seal feature of The Wash and North Norfolk Coast SAC.

The Secretary of State has therefore reviewed the Project in the context of Regulations 64 and 68 of the Habitats Regulations to determine whether the Project can be consented.

Regulation 64 allows for the consenting of a project that is required for IROPI, even though it would cause an AEoI of a protected site.

Consent may only be given under Regulation 64 where no alternative solutions to the project are available which are less damaging to the affected protected site and where Regulation 68 is satisfied.

Regulation 68 requires the appropriate authority to secure any necessary compensatory measures to ensure that the overall coherence of the UK's NSN is protected.

This part of the HRA has followed a sequential process whereby:

- alternative solutions to the Project have been considered;
- consideration has been given to whether there are IROPI for the Project to proceed; and
- compensation measures proposed by the Applicant for ensuring that the overall coherence of the UK's NSN is protected have been assessed.

At Deadline 2 the Applicant reasserted its conclusion set out in the HRAR of no AEoI alone or in combination of any of the protected sites. Notwithstanding, in response to representations made by NE, the RSPB and LWT, the Applicant submitted a derogation case comprised of a 'without prejudice' assessment of alternative solutions, case for IROPI, and proposed compensation measures (the CMD) [REP2-011, REP2-012 and REP2-013, respectively]. The CMD was subsequently updated at Deadline 6 [REP6-025] and Deadline 8 [REP8-006]. It was described by the Applicant as submitted on a "without prejudice basis to allow for full consideration of all aspects during the Examination" and in the event that the Secretary of State was minded to disagree and conclude an AEoI of any of the protected sites following AA. The alternative solutions assessment was supported by a 'Without Prejudice In-Principle Alternative Locations Case' submitted at Deadline 8 [REP8-015].

The ExA [ER 6.10.9] considered that there is sufficient information before the Secretary of State to enable him to apply the derogation tests of the Habitats Regulations of alternative solutions and IROPI in order to fulfil his duties under the requirements of the Habitats Regulations.

8 Stage 3: Assessment of Alternative Solutions

The Secretary of State has had regard to the objectives of the Project as described by the Applicant and has considered how these objectives could be met by alternative means which would be less damaging to the integrity of the protected sites.

8.1 Project Objectives

The Applicant's assessment of alternatives, including the 'do-nothing scenario', and of alternative solutions to deliver the objectives of the Project is presented in [REP2-011] and [REP8-015]. Nine objectives are detailed in Section 5.4, Table 5-1 of [REP2-011]. In summary they are as follows:

- provide a sustainable and renewable form of energy recovery and contribute towards meeting renewable targets and carbon emissions, in line with the requirements of the Overarching National Policy Statement ("NPS") for Energy (NPS EN-1) and the NPS for Renewable Energy Infrastructure (NPS EN-3);
- reduce the quantity of waste disposed to landfill;
- reduce the quantity of waste exported abroad;
- nurture and develop skills within Lincolnshire;
- create employment opportunities within Lincolnshire;
- minimise adverse impacts on the function and efficiency of strategic transport infrastructure;
- minimise carbon emissions associated with transportation;
- develop the Project at a location that aligns with local planning policy; and
- minimise waste and apply the principles of waste hierarchy.

The Applicant explained [REP2-011] that for the purposes of the assessment of alternative solutions it had adopted (but not accepted) NE's, the RSPB's and LWT's position, i.e. that an AEoI could not be excluded for The Wash SPA and Ramsar and The Wash and North Norfolk Coast SAC, arising from habitat loss at the application site and vessel movements at the MOTH and anchorage site in The Wash.

In his assessment of alternatives, the Secretary of State has not constrained himself solely to those alternatives that could be delivered by the Applicant. Nevertheless, the Secretary of State acknowledges that any alternative must be economically feasible for the developer.

8.2 Identification of alternatives

The Applicant identified the need for the Project at Section 5 of [REP2-011]. The need for the Project and the objectives were used by the Applicant to screen for potential alternative solutions.

Section 7, Table 7-1 of [REP2-011] presents a 'long list' of 12 alternative solutions considered by the Applicant and sets out how each could potentially affect the protected sites during construction and operation. The potential alternatives considered were:

- 'do nothing';

- alternative locations;
- seasonal restrictions on vessel movements during construction;
- alternative methods;
    - road movements instead of vessel movements;
    - rail movements instead of vessel movements;
    - RDF, lightweight aggregate and clay transported by road;
    - RDF, lightweight aggregate and clay transported by rail; and
    - larger vessels for transporting RDF.
- capacity – could the amount of RDF required be reduced;
- timing;
    - vessels to move along The Haven at the same time (where there are more than 1 vessels per day);
    - vessels to leave the wharf just before the next ones arrive at The Haven; and
    - vessels to only arrive during the night.

Table 7-2 of the same document presents a screening exercise that sets out whether each option was considered to meet/deliver the project need and objectives and identifies those that were taken forward to a 'short list' of five for further assessment. Appendix 1 of the document contains a detailed assessment of the alternative modes of transport that were considered, i.e. road and rail.

In its comments on [REP8-015], NE considered [REP9-057] that there were likely to be alternative energy projects that had not been fully explored as part of the derogation case, such as offshore windfarms, that could provide a greater megawatt capacity than the Project. The RSPB did not comment. The Applicant responded [REP10-020] that a project with a greater megawatt capacity would be likely to involve an increased number of vessel movements and so would not represent a reasonable alternative. It considered that its approach was consistent with advice contained in 2021 Defra guidance on HRA alternatives and the Secretary of State's decision on the East Anglia TWO Offshore Wind Farm, and that a project such as an offshore windfarm would not meet the original objectives of the Project (as set out in [REP2-011]). It highlighted that the purpose of [REP8-015] was to assess alternative locations only, not alternative designs.

The Secretary of State has considered whether alternative means of energy generation represent a viable alternative to the Project. Having regard to guidance, the Secretary of State does not consider that alternative means of energy generation meet the objectives of the Project. Alternatives to the Project considered by the Secretary of State are consequently limited either to the 'do nothing scenario' or to alternative EfW projects. Specifically:

- 'do nothing' scenario;
- alternative design parameters:
    - change in RDF capacity of the Project;
    - alternative methods of transportation; and
    - changes in timing of vessel movements and seasonal restrictions.
- alternative locations.

8.3 Consideration of alternatives

8.3.1 Do nothing

Not proceeding with the Project would remove the risk of adverse impacts to The Wash SPA and Ramsar and The Wash and North Norfolk Coast SAC, but would not meet the Project's objectives and would hinder the wider need to deploy renewable generation to help the UK to meet its commitments under the Climate Change Act 2008 (as amended) to mitigate the effects of climate change.

The need for the Project is established by the Applicant at Section 5.2 of [REP2-011], which includes, but is not limited to:

- the 'need' that exists for new power generating infrastructure, such as the Project, is confirmed in the NPSs for energy infrastructure;
- NPSs EN-1 and EN-3 establish an urgent and substantial need for new energy generation infrastructure, with the desire for it to be renewable or low carbon, to achieve climate change targets established and made legally-binding under the Climate Change Act 2008. In addition, the Government is committed to reduce carbon emissions to net zero by 2050;
- section 2.5.2 of EN-3 states that "The recovery of energy from the combustion of waste, where in accordance with the waste hierarchy, will play an increasingly important role in meeting the UK's energy needs. Where the waste burned is deemed renewable, this can also contribute to meeting the UK's renewable energy targets. Further, the recovery of energy from the combustion of waste forms an important element of waste management strategies in both England and Wales.";
- approximately 2.8 million tonnes of waste-derived fuel (RDF and Solid Recovered Fuel (SRF)) was exported to international destinations in 2019. Therefore, in line with the proximity principle, the Project seeks to move the recovery of energy to closer to the point of production and ensure that the UK is more self-sufficient in managing its own waste;
- RDF would be sourced for the Project from the residual waste element (non-recyclable) from materials recycling facilities (MRFs). This represents a 15 million tonne (Mt) waste market, of which approximately 2.45 Mt of RDF is exported from the UK and the majority of the remainder is landfilled. The Project would therefore contribute to the reduction in the export of waste from the UK and associated emissions; and divert material from landfill. There are nine counties which already have no landfill capacity and five English regions are set to run out within the next 10 years (Biffa, 2017). Furthermore, recovery of energy from residual waste is a preferential option on the waste hierarchy compared to landfill; and managing the UK waste within the UK rather than exporting it, promotes the proximity principle at a national scale; and
- overall, there is an urgent need for EfW facilities in the UK from both an energy need and waste management need perspective.

Once constructed, the Project would be of a capacity of 102 MW gross (with a net export of 80 MW) electricity and would make a contribution to the achievement of both the national renewable targets and to the UK's contribution to global efforts to reduce the effects of climate change.

The ExA considered [ER 1.5.15 App. C] that a need for the Project has been established and that the 'do nothing' option is not a feasible alternative. In HRA terms the 'do nothing' option would fail to meet the objectives of the Project and is not considered an alternative solution.

The Secretary of State agrees with the Applicant and the ExA and does not consider the 'do nothing' option to be a feasible alternative solution to the Project.

8.3.2 Alternative design parameters

Alternative technology and layouts for the Project are not described in [REP2-011] and [REP8-015]. They are considered in Section 4.5 of ES Chapter 4 [APP-042], which contrasts the design proposals set out in the Preliminary Environmental Information Report with the final design taken forward within the application. They relate to RDF handling (by conveyor rather than trailers) and processing (no requirement for rigorous pre-treatment of the raw RDF), and use of thermal treatment rather than gasification technology.

The short list of potentially feasible alternatives which the Applicant determined required further assessment comprised five options:

- reduced RDF capacity;
- use of larger vessels to transport RDF during operation;
- a number of changes to the timing of vessel movements during operation, i.e. moving along The Haven at the same time;
- leaving the wharf just prior to the next ones arriving; and
- only arriving at the wharf at night.

Section 8 Table 8-1 presents an assessment of the legal, technical and financial feasibility of the short-listed options, and identifies that only the use of larger vessels for transporting RDF during operation was considered to be feasible. The Applicant stated that design of the Project is based on the maximum vessel allowance (particularly the beam of 13.6m) within the PoB wet dock and in-river turning circle. However, the wet dock entrance and in-river turning circle are to be widened (as part of the Boston Barrier project) to increase the maximum size of vessels that can be accommodated. This will increase the beam allowance to 16.5m. Therefore, the vessel size could be increased to circa 3,500 tonnes. The Applicant considered this potential alternative to be legally and financially feasible.

If the vessels had the capacity of at least 3,300 tonnes, this option would reduce the vessels movements for RDF to one per day. However, on 100 days of the year there would still be an additional vessel per day associated with the LWA and clay vessel movements. Overall, the Applicant stated there would be up to nine vessel movements per week (as opposed to up to 12 as noted in Chapter 5 Project Description (document reference 6.2.5, APP-043)).

Following further assessment of this option at Section 9 of [REP2-011] it was concluded that, although this option would result in a reduced number of vessel movements there would continue to be repeated vessel movements on a daily basis (including the existing level of vessel movements entering and leaving the PoB) at the MOTH which the Applicant contends is one of the key reasons NE, RSPB and LWT have stated that an AEoI cannot be excluded. The vessels would still require anchorage in The Wash, which NE and LWT have noted concerns over effects to harbour seals associated with The Wash and North Norfolk Coast SAC. In addition, this option would not affect the presence of the wharf and the associated loss of foraging and roosting habitat for Annex I redshank. NE also note that the saltmarsh is a priority habitat, functionally linked to The Wash SPA habitat. Therefore, overall, the Applicant considers this alternative solution is unlikely to change the view taken by NE, RSPB and LWT that AEoI cannot be excluded for the Wash SPA and Ramsar site and The Wash and North Norfolk Coast SAC.

NE confirmed [REP3-031] that it agreed with the Applicant that use of larger vessels would not sufficiently reduce the number of vessel movements to address its concerns and also highlighted that other impacts such as vessel wash, would be likely to increase.

The Applicant concluded [REP2-011] that seasonal restrictions on vessel movements during construction could lead to an extension in the construction programme which would have wider implications on disturbance. The main import during construction is for raw materials such as for the production of concrete at the concrete batching plant. The availability of concrete is vital for multiple key pieces of infrastructure, therefore if there were seasonal restrictions this could result in infrastructure being delayed for several months. This was therefore not considered a feasible alternative.

The ExA considered [ER 1.5.17 App. C] that no alternative design parameters are known to be implementable that would present a feasible alternative solution.

8.3.3 Alternative locations

The RSPB questioned whether the long list of alternative locations identified by the Applicant in [REP2-011] captured all potential alternative options and took the view that the Applicant should consider national alternative locations [REP4-028]. A more detailed evaluation of potential sites and solutions should be provided that clearly identified why there were no other locations or solutions that could meet the objectives for the Project, as set out in Table 5-1 of the Applicant's assessment of alternatives [REP2-011]. The UK Without Incineration Network ("UKWIN") [REP3-038] raised concerns regarding the Applicant's assessment of alternatives, including of alternative locations. The UKWIN considered [REP3-039] that: *"the applicant's approach to assessing alternatives is wholly inadequate, and falls well short of demonstrating that there are no viable alternatives to the scheme proposed for this capacity at this location. As such, the applicant fails to demonstrate that there is any overriding reason to allow the environmental harm that this plant could cause."*

The Applicant stated [REP6-029] at Deadline 6 that its position on alternatives remained unchanged from that set out in [REP2-011], but that it would provide an update at Deadline 7 to address the RSPB's concerns. A 'Without Prejudice 'In-Principle' Alternative Locations Case' was submitted at Deadline 8 [REP8-015].

In its comments on [REP8-015] the UKWIN considered [REP9-067] that the Applicant had taken an "overly narrow approach" to identifying suitable alternative locations for the Project in only considering areas that were readily accessible by sea, and that some or all of the proposed capacity could be located inland. The scoping out of unallocated sites did not reflect actual practice and that waste authorities are able to support residual waste treatment facilities on land not allocated for employment purposes wherever such sites are consistent with the relevant waste strategies/plans. In addition, in relation to the Applicant's scoping out of sites where there was potential for disturbance impacts to protected species, the extent to which the Applicant had assessed its ability to mitigate and compensate for such impacts on sites other than the PoB was unclear. This was in light of the Applicant putting forward an IROPI case to allow for such harm around the PoB.

The Applicant responded [REP10-020] that (as set out in [REP8-015]) objectives relating to use of a navigable waterway for transportation of RDF had been assumed for the purposes of the assessment and that these were in line with NPSs and key to the Project. It had considered local plan allocations and relevant polices within the waste plans in relation to whether waste

development could be approved on unallocated sites. It had reviewed its alternatives in light of these policies and provided reasoning (in [REP8-015]) for why each of the long-listed sites had been scoped out. It had considered whether development at the alternative locations would result in a lesser effect on the protected sites compared to development at the application site and proceeded on the basis that any alternatives that would have the same or a greater effect would not be a viable option. The Applicant highlighted that it considered that the Project would have no AEoI of the SPA, Ramsar site and SAC and had provided the alternatives assessment on a without prejudice basis.

The ExA [ER 6.7.4] was satisfied that no alternative locations or sites exist for the Project that would present a feasible alternative solution.

8.4 Conclusion

The ExA considered information on alternatives submitted during Examination by the Applicant and other IPs. Noting that alternative solutions must be financially, legally and technically feasible, the ExA concluded [ER 1.5.19 App. C] that the alternatives assessed would not constitute an alternative solution that would meet the objectives of the Project. The ExA was also satisfied that no alternative solutions exist which would deliver appreciable benefits in terms of adverse effects on the protected sites.

In response to the fifth consultation letter, NE[52] stated that it considers that alternatives have not adequately been considered by the Applicant and therefore it has not been sufficiently demonstrated that: i) there are no alternative locations available that would be less damaging to the SPA or any other site in the NSN, and ii) alternative options for disposal of waste and renewable energy sources that would be less damaging to the SPA or other NSN site. For example, NE considers that it has not been demonstrated that waste could not be transported over land, or to another existing facility, or to a new facility in a port, which if implemented would reduce/remove the impacts on interest features of The Wash SPA from vessel disturbance/displacement. The Secretary of State notes the Applicant's[67] response to NE's[52] comments in response to the fifth consultation letter.

Following a review of the information submitted by the Applicant and comments provided by IPs as well as the recommendation of the ExA, and having identified the objectives of the Project and considered all feasible alternative solutions to fulfil these objectives, the Secretary of State is satisfied that no feasible alternative solutions are available that would meet the Project objectives with a lesser effect on protected sites. In considering NE's concerns regarding the alternatives assessment, the Secretary of State notes that the Applicant considered alternative methods of waste transfer including by road and rail and provided analysis at Appendix 1 of [REP2-011]. For road, this assessment notes that the peak daily demand would be 278 HGV movements and it is likely that the peak assessed in Chapter 19 (Traffic and Transport) of the ES would occur more frequently throughout the 5-year construction duration and for longer periods, with potential associated increases in residual impact significance. The Applicant considered [Table 7-2 of REP2-011] that this therefore contrary to objectives 6, 7 (to minimise

[67] Boston Alternative Energy Facility: 'Response to NE's Letter of 7th June 2023'. Reference: PB6934-ZZ-XX-RP-Z-4134. 0/Final, 28 June 2023.

adverse impacts on the function and efficiency of strategic transport infrastructure and to minimise carbon emissions associated with transportation respectively) and NPS EN-1 which notes: *"water-borne or rail transport is preferred over road transport at all stages of the project, where cost effective".* For rail, it was calculated that there would be a weekly peak requirement for 16 trains movements (up to three trains per day). Transfer of construction materials by rail would need to be shuttled to the Project by road, resulting in at least 278 two-way HGV movements. Due to the associated road movements and potential associated increases in impact significance this option would be contrary to objective 6.

The Secretary of State agrees with the Applicant in accordance with the recommendation of the ExA in this regard and considers that transporting waste by road or rail would not meet the objectives of the Project and therefore is not a feasible alternative solution.

9 Stage 4: Imperative Reasons of Overriding Public Interest

The Habitats Regulations derogation provisions provide that a project having an AEoI on a protected site may proceed (subject to a positive conclusion on alternatives and provision of any necessary compensation) if there are IROPI.

This section of the HRA determines whether there are IROPI for the Project to proceed.

The derogation provisions identify certain in-principal grounds of IROPI that may be advanced in favour of such a project. Where the site concerned hosts a priority natural habitat or a priority species, grounds for IROPI should include human health, public safety or beneficial consequences of primary importance to the environment but otherwise may be of a social or economic nature.

The parameters of IROPI are explored in guidance provided by the 2021 joint guidance[8], the European Commission[7] and PINS Advice Note 10[4], which identify the following principles:

- Imperative – urgency and importance: there would usually be urgency to the objective(s), and it must be considered "indispensable" or "essential" (i.e. imperative). In practical terms, this can be evidenced where the objective falls within a framework for one or more of the following:
  a) actions or policies aiming to protect fundamental values for citizens' life (health, safety, environment);
  b) fundamental policies for the State and the Society; or
  c) activities of an economic or social nature, fulfilling specific obligations of public service.
- Overriding: the public interest served by the plan or project outweighs the harm, or risk of harm, to the integrity of the protected site(s) which is predicted by the AA;
- Public interest: the interest must be a public rather than a solely private interest (although a private interest can coincide with delivery of a public objective); and
- Long-term: the interest would generally be long-term; short-term interests are unlikely to be regarded as overriding because the Conservation Objectives of protected sites are long term interests.

The Applicant provided a without-prejudice case for IROPI in [REP2-012]. The Applicant stated that its assessment of IROPI had been undertaken in accordance with guidance set out in Section 2 of [REP2-012]. During the decision-making period in August 2022, PINS published an updated Advice Note 10[4] (Version 9) on HRA relevant to NSIPs. The Secretary of State considers that this update does not alter the parameters of his consideration of the Applicants IROPI case.

Sections 3 - 7 of [REP2-012] set out the Applicant's reasoning that there is an imperative need for the Project, with reference to the need:

- for electrical energy;
- to diversify and decarbonise electricity generation (including by waste combustion);
- to continue to have secure and reliable supplies of electricity in the transition to a low carbon economy;
- to divert waste materials from landfill in line with the aims of the UK's Circular Economy Package (CEP);

- to reduce UK exports and increase domestic use of RDF and promote the proximity principle;
- to process rather than dispose of residues;
- for lower carbon transportation;
- for development in a location which aligns with local planning policy; and
- including the socio-economic need for economic growth and jobs.

The Applicant stated in Section 2 of [REP2-012] that as it had concluded that the Project would not have an adverse effect on a priority habitat or species, the competent authority could consider IROPI in relation to human health, public safety, important environmental benefits, and social and economic benefits.

The Applicant considered that IROPI was justified, premised on:

- an urgent need for electrical energy;
- an urgent need for waste management;
- the need for lower carbon transportation, key for maintaining public safety and human health;
- the need for development in a location which aligns with local planning policy; and
- socio-economic benefits related to job creation during construction and operation.

Sections 3 – 8 of [REP2-012] considered the above matters separately. Reference was made to Government policy set out in NPS EN-1 and NPS EN-3 that was considered to support the Applicant's position. In addition, cross-reference was made to supporting information contained in ES Chapter 21 (Climate Change).

In relation to the need for lower carbon transportation, Section 5 highlighted information contained in the Applicant's 'Comparative Analysis of Greenhouse Gas Emissions from Road and Marine Vessel Transport Options to the Site' [REP1-020]. It was concluded therein that marine vessels would reduce greenhouse gas ("GHG") emissions by approximately 30% when compared to heavy goods vehicles, and that in addition to a beneficial reduction in carbon emissions it would have human health benefits in relation to air quality.

The Applicant considered that the Project supports good human health and public safety through diversifying energy supply, improving energy security, providing additional electricity generation to meet rising demand, diverting waste from landfill, and providing key social and economic benefits both UK-wide and locally. Paragraph 8.1.2 of [REP2-012] provides that Applicant's view that: *"the national, regional and local imperative needs met by the Facility outweigh the view from NE, Royal Society for the Protection of Birds (RSPB) and Lincolnshire Wildlife Trust (LWT) that AEOI cannot be excluded, beyond all reasonable scientific doubt for The Wash SPA and Ramsar and The Wash and North Norfolk Coast SAC. The benefits are long-term and the Facility will be capable of providing renewable energy generation for around 25 years and it can be deployed within a relatively short time frame (within the 2020s). The Facility demonstrates overriding public interest and meets national policy and legislative objectives with regards to energy generation and diversion of waste from landfill."*

The Secretary of State has carefully reviewed the Applicant's supporting information, the recommendation of the ExA and has had regard to relevant guidance.

9.1 The National Policy Statements (NPSs)

The need to address climate change is the principal tenet behind the Climate Change Act 2008 ("2008 Act"), and subsequently published NPSs for energy (EN-1)[68], renewable energy infrastructure (EN-3)[69], and electricity networks (EN-5)[70] provide a framework for delivering the UK's international commitments on climate change.

Measures set out in the NPSs have been given further impetus to reflect evolving understanding of the urgency of actions to combat climate change, including a commitment to reduce GHG to net zero by 2050, which is now reflected in domestic law through amendments to the 2008 Act.

The Government's strategy for decarbonisation to achieve this commitment relies on contributions from all sectors delivered through multiple individual projects implemented by the private sector. The Government anticipates that decarbonisation will lead to a substantially increased demand for electricity as other power sources are at least partially phased out or transformed and other sectors, such as heat and transport, electrify. Government has committed to no longer use coal to generate electricity from 1 October 2024[71].

The UK has also committed to decarbonise the electricity system by 2035, subject to security of supply, focusing on 'home-grown technologies'[72]. This will require the establishment of a reliable and secure mix of low-carbon electricity sources, including generation from EfW technology.

9.1.1 Establishing the basis provided by the 2011 NPSs

The NPSs were established against obligations made as part of the Climate Change Act 2008. The overarching NPS for Energy (NPS EN-1) sets out national policy for energy infrastructure in Great Britain (GB). It has effect, in-combination with the relevant technology-specific NPS, on recommendations made by the PINS to the Secretary of State for ESNZ on applications for energy developments that fall within the scope of the NPSs[73]. These provide the primary basis for decisions by the Secretary of State.

The NPSs set out a case for the need and urgency for new energy infrastructure to be consented and built with the objective of supporting the Government's policies on sustainable development, in particular by:

- mitigating and adapting to climate change; and
- contributing to a secure, diverse and affordable energy supply[74].

[68] Department of Energy & Climate Change. *Overarching National Policy Statement for Energy (EN-1).* TSO, 2011.

[69] Department of Energy & Climate Change. *National Policy Statement for Renewable Energy Infrastructure (EN-3).* TSO, 2011.

[70] Department of Energy & Climate Change. *National Policy Statement for Electricity Networks Infrastructure (EN-5).* TSO, 2011.

[71] www.gov.uk/government/news/end-to-coal-power-brought-forward-to-october-2024

[72] https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035

[73] NPS EN-1 Para 1.1.1

[74] NPS EN-3 Para 1.3.1

The NPS for renewable energy infrastructure (EN-3) covers those technologies which, at the time of publication in 2011, were technically viable at generation capacities of over 50 MW onshore and 100 MW offshore. This includes EfW and as such the need for this technology is established by the NPS.

The Energy White Paper, Powering Our Net Zero Future, was published on 14 December 2020. It announced a review of the suite of energy NPSs but confirmed that the current NPSs were not being suspended in the meantime. The 2011 energy NPSs therefore remain the basis of the Secretary of State's consideration of this Project.

The arguments which support a national need for low-carbon infrastructure made today are consistent with those arguments contained in the NPSs, and indeed the Secretary of State is of the view that the NPSs clearly set out the specific planning policies which the Government believes both respect the principles of sustainable development and are capable of facilitating the consenting of energy infrastructure on the scale and of the kinds necessary to help us maintain, safe, secure, affordable and increasingly low carbon supplies of energy.

The NPSs set out the national case and establish the need for certain types of infrastructure, as well as identifying potential key issues that should be considered by the decision maker. Section 104 of the Planning Act 2008[2] makes clear that where an NPS exists relating to the development type applied for, the Secretary of State must have regard to it. The NPSs provide specific policy in relation to EfW development, and the policies set out in NPS EN-1 and EN-3 therefore apply.

This national need relates both to the decarbonisation of the electricity supply within the required timeframe and to the risk the decarbonisation programme could pose to the security of electricity supply as more traditional generating stations are decommissioned.

With regard to the latter, the Secretary of State notes the ruling in case C-411/17 by the European Court of Justice[75] that, in appropriate circumstances, the objective of ensuring the security of the electricity supply can constitute IROPI.

9.1.2 A synthesis of the 2011 National Policy Statements

At the time the NPSs were published, scientific opinion was that, to avoid the most dangerous impacts of climate change, the increase in average global temperatures must be kept to no more than 2°C. Global emissions must therefore start falling as a matter of urgency[76].

The energy NPSs were intended to speed up the transition to a low carbon economy and help the UK to realise its climate change commitments sooner than would a continuation under the current planning system[77]. They recognise that moving to a secure, low carbon energy system to enable the UK to meet its legally binding target to cut GHG emissions by at least 80% by 2050, compared to 1990 levels, is challenging, but achievable. This would require major investment in new technologies to electrify heating, industry and transport, and cleaner power generation[78]. Under some 2050 pathways, electricity generation would need to be virtually

[75] Judgement of 29. 7. 2019 – *Case C-411/17 Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen.* ECLI:EU:2019;622.

[76] NPS EN-1 Para 2.2.8

[77] NPS EN-1 Para 11.7.2

[78] NPS EN-1 Para 2.2.1

emission-free, because emissions from other sectors were expected still to persist[79]. Consequentially, the need to electrify large parts of the industrial and domestic heat and transport sectors could double electricity demand by 2050[80].

The NPSs conclude that the UK needs sufficient electricity capacity from a diverse mix of technologies and fuels[81], and therefore the UK also needs all the types of energy infrastructure covered by the NPSs to achieve energy security at the same time as dramatically reducing GHG emissions[82]. Thus, all applications for development consent for the types of infrastructure covered by the energy NPSs should be assessed on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described within EN-1 Part 3. Substantial weight[83,84] should therefore be given to the contribution which projects would make towards satisfying this need for a secure, low carbon, electricity supply when considering applications for development consent under the Planning Act 2008.

To hit the target of UK commitments to largely decarbonise the power sector by 2030, the NPSs conclude that it is necessary to bring forward new renewable electricity generating projects as soon as possible. The need for new renewable electricity generation projects is therefore urgent.

9.2 Conclusion

NE stated [REP3-028] that it would not be commenting on the IROPI case. No other IP commented on the IROPI case, aside from the UKWIN [REP3-039] which considered that, as the Applicant's approach to assessing alternatives was inadequate, the Applicant failed to demonstrate that there is any overriding reason to allow the environmental harm that the Project could cause.

The ExA described its findings in respect of IROPI at [ER 6.10.7] and [ER 1.6 App. C]. The ExA concluded that it had not been able to conclude that IROPI for the Project could be established on the basis of the evidence submitted.

Officials on behalf of the Secretary of State sought clarification from the ExA as to the basis of its recommendation on IROPI. On 31 August 2022 the ExA responded that *"the overall evidence provided by the Applicant was not sufficiently robust or detailed for the ExA to conclude that reasons of IROPI could be established"*.

[79] NPS EN-1 Para 2.2.6

[80] NPS EN-1 Para 2.2.22

[81] NPS EN-1 Para 2.2.20

[82] PS EN-1 Para 3.1.1

[83] NPS EN-1 Para 3.1.3

[84] NPS EN-1 Para 3.1.4

9.2.1 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to provide any further information beyond that already provided to the Examination, which may assist the Secretary of State in considering its without-prejudice IROPI case.

The Applicant responded on 11 November 2022[33]. It provided information regarding:

- the need for energy security, including the British Energy Security Strategy;
- the role of EfW in secure electricity generation;
- carbon dioxide recovery and food grade carbon dioxide;
- an urgent need for waste management;
- need for processing;
- need for lower carbon transportation;
- need for developing in a location aligning with local planning policy; and
- socio-economic need.

In response to the fifth consultation letter, NE[52] stated that the insufficient information on impacts to SPA waterbirds presents considerable challenge for evaluating whether the production of 80MW of alternative energy (should this level of energy production be considered 'imperative') would be sufficient to 'override' the impacts on the SPA. The RSPB[85] also referenced the ecological importance of the Wash (which the Secretary of State acknowledges as in Section 5.7) and considered that, should the DCO be made, this would be at odds with Government support[86] for adding the Wash to the Tentative List for designation as a World Heritage Site.

The Secretary of State considers that the need for the Project is established by the Applicant and the relevant NPS's for EfW technology and he places substantial weight upon this need and the extent to which 80 MW net export of low carbon electricity which would be provided by the Project, provides an imperative benefit in the public interest.

In arriving at his conclusion on IROPI, the Secretary of State has reviewed both the extent to which the Project provides a benefit in the public interest, and the degree to which this overrides the predicted harm to the integrity of The Wash SPA and Ramsar, and The Wash and North Norfolk Coast SAC. On the basis of the evidence submitted including the additional information submitted in response to the consultation letters, the Secretary of State considers that the established benefits in the public interest which would be provided by the Project would override the predicted adverse effects upon site integrity which cannot be excluded with due to impacts on multiple bird features of The Wash SPA and Ramsar and harbour seal of The Wash and North Norfolk Coast SAC (see Section 5). Regulation 64 of the Habitats Regulations is satisfied.

[85] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001471-RSPB%20response%20to%20Secretary%20of%20State's%20letter%20of%2025th%20May%202023.pdf

[86] https://www.gov.uk/government/news/seven-sites-confirmed-in-the-running-for-unesco-world-heritage-status

10 Stage 5: Proposed compensatory measures

The Secretary of State has considered below the requirements of Regulation 68 of The Habitats Regulations as they apply to the Project.

10.1 The Wash SPA and Ramsar

The Applicant submitted a without prejudice package of proposed compensatory measures with regards to The Wash SPA and Ramsar (the CMD) [REP2-013], which was subsequently updated at Deadline 6, and Deadline 8 [REP8-006] in response to ExQ 3.3.1.29 [PD-013]. Section 3.5 of the CMD provided information on potential compensation sites that could provide additional or enhanced habitat for birds should this be required. It was anticipated by the Applicant that, in the event that the Secretary of State determined that an AEoI could not be excluded, based on the comments received from NE, the RSPB and LWT, it would be due to at least one of the following potential reasons: loss of wader roosting habitat at the application site; vessel disturbance of waterbirds at the application site; vessel disturbance of waterbirds at the MOTH; and vessel disturbance of waterbirds along the middle stretches of The Haven. Section 3 of the CMD defines the quantum of compensation which would be required.

NE expressed an initial view that the information provided on compensation appeared to be high level and did not provide enough detail or certainty to give confidence that an AEoI could be offset [REP3-030]. NE acknowledged that the Applicant was continuing to investigate and explore options to refine the compensation measures and assumed that the Applicant was aware that more detail was required. It responded to the Applicant's derogation case in relation to alternatives and compensation at Deadline 3 [REP3-031]. Its submission included a checklist for compensatory measure submissions for developers (Annex 1). It provided comments [REP8-023] on the Applicant's updated CMD [REP6-025] at Deadline 8 and on the final version of that [REP8-006] at Deadline 9 [REP9-058].

NE stated [REP3-031] that, in relation to the requirement for compensation, as the design of the Project was still being refined and as further data and assessment was required there could be as yet unidentified impacts on other species/habitats. NE noted that the information provided in relation to vessel transit through The Haven did not consider management of risk associated with the HMA or some of the other areas identified as potential compensation sites. NE stated that long-term maintenance and monitoring of the success of the compensation sites would be needed and advised that this should cover establishment and long-term maintenance issues, such as habitat succession, habitat erosion and climate change impacts.

LWT responded to the Applicant's derogation case at Deadline 4 [REP4-021]. It stated that it disagreed with the Applicant's conclusion in [REP2-013] in respect of harbour seal that the proposed mitigation measures would reduce any effects that could occur, on the basis of which no compensation measures were identified. No HRA matters were agreed in the final SoCG. It stated that it supported the RSPB in relation to the lack of relevant compensatory packages and deferred to NE.

The MMO stated at Deadline 4 [REP4-022] that it deferred to NE on HRA matters, and that it supported NE's Deadline 3 comments on the derogation case.

The Applicant confirmed [REP3-023] that it would take into account recreation and predation pressures when considering compensation sites. In relation to loss of saltmarsh at the application site resulting from erosion caused by boat wash, the Applicant stated that the saltmarsh loss included within its calculations related to the construction of the proposed wharf and scour protection around it and that a scour protection worst case had been assumed [REP5-008]. It referred to its evidence contained in ES Chapter 16: Estuarine Processes [APP-090] and conclusion therein that the annual effect of erosion by wind waves and tidal currents along The Haven would continue to significantly exceed the erosion caused by boat wash, the increase in which resulting from the Project would be negligible. At Deadline 9 NE [REP9-063] stated that it remained concerned regarding wash/erosion impacts on supporting habitats.

In response to ExQ 2.1.0.4 [PD-010] the Applicant stated that budgetary provision had been made for the purchase cost of land required for compensation measures and the costs of delivering and ensuring such measures were maintained for the lifetime of the Project including to the end of decommissioning [REP5-004]. It was explained that if the Secretary of State determined that the wharf site was functionally linked to the SPA, the measures to provide habitat for birds using that area would be maintained following decommissioning, unless the intertidal habitat was reinstated to a condition that enabled waterbirds to return to use it for roosting.

The compensation would be secured by a without prejudice DCO Schedule 11: 'Ornithology Compensation Schedule', a draft of which is contained in the updated dDCO submitted at Deadline 6 [REP6-002] and subsequent versions. It requires the establishment of an Ornithology Engagement Group ("OEG") and the Secretary of State's approval of an Ornithology Compensation Implementation and Monitoring Plan ("OCIMP") of measures designed to compensate for the predicted disturbance to waterbirds. The OCIMP had to be based on the principles of ornithological compensation set out in the CMD [REP8-006] (referred to in the Schedule as the 'ornithology compensation plan'). The OCIMP must include an implementation timetable that ensures that all the compensation measures would be in place prior to the impacts occurring during construction (e.g. from dredging or construction works on the intertidal habitat) and operation (from disturbance at the MOTH). The OCIMP would have to include details of ongoing monitoring and reporting measures and adaptive management measures. The Applicant stated in [REP6-025] that it would be content to enter into a mechanism to secure these measures "around the time" of the implementation of any compensatory measures to provide reassurance that the measures would be retained and maintained during the operation of the Project.

The RSPB commented [REP6-041] that Defra and EC guidance were clear that compensation measures should be fully functional before any damage occurs. It considered that the necessary detail required to determine if the chosen locations and designs of the compensation measures could deliver the ecological functions required and the length of time it would take for each to be fully functioning had not yet been provided. In the absence of this it was unable to assess the Applicant's statement that sufficient funding would be available to establish and maintain any compensation measures.

The Applicant responded in respect of the RSPB's comments on funding at Deadline 7 [REP7-010]. It referenced Defra's 2021 HRA guidance ('Habitats regulations assessments: protecting a European site') and noted it advised that measures should be in place and effective before a negative effect occurs but also recognised that this may not always be possible and additional compensation may be required to cover interim losses. Works to the HMA were relatively quick

to implement and would be usable as soon as they were in place. For operational impacts from vessel disturbance the compensation measures (offsite habitat creation) would be in place prior to operation. An implementation schedule would be included in an updated version of the CMD which would set out the timetable for implementing the measures to ensure they would be functional prior to the impacts occurring. dDCO Schedule 11 ensured funding would be in place for the delivery of the compensation measures and provided for maintenance of the HMA (if necessary) at the decommissioning stage. Impacts from vessel disturbance would cease when the Project was decommissioned, and the off-site habitat creation measures could only be decommissioned with the Secretary of State's approval.

In response to ExQ 3.3.1.34 the RSPB noted [REP7-031] that redshanks, ruff and other waterbirds would be displaced by the construction of the wharf and the increased vessel movements, the existing redshank roosting area would be lost, and birds would be disturbed and displaced from foraging habitat adjacent to the Project. The provision of an alternative roosting area for redshank could also have benefits for other waterbirds during high tide and had the potential to mitigate construction and operational impacts. However, its effectiveness would be dependent on a number of factors:

- being of sufficient scale to accommodate all birds displaced by the wharf construction and operation;
- providing suitable shelter from weather conditions to ensure birds were attracted to it;
- its level of disturbance from vessel movements; and
- its protection from overtopping by vessel wash, especially on high tides.

The RSPB's concerns about the appropriateness of the proposed 250 m piling works buffer remained and were reinforced by NE's Deadline 5 comments on the OLEMS that the affected area would extend out to 450 m. The creation of pools in the HMA to create foraging habitat would result in the loss of a priority saltmarsh habitat. The version of the OLEMS submitted by the Applicant at Deadline 7 [REP7-037] included an additional statement that the 250 m buffer would be extended if the monitoring showed that there was a disturbance response for birds beyond this zone. The RSPB accepted that the HMA could be considered a mitigation measure, if enough evidence was presented to demonstrate it would avoid the adverse impacts arising from construction and operation of the Project. However, it remained unconvinced that sufficient evidence had been provided to demonstrate that it would be effective and that an AEoI of the SPA and Ramsar site resulting from the loss of the FLL could be ruled out. On that basis it considered that the HMA should more properly be considered as compensation rather than mitigation. It also considered that alternative foraging habitat was required to address the direct loss of a foraging area resulting from the wharf construction and operation, and that the HMA would not provide this.

At Deadline 8 the Applicant [REP8-014] maintained its position held at application submission on roosting; the HMA was of sufficient size and design to host a roost that could contain the maximum number of redshank, ruff and other waders recorded in a single high-water survey of the application site (175 birds). The roost was already established, would be functional by the construction phase, and the low level of increased vessel traffic during construction was not expected to cause disturbance and displacement to birds downstream of the application site. The flexibility for birds to roost and move between multiple sites would be increased prior to operation by the creation of a wetland site with roosting capacity within 1 km of the HMA and a further site within 1 km of that, which would form part of the compensation wetland site network.

In relation to the RSPB's comments about existing conditions at the HMA, the Applicant stated [REP8-014] that the lowering of the bank would expand the sightline of redshank roosting at the existing location. It was likely to benefit roosting conditions for waders, and shelter from the west and south would still be provided by the height of the land further from the roost. The flattening of the bank was not expected to alter the level of shelter from other wind directions, and the loose rocks roosting substrate there would effectively provide shelter.

In respect of the avoidance of disturbance the Applicant considered [REP8-014] that the existing roost location had shown consistent use by waders at high tide under baseline vessel traffic conditions. This indicated that baseline vessel disturbance conditions did not affect the viability of the roost and as concluded in the HRA, the magnitude of change in utilised navigable tides and the number of vessels would not be enough to alter its viability.

In relation to protection from vessel wash, the Applicant stated [REP8-014] that the final design of the HMA would include consideration of measures to further increase the proportion of high tides where roosting would still be possible, such as providing a variety of heights of refugia above water. However, it recognised that spring high tides are associated with waders seeking non-tidal roosting sites. It considered that the proposed "*off-Haven*" wetlands to be created within 1 km of one another could accommodate thousands of roosting birds. The Applicant [REP8-014] stated that the final HMA design would include consideration of the provision of a range of foraging substrates (e.g. isolated lagoons, intertidal substrates, intact saltmarsh) for the widest diversity of waders and waterbirds. Previously submitted assessments had shown that activities associated with the Project were not expected to impact foraging waterbirds in the vicinity of the HMA and that its associated vessels would not cause disturbance during the main foraging period for shorebirds. The final HMA design would maximise the potential for baseline forms of disturbance to be excluded, e.g. off-lead dogs, although these would be restricted in any case by the significant height drop to it from the coastal footpath.

In relation to replacement of a priority habitat, the Applicant [REP8-014] highlighted Appendix 1 para A1.2.1 of the updated OLEMS [REP7-037] which noted that saltmarsh, including in the vicinity of the HMA, naturally includes pools and therefore that improvement of or the creation of pools in the HMA should not be considered to constitute habitat loss.

NE stated [AS-002] that although the focus of the compensation discussion had been on redshank, there were potentially 24 SPA species/assemblage features exposed to the same risk at the MOTH, which would be likely to require similar compensation. The Applicant responded [REP5-008] that the compensation measures being developed for the roosting areas around the MOTH were for all species that could require compensation, should the Secretary of State decide that an AEoI of the SPA could not be ruled out. At Deadline 9 the Applicant added [REP9-027] that when birds are displaced following disturbance their movements do not necessarily affect the distribution other than in a highly localised area and pointed out that most of the movements observed only involved small distances (below 250 m). It considered that the displaced birds (and also those that remain on site following disturbance) were likely to have been displaying such behaviour since large vessels began using The Haven.

NE considered that as there were uncertainties about the scale of impacts and deliverability of compensation, and a higher ratio of compensation was required [AS-002]. It advised that options for like-for-like roost creation within the SPA should be the first consideration within the compensation hierarchy, however they noted that this was likely to be to the detriment of features of the SAC, the boundary of which overlaps with the SPA and that therefore further compensation

may be required. The Applicant acknowledged that a higher rate of compensation was a standard practice approach and confirmed that the compensation sites under investigation were all outside of the designated sites [REP5-008]. It confirmed in [REP6-025] that discussions had been held with NE who had advised that it would not be acceptable to create new roost sites within the designated sites.

NE refuted this in their comments [REP8-023] on the updated CMD [REP6-025]. It advised that any compensation measures should not be to the detriment of the SAC features such that the Conservation Objectives are hindered. However, if there were no other viable alternatives this option should still be considered, notwithstanding that there would be consequential impacts to address on the SAC. At Deadline 9 the Applicant explained [REP9-027] that like-for-like compensation had been considered however it was not possible to provide an intertidal site that would be outside the SPA and SAC and also beyond the distance within which the vessels would cause disturbance. Accordingly, it had sought compensation sites adjacent to The Haven but behind the seawall and therefore outside of the disturbance area. A greater scale of habitat was proposed to ensure that the compensatory measures would be sufficient.

LWT [REP4-021] deferred to NE and the RSPB in relation to impacts on the SPA features but stated that options for compensatory sites for the effects on FLL needed to be assessed and secured, and the appropriate habitat needed to be created and functioning prior to construction.

In its updated CMD [REP6-025] the Applicant reiterated its view set out in [REP5-006] that it was unlikely that there was a functional link between the application site and the birds using the SPA and Ramsar site. This was based on the requirement for functionally linked habitats to lie within reasonable flight distances, comprise suitable foraging/loafing/resting habitats, and be sufficiently large to support 1% of a SPA/Ramsar site population. It explained that the proposal for compensatory habitat was based on the assumption that this view was not accepted and that IPs believed that the sites were functionally linked.

Three options were proposed in total in [REP6-025], however, two options were subsequently discounted and only Option 1 was carried forward into the Deadline 8 updated CMD [REP8-006]. Two sites were identified under Option 1. The first site of approximately 19 ha is adjacent to The Haven and approximately 1.2 km from the SPA boundary and 1.3 km from the application site. It was considered to be a suitable site in which to create shallow freshwater lagoons, containing islands, surrounded by short sward grassland, suitable for many of the waterbird species using both the application site and the SPA. The second site of approximately 7.3 ha, approximately 1 km from The Haven and 650 m from the RSPB's Frampton Marsh reserve near the MOTH, was considered to provide suitable habitat for lapwing and golden plover in particular. It was suggested that it could be planted with short sward grassland maintained as foraging habitat and wetter areas of marshy grassland, and that scrapes and islands could also be created. If any compensation measures were proposed in intertidal areas the Applicant stated that it would engage with the MMO and obtain a Marine License if required, and if any measures triggered the need to obtain an EP for a flood risk activity the Applicant would apply to the EA.

In response [REP7-007] to ExQ 3.3.1.29, the Applicant considered that the level of detail already provided about the proposed compensatory measures was sufficient to provide the ExA with confidence that the measures are secured and could be delivered. However, to provide further comfort, it committed to providing additional information in the updated CMD [REP8-006] submitted at Deadline 8. As ongoing negotiations with the landowners of the proposed compensation sites were commercially sensitive it would not yet provide a plan/figure which

explicitly identified the sites but would provide a Figure at Deadline 8 which illustrated the search areas. Together with the additional information that should provide a "fairly clear indication" of the site locations. Subject to the progression of the negotiations it aimed to provide a figure identifying the exact site locations subsequently.

The Applicant [REP7-007] stated that dDCO Schedule 11 secured the compensation measures and provided the mechanisms to ensure they would be delivered, including the approval of the OCIMP by the Secretary of State. This must include details of locations where compensation measures would be delivered and their suitability (including why the location is appropriate ecologically), and details of landowner agreements demonstrating how the land would be bought/leased and assurances that the land management would deliver the objectives of the OCIMP. The Applicant stated that it was confident that the information it had provided satisfied the derogation tests.

In its comments on the Applicant's response to ExQ 3.3.1.29, the RSPB [REP8-029] argued that tangible, targeted compensation measures that would meet the ecological requirements of the impacted species were needed to satisfy Regulation 68 of the Habitats Regulations and had not been provided. The proposed compensation was not based on the reasonable WCS. It pointed to developments where the location and design of compensation packages had been provided prior to the end of (planning) inquiries with landowner agreements in place (e.g. Bathside Bay Container Terminal, Port of Bristol Deep Sea Container Terminal).

In response to ExQ 3.3.1.33 the Applicant [REP7-007] submitted an outline version of the OCIMP, based on that submitted following the Secretary of State's minded to approve letter on the Hornsea Three Offshore Wind Farm Order 2020. However, it highlighted that an outline OCIMP was not requested prior to the determinations of the Norfolk Boreas Offshore or Norfolk Vanguard Offshore Wind Farm DCO applications. In response to the RSPB's comments [REP8-028] about FLL the Applicant commented [REP9-033] that it maintained its position that there was no evidence that birds wintering at the application site, such as redshank, were functionally linked to the SPA and Ramsar site (see Section 5.7.2.1). Nevertheless, its updated CMD [REP8-006] took a precautionary approach and assumed that a functional link could not be ruled out. It considered that the updated document contained sufficient detail about the proposed mitigation and compensation sites to provide confidence that they could be delivered and would effectively maintain the integrity of the protected sites.

ExQ 3.3.1.38 [PD-013] asked the Applicant how it could be assumed, in the current absence of detailed information on the compensation site options, and on the number and species of birds that any compensation site could accommodate, that the proposed compensation measures would provide alternative habitat for birds displaced by additional disturbance along the central section of The Haven. In response the Applicant stated [REP7-007] that no evidence had been provided of any areas of sensitivity for birds along this stretch, however the potential compensation sites included a site mid-way along The Haven between the SPA and the application site, which would provide an additional area of habitat for any species that did use this area.

The Applicant responded at Deadline 8 [REP8-017] to comments made by NE and the RSPB in their Deadline 7 submissions. It stated that the exact location of the proposed two compensation sites was not identified as it was commercially sensitive information at that time. It confirmed that both were on the same side of The Haven as the application site and explained that both sides of The Haven had been considered, however the eastern side was considered to be too busy

with recreational uses. Adaptive management and monitoring of all mitigation and/or compensation sites would be undertaken to ensure the sites were meeting their objectives and continuing to function throughout the life of the Project. Monitoring would also continue at the MOTH. The Applicant stated that the distribution of the qualifying features had been considered in terms of where the birds are roosting and where they are currently disturbed. This assessment was informed by data collected through the Applicant's survey work and from WeBS. The WeBS counts provided detailed information on the numbers of birds using the wider area around the MOTH, while project-specific information had been collected for more localised areas around the MOTH. Project-specific surveys had subsequently been completed over winter 2021/22 for areas of The Haven in the vicinity of all the WeBS Sectors previously analysed, i.e. the central section of The Haven. The results were not expected to change the outcomes of any of the assessments due to the precautionary approach taken to any assessments associated with that area. The data from the project-specific surveys of all sections of The Haven would be presented in a summary at Deadline 8.

The Applicant considered that its surveys showed that the birds using the main roost on the revetments at the MOTH were often able to use alternative roost sites within the same area, such as remaining mudflats, following disturbance by the vessels currently and did not exhibit flight responses at these roost sites, reflecting that their levels of abundance and distribution were not affected. This behaviour would not change with an increase in vessels, as it related primarily to the spring/neap tide cycle rather than the frequency of vessel movements at the MOTH.

NE raised some concerns in its response [REP7-028] to ExQ 3.3.1.32 about dDCO Schedule 11 [REP6-003]. It referenced wording in the recent Boreas and Vanguard Offshore Wind Farm DCOs and proposed additional conditions based on those in the Boreas DCO. It noted that the wording of Condition 2 did not secure the need to consult the OEG members on their membership or the contents of key documents and suggested changes to ensure that the Secretary of State had sight of OEG members' comments on key documents before signing them off. NE pointed to a contradiction between Schedule 11 Conditions 3(d) and 4. Condition 3(d) required compensation measures set out in the Ornithological compensation plan to be in place prior to the impact occurring; whereas Condition 4 required the measures to be implemented prior to operation. The impacts of the Project would occur both during construction and operation. NE stated that in the Hornsea 3, Boreas and Vanguard DCO decisions the Secretary of State consistently determined that compensation must be in place prior to impact; it should be secured that compensation would be in place and functioning prior to impact. NE noted that Schedule 11 included a Condition (3(g)) that only required the annual submission of a monitoring and reporting plan to the Secretary of State. It did not require the Applicant to provide details on the success of the measures or provide that any approved proposals to address any inadequacies must be undertaken, as in Boreas. NE considered that it may take some time before measures implemented to address inadequacies become effective. This should be considered in making any amendments to Condition 3(g) and in any new conditions included to secure the adaptations. An adaptive management plan may also be needed to ensure that the compensation remained fit for purpose over the lifetime of the Project.

In its response to ExQ 3.3.1.32 [PD-013] the RSPB [REP7-032] considered that the updated CMD [REP6-025] was still not fit for purpose. For it to adequately form the basis of DCO Schedule 11 and the OCIMP, the Applicant had to acknowledge and agree the AEoI. It needed to have a proper understanding of the different species affected, the ecological functions any

compensation would need to replace, and the habitat measures that would address those functions in full, in order to provide a proper audit trail for the OEG. The OCIMP would govern the implementation and oversight of the compensation measures for decades and needed to be clear. Each potential compensation site would require detailed ecological assessment to determine whether it could provide the required functions. An 'In Principle' compensation plan is not the same as an 'Outline' compensation plan; it needed to contain sufficient detail to satisfy the ExA that the compensation measures were secured legally, financially, would be effective ecologically, and would protect the coherence of the NSN. The RSPB made a number of specific points about the content of Schedule 11.

The Applicant responded to NE and the RSPB's comments on Schedule 11 at Deadline 8 [REP8-017]. It stated that the benefits of the HMA works would occur immediately, however it wouldn't be known if they were functioning effectively until the activities occurred and potentially displaced the birds from the original site. The same applied to some extent to the wider compensation sites that may not be fully utilised until the Project reached its operational capacity. The updated CMD [REP8-006] set out a timeline for their implementation (Figure 4-3) to ensure the sites would be landscaped/engineered at least two years before the potential AEoI resulting from disturbance from vessels occurs and before the Project entered the operational phase. This would be sufficient time for the sites to be effective and functional.

The Applicant submitted an updated dDCO at Deadline 8 (V4.0) [REP8-004] which included an amended Schedule 11 to address NE's concerns. It included a new paragraph to explicitly provide for the annual reporting. The Applicant considered that the adaptive management was already provided for in paragraph 5(f), through the OCIMP. It stated [REP8-017] that the drafting of Schedule 11 was based on the windfarm DCOs. Additional details of the compensatory sites (e.g. habitat requirements and timings for habitat creation at multiple sites) had been provided in the CMD provided at Deadline 8 [REP8-006]. The detail of the measures would be developed post-consent and set out in the OCIMP. This was the appropriate approach, as set out in its response [REP7-007] to ExQ 3.3.1.29 [PD-013].

NE considered [REP8-021] that the oOCIMP was too high level and did not provide the necessary certainty that any DCO/DML requirements would be delivered and/or to a level that would address their substantial ornithological concerns. The Applicant responded [REP9-033] that the oOCIMP was an outline of the plan required under Schedule 11 in the event that the Secretary of State determined there would be an AEoI and that compensation was required and related to the implementation and monitoring of compensation measures only. It was not intended to secure other ornithology mitigation measures, which were already substantially detailed in the OLEMS [REP7-037) and would be in the final LEMS (which must be based on the OLEMS) secured by DCO Requirement 6 and DML Condition 18.

NE stated at Deadline 8 [REP8-023] that the updated CMD had not resolved its previous concerns. An AEoI could not be excluded due to reasonable scientific doubt resulting from limited project-specific ornithological data, key operational impacts not being clearly defined and assessed (e.g. vessel movements and speeds), the adequacy of the proposed mitigation and/or the securing of mitigation measures to ensure impacts were suitably minimised. No evidence had been presented to demonstrate that an AEoI would not occur. It advised that where considerable uncertainty remains about potential impacts a more precautionary approach should be adopted, in line with the Habitats Regulations. Sufficient details of the compensation measures must be provided to afford certainty that they can be implemented and delivered to

more than offset any WCS and address uncertainties in relation to the scale and significance of any AEoI. EC Guidance on Article 6 (4) of the Habitats Directive states "*compensation ratios of 1:1 or below should only be considered when it is demonstrated that with such an extent, the measures will be 100% effective in reinstating structure and functionality within a short period of time"*. NE considered that insufficient evidence had been provided to suggest this applies. No evidence had been presented to demonstrate that the proposed locations for compensation measures had been secured, could be adapted and/or be 100% effective in reinstating the supporting habitat structure and functionality and/or maintain the coherence of the NSN. No adaptive management measures had been identified to address non-delivery of the compensation measures.

The Applicant submitted a final version of the CMD at Deadline 8 [REP8-006], which amongst others, included the following updates/additions:

- 3.2.6 - if it was determined that there would be an AEoI the HMA would provide compensation and no further compensation would be needed for roosting habitat loss at the application site;
- 3.5.7 - there was no location outside of the protected sites that could create like-for-like habitat in the local area. Compensation site locations were therefore sought where brackish or freshwater off-Haven sites could be created that could support up to 175 high-tide roosting birds from the application site and 7,000 birds from the MOTH during high water. When considering the average numbers of birds, based on the MOTH WeBS sectors, of the qualifying species that showed significant disturbance, this would more than cover the cumulative average number (3555 birds). The MOTH roost surveys reported a minimum of 100-200 waterbirds and routinely 2000-3000 waterbirds; 7000 birds was an approximation of the peak count of waterbirds recorded at the MOTH (according to the 19 December 2019 CiWB survey). Not all of these birds were displaced but a worst-case assumption has been used that all birds are ultimately displaced and require alternative habitat provision. The created habitats would need to provide good quality habitat for roosting birds using the SPA at high tide together with adjacent pastoral and arable habitats for roosting/loafing and foraging. It was confident it could secure one 19 ha site and one 7.5 ha site that could be converted to appropriate habitat to support the displaced species in these numbers. The larger site would include a lagoon of approximately 4 – 5 ha in a wider area of continuous suitable open and/or wet habitat. The second site, within less than 1 km, would also provide extensive open habitat for waterbirds (in particular black-tailed godwit, lapwing, golden plover and wigeon). The above site counts suggest the compensation wetlands could support the expected numbers of waterbirds that would be displaced from the application site and the MOTH;
- 4.6.1 - discussions with landowners were at an advanced stage, the next stage was to conclude them and negotiate commercial agreements;
- 4.7.2 - the 19 ha site adjacent to The Haven was suitable for creating shallow, non-tidal, freshwater lagoons with islands for roosting by intertidal-feeding birds such as redshank and ruff. It is 1.2km from the SPA boundary and 1.3km from the application site. This was slightly over the 1km target range but due to its size could attract and be a suitable site for many of the waterbird species using both the application site and The Haven both outside and within the SPA;
- 4.7.4 - both sites have similar soils/geology to the RSPB reserves and are flat. Recent land use is agricultural;

- A summary of the recommended features (e.g. lagoons, islands, grassland) of each of the compensation sites, bird activities and species supported, and the area required for each site feature was provided in Table 4-1;
- 4.8.1 - 4.8.2: in respect of the timescales for the compensation sites, following consultation with the RSPB about wetland habitat creation, it was acknowledged that two years was likely to be required between completion of initial landscaping/engineering works to raise water levels and the sites beginning to fulfil their function as habitat for all of the species for which compensation may be required. The sites would therefore be landscaped and/or engineered at least two years before the disturbance impacts from vessels would occur;
- 4.8.4 to 4.8.6 - planning permission and various permits/licences may be required for the sites. Baseline desk-based research and surveys would be undertaken to inform any applications, understand the existing nature of the sites and inform detailed design. A 10-month design period was proposed in recognition of the potential complexities of water, habitat and species management, noting the need to potentially manage water levels and the range of required habitats. The programme was based on a worst-case situation where planning permission was required. Following determination of any planning applications and licences/permits, construction would take place from April 2024 to February 2025. The Applicant would engage with the OEG throughout the process of developing the design.
- The further steps for development of compensation options are detailed in section 4.10 of the CMD. It is noted that feasibility studies and environmental appraisal will be undertaken to fully develop the compensation options further, determine the works needed to create the habitats (i.e., water table level, drainage requirements and how this could potentially affect other users of the water in the system, existing uses of the land, potential for disturbance and/or predation impacts to affect the use of the areas by waterbirds) and therefore what management and ongoing maintenance is required.

The Applicant submitted an updated oOCIMP at Deadline 8 [REP8-013] which highlighted that Schedule 11 Paragraph 4 of the updated dDCO [REP8-004] required the OCIMP submitted for approval to be substantially in accordance with the oOCIMP. It stated that dDCO Schedule 11 Paragraph 5 set out the measures the OCIMP must include to compensate for the roosting and foraging habitat loss as a result of the construction of the wharf, and the predicted disturbance to roosting, bathing and loafing waterbirds from the SPA, Ramsar site and functionally linked habitat. The OCIMP must be based on the criteria set out in paragraph 3.5.5 and must contain the relevant matters set out in paragraph 4.11.4 of the CMD.

NE provided a response at Deadline 10 [REP10-036] to Question 6 in the Rule 17 letter [PD-015] about how, following decommissioning of the wharf, it would be determined that the intertidal habitat at that location had been sufficiently restored so that compensation no longer needed to be maintained. NE considered that it was essential that a specific description of what successful restoration would comprise was included in the agreement of any pre-construction plans and suggested some points for inclusion. NE made a number of comments [REP9-058] on the updated and final CMD [REP8-006]:

- the issues were slowly progressing towards a satisfactory outcome. However, insufficient clarity on some elements of the project design and evidence gaps remained and it was unlikely that appropriate compensation measures could be agreed and secured and concerns about the adequacy of the derogation case could be resolved prior to the end of the Examination;

- the proposed compensation sites were unlikely to be able to support all of the impacted species but should be sufficient to mitigate impacts at the application site and would potentially compensate for a substantial part of the impacts at the MOTH;
- critical to a positive derogation case would be (a) securing the sites; (b) refining site plans; and (c) establishing appropriate governance. If options for creating an alternative roost close to the impact site were not going to be considered further the proposed compensation locations provided a suitable option;
- NE recognised that the measures proposed at survey Area B (within which the HMA is situated) are appropriate to support redshank, but considered that because Area B is subject to disturbance by vessels there was no certainty that these measures alone would mitigate the loss of the application site (Area A). While saltmarsh lagoons would be better foraging habitat than saltmarsh it was not likely to be as good as intertidal sediments. The actual number of roosting rocks had not increased (so no increased capacity) but simply moved from the wharf construction area to the HMA. The HMA would lessen the impact of the loss of Area A but was unlikely to fully mitigate it, so it constituted partial mitigation for the impacts on redshank. To be HRA-compliant compensation in the long term, an effective and enforceable management arrangement would be needed to ensure the habitat was maintained. The HMA would provide mitigation for impacts in an area functionally linked to the SPA, however if these failed to provide the required level of mitigation compensation would be required for the residual impacts;
- vessel transit was a concern for the HMA but was not discussed in the CMD;
- the waterbird assemblage is a feature in its own right and needs considering as such; it should not just be the component species (i.e. lapwing and golden plover) that are identified as a feature at risk;
- the mitigation, compensation and BNG measures need to be clearly identified in terms of location and purpose, especially where proposed to be used for multiple purposes.
- no letter of comfort from the local landowners had been provided to demonstrate they were agreeable to compensation being delivered on their land; the risk remained that suitable compensation locations would not be secured;
- the description of the compensation site under-represented the quantity of surface water likely be needed for the site to be effective;
- the larger compensation site was well positioned to support the HMA in mitigating the loss of the application site and ensuring that no AEoI arose from the loss of functionally linked habitat. However, that was based on the assumption that management of the site could be secured to provide both foraging and a disturbance-free roost area, which was not yet assured;
- the larger site was likely to be able to support some of the features at the MOTH for which NE considered there would be an AEoI. The description provided suggested it was approximately 4.8 km from the affected roost area at the MOTH (identified as Area E in Figure 5.1 in the ‘Final Waterbird Survey Report Summary of Data’ [REP8-018]), making it more distant from the impact site than the other potential alternate roost areas. Therefore, it was unlikely to be adopted by displaced individuals but (as land that should be legally recognised as part of the SPA if secured as compensation) was likely to increase the carrying capacity of the SPA. In relation to the species identified in Table 4-1 (i.e. that would be supported by the compensation sites) of [REP8-006], it is likely that with appropriate management the site could support lapwing, golden plover, redshank, and black-tailed godwit. It is unlikely to be utilised by significant numbers of oystercatcher (due to distance from the SPA) and turnstone (due to distance from the SPA and habitat requirements) or DBBG (due to presence of alternative areas of FLL closer to the SPA);

- the smaller site was more likely to be suited to golden plover and lapwing. Both require less surface water than some other SPA species; most critical is the availability of invertebrate-rich short swards or bare ground;
- NE agreed that two years should be allowed between compensation site establishment and its need to provide compensation;
- in addition to the initial establishment works described, annual maintenance of the HMA would be required to maintain the suitability of the habitat as mitigation. Works in the HMA should be undertaken in August to avoid the nesting bird season and the migratory/winter period;
- to be HRA-compliant, the monitoring and maintenance would need to be overseen by a governance group empowered to ensure the site is accountable (on behalf of the competent authority), is delivering its compensatory requirements and can remedy any failings; and
- NE welcomed the role of the OEG but it would need to be able to ensure compliance with statutory requirements, not just be advisory.

In response to Question 1 in the Rule 17 request [PD-015], the Applicant provided a letter of comfort from the landowner and a locational plan in Appendix A1 (Figure 1) of [REP10-022] in relation to two proposed in-principle compensation sites identified as 'plot 1' (7.3 ha) and an adjoining 'plot 1a' (12 ha). It stated that their use for compensation had been agreed in principle by the landowner. It explained that discussions with the landowner for 'plot 2' (19 ha) were ongoing so a letter of comfort and plan for that site could not yet be provided. Plot 1 was the second site (un-named) described in the CMD [REP8-006] and plot 2 was the first site (un-named) described therein (paras 4.7.2 and 4.7.3, respectively).

Plot 1a had been progressed subsequent to the submission of [REP8-006]. It is described in [REP10-022] as in arable agricultural land use, with a "significant proportion" of its boundary comprised of drainage ditches and a "minority length" comprised of rural road. It is within 1 km of the SPA and Ramsar site and adjacent to the RSPB's Frampton Marsh reserve. The Applicant explained that the "wetting" of the site could be achieved through blocking of the ditches, similarly to the other two proposed sites. It concluded that the acquisition of plot 1 and plot 1a (together with plot 2) represented the "likely prospect" of securing two approximately 19 ha sites of continuous open habitat to provide in-principle compensation for effects on individual waterbird species and the assemblages of The SPA and Ramsar site should the Secretary of State determine that compensation was required. It highlighted that as a result of the in-principle securing of plot 1a, the scale of land acquisition for compensation purposes was greater than indicated in previous submissions and considered that the in-principle compensation that could be provided was likely to exceed that previously indicated.

In response to [PD-015], the RSPB commented [REP10-046] that an option on the land would provide greater confidence than a letter of comfort that the proposed measures could be secured and delivered. It made a number of points in relation to whether the Applicant's proposals set out in the CMD [REP8-006] (V2.0) met the compensation measures criteria developed by NE (as set out in Annex 1 of 3-031). It remained concerned that the Applicant had not fully understood and therefore had underestimated the scale of potential impacts along the whole of The Haven, and that the proposed compensation may not be sufficient to fully address them. It considered that the lack of information on and detailed plans and baseline assessments of the locations meant that the likely effectiveness of the compensation was uncertain. It highlighted the current position with the consented Able Marine Energy Park development, where issues

around the proposed compensation are ongoing, as an example of the risk arising from insufficient detail of compensation measures being provided prior to consent. The RSPB [REP10-046] also noted that the locations of the proposed compensation sites were unclear and commented on each based on its assumptions about where they were situated. It referred to the Applicant's statement in [REP8-006] that compensation sites to address vessel disturbance at the MOTH should preferably be within 500 m and ideally within 1 km of the existing MOTH roost site. It believed that plot 2 was located just under 5 km from the MOTH and considered therefore that it was completely unsuitable for providing compensation for effects on birds using the MOTH roost site. In respect of plot 1 it considered that the 7.3 ha size of the site was likely to be too small to support the numbers of golden plover and lapwing recorded in the MOTH 2019 winter survey (set out in [REP8-006]) and needed to be two or three times larger. The RSPB also believed that the Applicant's assumption that the drainage ditches surrounding the site indicated that the site was a naturally wetter area was erroneous, on the basis that the ditches are part of a system designed to drain the land.

In relation to NE's view that plot 2 needs to provide both foraging habitat and a disturbance-free roost area, the Applicant [REP10-020] stated that the proposed compensation sites could provide foraging and roosting habitat. However, it considered that that there were very few, if any, areas around The Wash that could provide disturbance-free roosting areas (as a result of, for example, recreational activities, vessels, aircraft and predators), and that it would not be feasible to provide them. The Applicant responded [REP10-020] to NE's comments that even a site 4.8 km away from the affected roost area at the MOTH could provide alternative habitat given that there are additional sites proposed that would together form a network of sites. It highlighted that oystercatcher and turnstone had been recorded as far up The Haven as the application site and roosting both there and adjacent to one of the proposed compensation sites, and DBBG had been recorded close to the compensation sites. The compensation sites are designed to provide islands in a large, isolated waterbody and would be able to support the species identified in Table 4-1 of the CMD [REP8-006].

NE provided a response at Deadline 10 [REP10-036] to Question 2 in the Rule 17 letter [PD-015] about for which species NE considered an AEoI at the application site and MOTH could be ruled out. It stated that as a result of multiple uncertainties its Deadline 9 comments were overarching. It considered that based on the information provided there was a risk that the compensation measures may not fully offset the potential effects due to an unknown scale and significance of impacts, insufficient space, disturbance limiting their usage by birds, and that the areas may not provide 100% suitable habitat.

In relation to the RSPB's Deadline 8 comments about the HMA the Applicant responded [REP9-033] that it maintained its position as set out at application submission, i.e. that the HMA would provide sufficient roosting and foraging habitat for the number of redshank and other wading birds recorded during the project-specific high-tide surveys at Areas A and B. In addition, the updated CMD [REP8-006] detailed further offsite compensation in the event that the birds using the HMA were subject to vessel disturbance and it was determined to be an AEoI.

At Deadline 9 the RSPB [REP9-065] restated its view that the proposed compensation measures were not acceptable, or in any way adequate. It concluded that the Applicant had not presented a package of measures that would meet the ecological requirements of the impacted SPA and Ramsar site species such that the coherence of the NSN would be protected. The RSPB commented [REP10-043 and REP10-045] on the final CMD [REP8-005]. It reiterated its

concerns made in previous submissions and indicated that the information provided had not changed the RSPB's position, as notified to the Applicant prior to the resubmission of the Application, that an AEoI could not be excluded for the SPA and the Ramsar site. The submission included the following points about the information on compensation:

- sufficient detail has not been provided to demonstrate that the replacement habitat had been secured and would effectively address the ecological requirements of the affected individual species;
- it was clear that features of the SPA and Ramsar site use The Haven and can occur in significant numbers (i.e. over 1% of the protected site populations) and that compensation was required;
- the Project construction timetable fails to allow for the design, delivery and implementation of fully ecologically functional compensation measures before the predicted adverse effect(s) occur. Planning permission and other consents and licences are likely to be required, for which baseline surveys will need to be undertaken and data provided. These could identify that a site may be unviable. It is not acceptable that the detail is to be left to the OCIMP;
- insufficient evidence had been provided to show that the location of the HMA 250 m from the application site would be sufficient to address all disturbance issues given that vessels would pass the HMA when travelling to and from the application site and there is a lack of information on measures to address recreational pressures, e.g. from people and dogs entering it. As the effectiveness of the HMA is uncertain and according to definitions contained in the CIEEM 2018 Guidelines for Ecological Impact Assessment, the HMA should be considered compensation rather than mitigation, and an additional site should be provided in an alternative more suitable location;
- the proposed amount of compensatory habitat for the habitat loss at the application site is insufficient; and
- the compensation requirements cannot be fully understood due to the lack of survey data for the central section of The Haven and between the MOTH and the PoB anchorage area.

NE stated at Deadline 9 that their comments [REP9-059] on the oOCIMP [REP8-012] were substantively the same as their Deadline 8 comments. The scope was reasonable, but it needed to set out how the OEG would be constituted, its membership and how it would have governance powers that would enable it to ensure that suitable management was secured. In the absence of this the OCIMP could not be relied on to secure HRA requirements. Initial monitoring post-establishment needed to be identified, to include both bird numbers and the development of the physical attributes of the sites to ensure the statutory requirements could be delivered. It needed to include an agreed success criteria.

The Applicant responded [REP10-020] that the terms of reference for the OEG were set out in Paragraph 2, Schedule 11 of the dDCO, and the monitoring arrangements would be set out in the approved OCIMP secured in Paragraph 3, Schedule 11 of the dDCO.

In its comments [REP9-059] on the Final Waterbird Survey Report Summary of Data [REP8-018] NE agreed that the presence of a roost site adjacent to the proposed compensation site increased the likelihood that the compensation site would be rapidly adopted once available.

In response to Question 7 contained in the Rule 17 request [PD-015] about how it would be determined that maintenance of the proposed compensation sites would not be necessary following decommissioning of the wharf, the RSPB repeated its view that any habitat created as

compensation must be secured in perpetuity. It considered that the presence of the wharf and associated infrastructure would have considerably altered the surrounding area and that the Applicant would need to demonstrate that the intertidal habitat had been reinstated sufficiently to support the same level of ecological interest as currently. The Applicant responded [REP10-022] that it had amended paragraph 11 of Schedule 11 (Ornithology Compensation Measures) (and DML Condition 27) of the dDCO to provide that the Secretary of State would make the determination in consultation with the relevant SNCB based on monitoring data that showed that the intertidal habitat had been restored to a condition similar to that prior to the construction of the wharf. It explained that this would allow the Applicant to choose to either continue to maintain the works in the HMA or to restore the lost habitat (mudflats and saltmarsh).

10.1.1 ExA's conclusion

The ExA considered [ER 1.7.88 App. C] that the information that had been provided during the Examination did not provide sufficient confidence that the measures proposed by the Applicant would effectively compensate for the AEoI of The Wash SPA and Ramsar site or that the measures can be secured.

The ExA considered [ER 1.7.89 App. C] that, of the two sites proposed in the final version of the CMD [REP8-006], a letter of comfort was provided at Deadline 10 [REP10-022] only for the smaller site (plot 1) and the content does not provide the required certainty that the land can be used by the Applicant. As discussions with the landowner are ongoing and no letter of comfort can be provided in relation to the larger site (plot 2) (as explained in [REP10-022]) there is even less certainty that this land will be made available to the Applicant. In addition, as discussions are less advanced, insufficient information has been provided on the location of this site. Limited information has been provided on the additional area of land proposed in [REP10-022] (plot 1a) and the introduction of this site at the final Examination deadline has precluded any subsequent discussion or the opportunity for any questions to be asked about it. In the event that all three proposed compensation sites could be secured, it is indicated that 33.3 ha of compensatory habitat could potentially be provided, however currently only 19.3 ha appears to have a prospect of being secured.

The ExA also considered [ER 1.7.90 App. C] that insufficient information had been provided on the nature of the proposed compensatory sites, their carrying capacity, suitability, survey data, and whether any additional consents or licences would be required before they could be utilised as compensatory habitat. The compensatory sites would be required to be fully functioning prior to any impacts occurring, however the timeline for implementing this is unknown. Due to the late submission of material by the Applicant covering proposed compensation sites the ExA considered [ER 6.10.10] their deliverability to remain uncertain.

Taking all of the above considerations into account, the ExA [ER 1.7.91 App. C] concluded that there was insufficient information for the Secretary of State to establish that appropriate compensatory measures had been secured at the time that would allow him to fulfil his duty under the requirements of Regulation 68 of the Habitat Regulations. The ExA concluded that it could not be ascertained at that stage that the overall package of proposed compensation measures would ultimately ensure the overall coherence of the UK NSN.

10.1.2 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to provide significant further information regarding the without-prejudice proposed compensation sites, in response to concerns raised by NE and the RSPB, such as in [REP9-058, REP9-059, REP10-036] and [REP10-043, REP10-045, REP10-046] respectively which were outstanding at the end of Examination, and any associated updates to documents including the CMD. The response was requested to include, but not be limited to the following information for providing confidence that appropriate compensatory measures could be adequately secured:

- land survey data;
- suitability of the habitat to effectively address the ecological requirements of each of the affected individual species and that this does not displace qualifying features of the designated sites;
- carrying capacity;
- an update on compensation site selection, along with details of when the site is expected to be secured;
- confirmation of how the purchase / lease of the proposed compensation site will be secured in the DCO;
- details of alternative compensation measures to be adopted, should the preferred compensation sites not be secured;
- an updated Project construction timetable which allows for the design, delivery and implementation of fully ecologically functional compensation measures before the predicted adverse effects occur; and
- how the proposed compensation will be adequately secured through the DCO/DML.

The Applicant responded on 11 November 2022[33]. It stated that detailed topographic and substrate surveys would be undertaken post-consent, but that preliminary site visits and bird surveys had been undertaken on 29 and 30 October 2022, which confirmed that the sites would provide suitable habitat. Potential sites were also considered based on the use of the sites by existing qualifying species to ensure that transformation of the land would not displace existing qualifying features. Its responses included information regarding each proposed site in turn.

Regarding alternative measures should the preferred sites not be secured, the Applicant stated that it continued to investigate compensation sites and that current and ongoing availability of sites gives the Applicant confidence that a range of suitable sites will be acquired which will function as compensatory habitat. The Applicant stated that it has identified a number of potential alternative sites to develop compensation measures should the short-listed sites not be secured. This included the introduction of a field of 22 ha on the north side of The Haven at Corporation Point, which could provide wetland habitat distanced from vessel movements. The Applicant considered that suitable habitat creation is achievable to effectively address the ecological requirements of each of the in-principle affected waterbird species. Transformation of the site to achieve this would follow a programme similar to that for Wyberton Road North, with creation of a large lagoon (with one or more island and raised features within the water body) and altering the visibility of footpath users against the horizon by addition of blinds on the relative edges of the site.

An additional compensation option was proposed, particularly if disturbance at the PAS is considered a route to AEoI, which consisted of a dock-level roosting site for redshank and other waders beside The Haven. The Applicant considers that this would provide an additional roosting

opportunity for wading birds at the same height as surrounding port and wharf structures, providing a site that is inaccessible to the public and allowing greater vantage over The Haven which may be preferred by some species or individuals, or under specific conditions such as excessive water levels (such as unusually high spring tides and storm surges). The PoB has highlighted an opportunity for transfer from the EA of the riverside wall and associated land (Figure 3) which could constitute a raised roost site beside The Haven and enhance mitigation roosting habitat options. Examples at Heysham Heliport and Seaham Harbour and Marina were described by the Applicant, to demonstrate that this enhancement could provide suitable habitat at this site.

An updated indicative construction and compensation implementation timetable was provided.

(a) credit: Andrew Chick Ecology

(b) Imagery copyright 2022 Google, CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, Map data copyright 2022)

Figure 3: Ground (a) and aerial view (b) showing the indicative outline of raised land (white polygon), opposite the Port of Boston lock on the north side of The Haven. Principal Application Site is within the red polygon[33].

In his second consultation letter, the Secretary of State invited NE to advise on the extent to which the Applicant's response resolved its outstanding concerns regarding the proposed compensation package for The Wash SPA. NE responded on 8 December 2022[35,36], stating that: *"… whilst the potential is there the compensation package remains insufficiently worked up at the current time to provide any assurances that the impacts can be fully offset. Should the Secretary of State be minded to grant consent for the proposal then there will need to be assurance that appropriate conditions can be put in place that will provide sufficient reassurance that SPA interests are secure and the delivery of appropriate extent and quality of compensatory habitat quality is guaranteed."*. NE stated that its position remains that the proposed compensation locations should, in principle, be able to compensate for most SPA impacts, but that it cannot advice with certainty until the required surveys and compensation design are complete. Having not seen the October 2022 bird surveys, NE is unable to support the Applicant's statements in relation to the acceptability of compensation locations. NE highlights that its previous comments included in [REP9-058] remain outstanding, with only a plan for site (a) offered. NE advise that a proposed site design and management plan is required. NE stated that it is supportive of the exploration of the dock level roosting site especially if it will be less disturbed than the mitigation area, but that this required further detail and posed further questions to the Applicant. NE also advised that the proposed alternative roost is likely to be optimal for at least some of the Wash SPA features especially turnstone and oystercatcher, but that there may be resultant impacts on The Wash and North Norfolk Coast SAC. More detail was requested.

The RSPB reviewed the submissions provided by the Applicant, NE and the EA to the Secretary of State's first consultation letter and provided its position in response to the second consultation letter on 9 December 2022[37]. The RSPB considered that the Applicants response to the first consultation letter largely reiterated the information as set out at the end of Examination. It acknowledged that having multiple locations along The Haven provides greater certainty that suitable habitat could be created, and that Corporation Point is a good size to enable habitat to be created but considered that substantive detail needed to be provided. The RSPB summarised that: *"… We support the principle of securing suitable sites close to both the Witham mouth and the application site to provide alternative roosting and foraging. However, we continue to have serious concerns with the Applicant's compensation package, do not consider it meets the criteria set out in in Table 12 of our Written Representation (Section 10, pp.103-106; REP1-060), as discussed in our Response to Rule 17 Questions at Deadline 10 (pp.2-13; REP10-046), and consider substantive detail is missing to provide the Secretary of State with the necessary confidence that the coherence of the National Site Network would be protected."*. The RSPB welcomed the updated construction timetable but continued to have concerns that it remained unrealistic.

In response to the third consultation letter, the Applicant responded to NE and the RSPB's comments[38] and included updated (including tracked changes) and newly submitted documents relevant to the compensation measures:

- Without Prejudice HRA Derogation Case - Compensation Measures[87] ("the final CMD");

[87] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001419-9.30(4)-Without-Prejudice-HRA-Derogation-Case-Compensation-Measures-Clean.pdf

- Addendum to Without Prejudice Habitats Regulations Assessment Derogation Case Compensation Measures (for The Wash SPA)[88] ("the Compensation Addendum"), amended[89] in response to the fourth consultation letter; and
- Draft Development Consent Order (including requirements)[90].

Further detail on the sites proposed in the previous CMD and the Applicants response to the first consultation letter was provided. This included information on the technical feasibility, extent, location (Figure 4), timing and long-term implementation of the proposed compensation measures, addressing each identified site in turn. An updated implementation timeline was provided in the final CMD. Specific site investigations had been conducted on the land parcels as reported in the Compensation Addendum and information from investigations regarding landscape engineering (Appendix A) and ornithology data and observations from the additional October 29 and 30 surveys (Appendix B) was provided, as requested by NE.

[88] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001425-9.112-Addendum-to-Without-Prejudice-HRA-Derogation-Case-Compensation-Measures-for-The-Wash-SPA.pdf

[89] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001430-9.112(1)%20Addendum%20to%20Without%20Prejudice%20HRA%20Derogation%20Case_%20Compensation%20Measures%20(for%20The%20Wash%20SPA)_clean.pdf

[90] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001412-2.1(7)-Draft-Development-Consent-Order-including-requirements-Clean.pdf

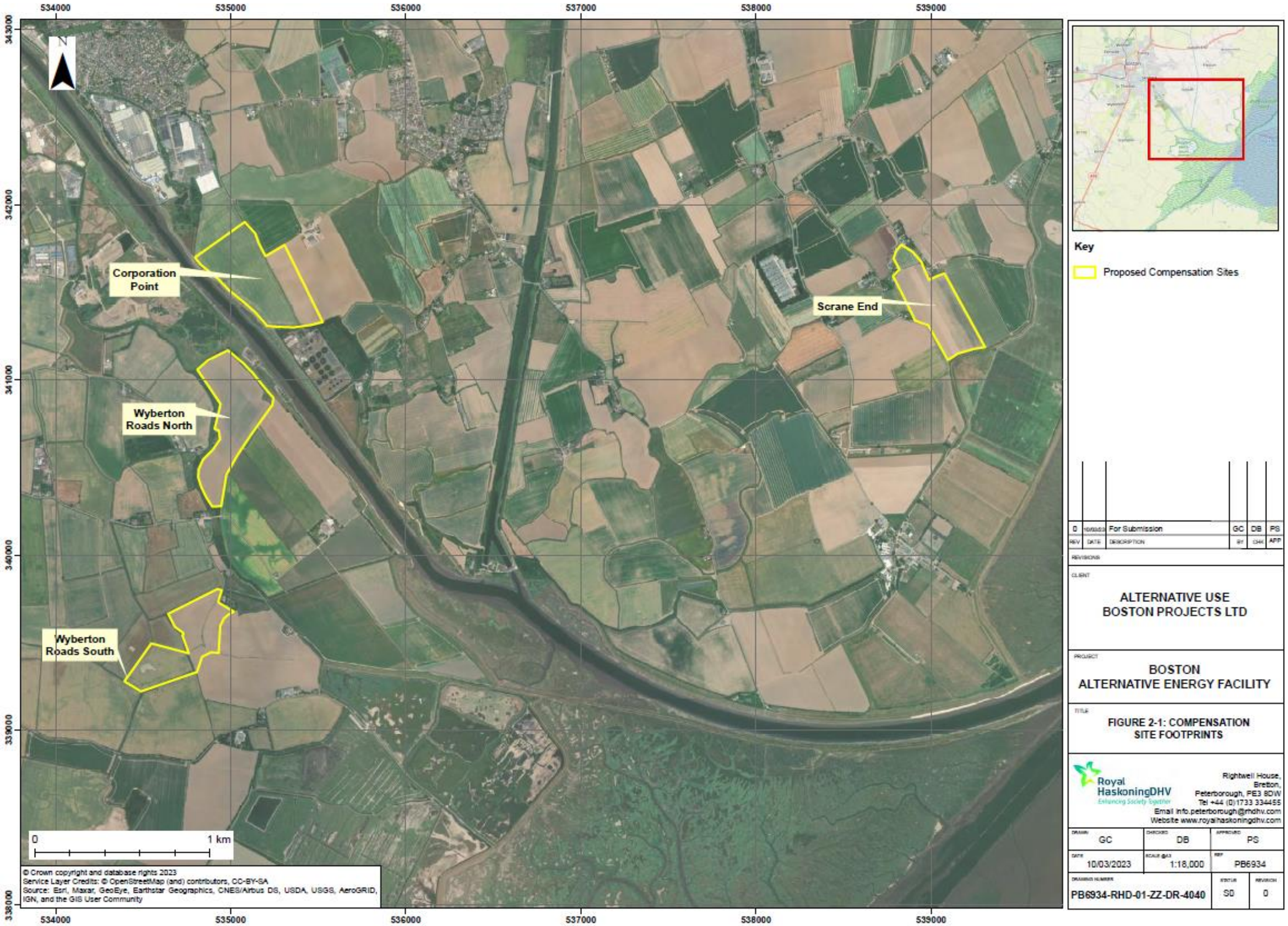

Figure 4: Aerial imagery showing the locations of the four proposed compensation sites as presented in the Compensation Addendum[89].

Regarding Corporation Point, the Applicant stated that a substantial (2 – 5 ha) main scrape or lagoon (as previously described for land at Wyberton Roads (North) in the CMD) is also achievable at Corporation Point, based on the overall area and openness of the site and the presence of over 100 x 100 m of lower lying land in the east corner of the land parcel which aerial imagery suggests is already prone to holding ephemeral wetlands (Appendix A). The Applicant considers that location of this site, in particular in conjunction with the location of the sites at Wyberton Roads, presents multiple available sites along The Haven in close proximity to each other and to other supporting sites such as Frampton Marsh, including two substantial areas on opposite sides of The Haven within ecologically relevant distance of The Wash SPA boundary and PAS. This pair of sites in particular would present a significant refuge area for waterbirds of The Haven by allowing movement of birds into and off The Haven in any direction, and the full complement of sites would be an effectively spaced network of additional waterbird habitat.

Revised site boundaries record the Wyberton Roads (North) site as 17.6 ha in area. The carrying capacity of this site was previously[33] estimated to be in the order of magnitude of thousands of waterbirds in an assemblage comprising all taxonomic groups associated with The Wash SPA and Ramsar (waders, ducks, geese, large waterbirds, gulls) as detailed in the CMD. This estimate was based on existing sites of similar size and landscaping. The Applicant states that Improvement of the site as a wildlife refuge would also likely include a blinds-style fence along the east side of the land parcel and a low boundary bank against this fence, made using spoil from forming scrapes.

The Wyberton Roads (South) site was previously introduced as a 7.5 ha site in the Deadline 8 CMD [REP8-006], however following discussions with the landowner, the field west of the original footprint had become available with an updated footprint of approximately 15 ha. The site had been remarked by RSPB [REP10-046] to be of insufficient size for the target numbers of 3000 golden plover and 1100 lapwing, with recommendation that the area required would be at least two to three times the 7.3 ha quoted area to support these target numbers. With the addition of an adjacent area, the continuous area now available at the site is 14.8 ha (i.e. twice the original area) as a result of the field to the west now being offered by the landowner. The Applicant considers the foremost potential of this site is improvement to a relatively dry grassland or fallow site for waterbirds such as lapwing and golden plover, to complement extant and proposed sites with wetland located elsewhere in the network of waterbird sites. Plans for use of this area to provide the maximum quality habitat for waterbirds based on the requirements for lapwing and golden plover are:

- improvement of the area as a dry grassland roosting and foraging site;
- the dry areas would be re-seeded with regional wild flora and grasses and the sward height maintained low for roosting waterbirds;
- part-buried nest boxes for shelduck would be added in banks and edges; and
- improvement of the site as a wildlife refuge would also likely include, measures to reduce vehicular and pedestrian disturbance to the site such as a blinds-style fence along the north-east side of the land parcel.

This land improvement plan would require maintenance of low vegetation height, mixed flowering varieties to encourage insects to the site and provide habitat suitable for foraging and roosting of lapwing and golden plover and potentially breeding habitat for shelduck and lapwing.

The Applicant states that, as Wyberton Roads North, Wyberton Roads South and Corporation Point are approximately 15 ha or more in area each (identified in CMD as the minimum required for former agricultural fields to support the order of magnitude of waterbird assemblage size requiring compensation once converted to habitat for waterbirds), any one of these sites would be of suitable scale to exceed the affected area at the MOTH and exposed shore above the MHWS along The Haven at high water, and support the full assemblage and number of waterbirds potentially displaced and that the presence of multiple sites provides additional resilience to the compensation measures.

A fourth site at Scrane End was proposed in response to observations of the RSPB that DBBG foraging in this area of The Wash are distributed one field landward at most, i.e. generally distributed within one field length from The Wash foreshore. Therefore, as part of the in-principle compensation package, the Applicant had sought a land parcel option in close proximity to The Wash with the aim of locating fields to specifically support DBBG. The site is approximately 15 ha, 600m from The Wash foreshore and separated by a single field, and immediately adjacent to the Freiston Shore RSPB reserve.

Letters of comfort from the current landowners of Wyberton Roads (North), Wyberton Roads (South) and Corporation Point were provided in Appendix C of the Compensation Addendum.

The Landscape Engineers Report on Compensation Sites (Appendix A) presents a desk-based assessment using LiDAR data of topography, tidal and extreme water levels, a description of the sites, an interpretation of existing drainage and an opportunity assessment for wetland creation for each identified compensation site. This is generally supportive of the Applicants view that wetland habitat creation is achievable at the proposed sites. The results of the additional October 2022 bird surveys and descriptions of the agricultural nature of the sites were provided (Appendix B), which indicate the occasional use of the sites by low numbers of qualifying bird species and other birds. The potential for disturbance at the proposed compensation sites by recreational users was identified during the surveys.

The Compensation Addendum also included further information on the additional proposal to create an alternative wader roost site around the MOTH for use by birds associated with the existing MOTH roost site, in particular those which favour more marine intertidal habitat such as turnstone and oystercatcher. The search area and three candidate locations for a rock revetment roosting area, located away from The Haven shipping route, are shown in Figure 5. The roost revetment rock would be at least 0.35 ha in area and of equivalent substrate type to the existing roost. This would be within the intertidal habitat which the Applicant expects to be within the ‘mudflats and sandflats not covered by seawater at all times’ feature of The Wash and North Norfolk Coast SAC and noted to be 0.002% of the total area of the feature. A Marine Licence from the MMO and an associated HRA would be required to demonstrate that such measures would not have an AEoI on the SAC.

In response to comments from NE and the RSPB, further information was provided on the additional option of additional dock-level roosting in proximity to the PAS and PoB, which was first introduced in response to the first consultation letter. Further discussions with the EA and the PoB would be required including any implications for flood defence and whether planning permission or other approvals would be required.

The Applicant concludes (Table 3-1) that the proposed compensatory measures would meet the requirements to compensate as defined in the 2021 joint guidance, for the disturbance to birds caused by increased numbers of vessels using The Haven.

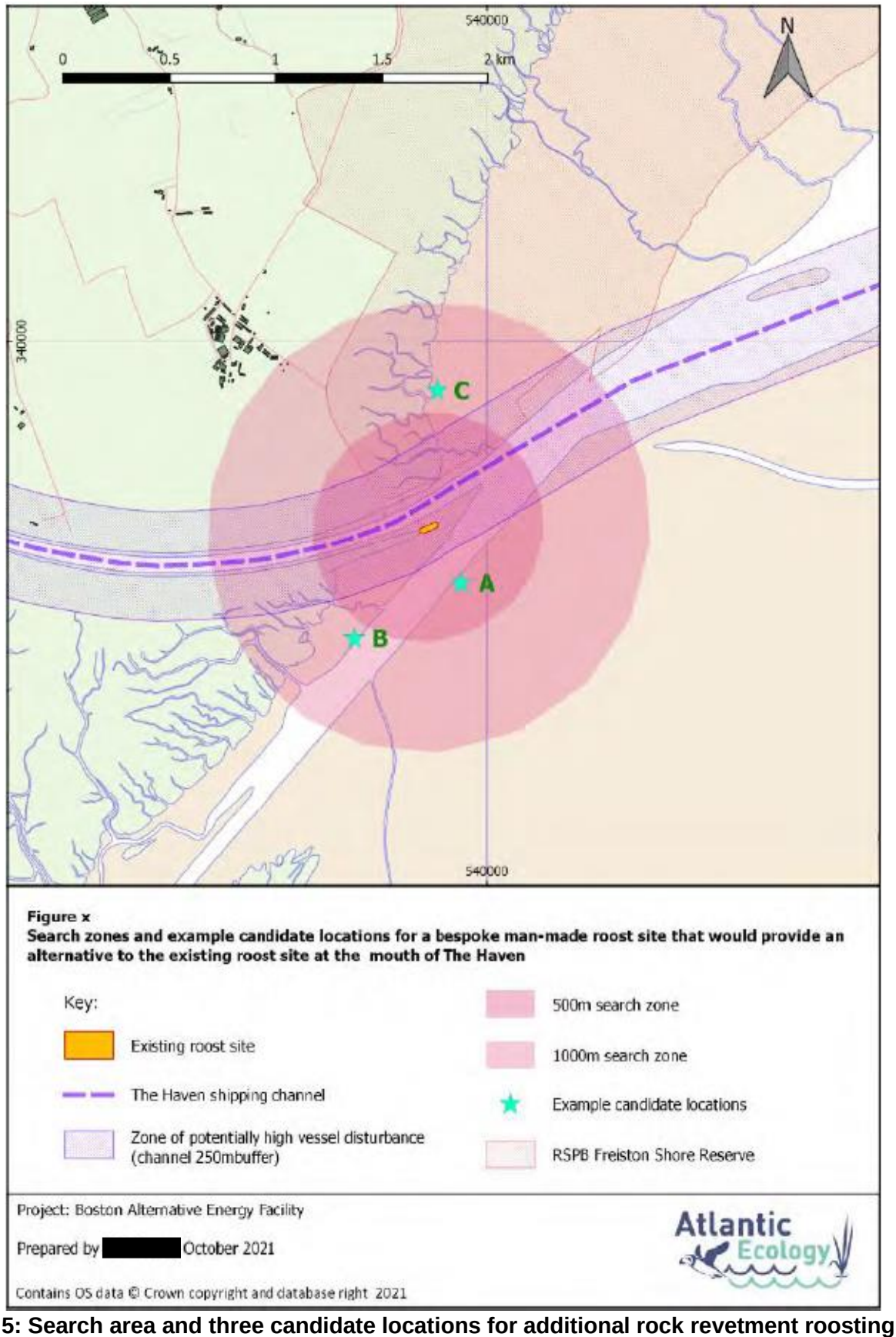

Figure 5: Search area and three candidate locations for additional rock revetment roosting areas outside of the zone of potential vessel disturbance, as in the Compensation Addendum[89].

In its response to the third consultation letter NE[91] considered that: *"the fundamental issues relate to the location not being secured and maintaining a 'wetland' with sufficient water. If this was to be through tidal egress this may be more effective and help address impacts to priority saltmarsh. However, that would require further consultation with the EA, MMO and Internal Drainage Boards for additional permits/licences with no guarantee of approval at this time."*. Due to its outstanding concerns, it advised that controls should be put in place potentially through DCO requirements which ensure that the compensation measures are sufficiently delivering prior to construction works commencing. The RSPB also suggested amendments to the DCO[92] to secure this.

In response to the fourth consultation letter the Applicant[62] responded to comments raised by NE and the RSPB. Regarding NE and the RSPBs suggested amendments to the DCO, the Applicant did not consider these to be 'feasible or justified by evidence'. It stated that the term 'fully functional' is ambiguous and provides no definitive end point, and that it will not be possible to determine whether the sites are delivering compensation or are fully functional until the impact occurs. It also stated once the habitat creation measures are undertaken it is expected that birds would start to use the area within a few months. This is considered likely as the margins of the ploughed fields are already being used by species such as curlew. Once farming activity has ceased and groundworks have been carried out to make the site more attractive to birds it is expected that birds would use the area relatively quickly (birds can be expected to be using the site within the first few months, whilst other species would be expected to use the sites once the vegetation/wetland habitat has had time to establish over the two-year period). The Applicant reiterated that the worst-case implementation timetable (Figure 4-2 of the final CMD) is highly conservative and allows a 20-month lead in time prior to construction of the habitats for permits and design, together with agreement with the OEG on the plans, 12 months for construction of the habitat and at least 2 years for subsequent adaptive management of the sites prior to the onset of impact. The Applicant stated that tidal egress is not considered an option for the identified sites as the species that could be affected will equally make use of available freshwater wetlands for roosting and foraging.

NE[93] restated its previous recommendation and that, whilst wetland creation is a proven science, it is a matter of creating the right conditions for the species which require compensation and whilst these conditions could be created within 2 years, the evidence in relation to maintaining water levels and having the necessary permits to do so on a secured area of land remains an outstanding area of concern for NE, as does the levels of potential disturbance and the necessary scale of the required compensation due to the uncertainties relating to the impact assessment. NE states that it is these uncertainties and lack of agreed adaptive management should the compensation not be delivering, which is the foundation of its advice.

[91] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001407-Natural-England-updated-advice-on-outstanding-concerns.pdf

[92] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001410-RSPB-updated-summary-of-position-and-key-concerns-March-2023.pdf

[93] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001433-Boston%20Alternative%20Energy%20EN010095%20NE%20Clarifying%20Response%20to%20SoS.pdf

The RSPB[94] welcomed the additional information submitted by the Applicant on potential compensation sites and provided its updated comments regarding the feasibility, extent, location and securing of each proposed compensation measure. It welcomed the addition of Corporation Point and Wyberton Roads (North) in the compensation package and considered that these sites have the potential to deliver suitable wetland habitats for a range of features of The Wash SPA and Ramsar, but that more information is needed to ensure that a suitable water supply (saline or freshwater) can be secured to not just create, but also maintain the sites. Regarding Wyberton Roads (South) it agreed that the site has potential and could deliver suitable dry grassland habitats for lapwing and golden plover, as well as providing additional biodiversity enhancements. Whilst the RSPB welcomed Scrane End being included in the Applicant's compensation package, it had "*serious concerns about the effectiveness of the proposed Scrane End field for brent geese; the site is too linear and narrow*.". It considered that the site may be suitable as part of the Applicant's enhancement measures, but not as part of the compensation measures. The RSPBs concerns that no formal agreements have been secured with landowners remained. The RSPB stated that the Applicants response did not address its concerns with the wording of Schedule 11 of the DCO to ensure the role of the OEG was clearly defined in all stages of the decision making.

Regarding the proposals to create alternative high tide roosts, the RSPB[94] did not consider the proposed alternative roost sites to be appropriate based on: guidance[8]; current use of the areas by roosting and foraging waterbirds; a failure to consult the RSPB about use of land that it owns and manages at the Frampton Marsh reserve; the lack of detail regarding the rock structures and the failure to collate baseline data to support the proposals. NE[93] also advised that there is potential for these roosts to have an AEoI in their own right on Annex I intertidal mudflats and sandflats, *Salicornia* and other annuals colonising mud and sand and Atlantic salt meadows due to direct habitat loss/change and disruption to coastal processes resulting in habitat loss/change. There could also be further impacts on supporting habitats for Annex I birds and/or Annex II seals.

In response to the fifth consultation letter, NE[52] and the RSPB[85] summarised their remaining concerns with regards to the proposed compensatory measures. In response to the same letter, the Applicant[95] provided an addendum[96] to the OCIMP which includes further details on the proposed adaptive management and monitoring of the compensatory sites. The Applicant states that the adaptive monitoring and management plan (as part of the final CIMP) is intended to be developed together with the OEG following the making of the DCO, but it has provided proposals for the monitoring and management measures that would be expected to be included within the plan. This includes information regarding a proposed three phase monitoring scheme, consisting of baseline monitoring and habitat and bird monitoring. Monitoring of waterbird numbers will continue until the success of the compensation has been demonstrated, including if determined

[94] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001432-RSPB%20comments%20on%20compensation%20sites%20addendum%20May%202023.pdf

[95] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001472-9.115%20Cover%20Letter%20.pdf

[96] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001473-9.116%20Addendum%20to%20the%20Outline%20Ornithological%20Compensation%20Implementation%20and%20Monitoring%20Plan.pdf

necessary, throughout the operational lifespan of the Project. Thresholds for adaptive management measures will include high-level and site-specific triggers. Site specific triggers relating to water management include whether the depth of water becomes too low to maintain a wetland at a key location on the site (to vary seasonally) as determined from a standing gauge or meter in the water, and whether the extent of water on a compensation site is contracting below a set area during each season, as determined from water distance from a standing marker at the water's edge at a key location on the site. Proposed management measures are identified, which include:

- lowering of water level via opening of a sluice into a drainage ditch;
- raising of water level and extent via release from a water storage tank or reservoir either adjacent to or along a pipeline from the compensation site;
- addition of security or barrier measures to fortify the site from human intrusion and/or pedestrian disturbance of birds;
- expansion of island habitat within the compensation waterbodies through increased distribution, or fresh deposition, of aggregate or gravel;
- addition of raised features to islands to facilitate breeding, or shelter from easterly wind exposure;
- placement of 'decoy roosts' (e.g. cluster of decoy roosting knot or redshank); and
- reactive vegetation management such as targeted removal or spraying.

10.1.3 Conclusion

The Secretary of State considers proposed compensation packages on a case-by-case basis using the information available to him at the time and having full regard to the representations of all IPs, the Applicant and the recommendation of the ExA. The Secretary of State has sought considerable further information regarding the proposed compensatory measures from the Applicant, SNCB and other IPs in the consultation letters.

The Secretary of State particularly notes that the locations of all proposed compensation sites have now been specified, and that letters of comfort have been provided for the Wyberton Roads North and South sites and for Corporation Point; a new site introduced in response to the consultation letters. The potential area of land available at Wyberton Roads South has approximately doubled, and the Applicant has proposed a fourth site (Scrane End), however a letter of comfort has not been forthcoming for this site at the point of this HRA. If Scrane End is an option open to the Applicant, the Secretary of State notes that 67.7 ha of compensatory habitat could potentially be provided, with 52.7 ha for which letters of comfort from landowners have currently been provided (Wyberton Roads North ~ 17.6 ha, Wyberton Roads South ~ 14.8 ha, Corporation Point ~ 20.3 ha). This is substantially larger than the 19.3 ha indicated at the end of Examination. The Secretary of State is satisfied that the letters provide a sufficient level of comfort that land is available to the Applicant which could be secured for the purposes of compensation. The Secretary of State considers that the Applicant has demonstrated that there are suitable alternative land parcels available to it for the purposes of compensatory wetland habitat transformation if the preferred options became unavailable, and he agrees with the RSPB that having multiple land options as proposed by the Applicant increases confidence in the effectiveness of the compensation package. The Secretary of State considers that an appropriate quantum of compensation is defined in the CMD.

The Secretary of State has given careful consideration to the outstanding concerns of the NE and the RSPB and has pursued these in his consultation letters. The Secretary of State

considers that the responses and information provided by the Applicant, including the results of additional bird surveys undertaken on 29 and 30 October 2022 and descriptions of the nature of the proposed sites have advanced some of the matters which NE and the RSPB considered outstanding, and provide some comfort that the identified sites are appropriate and likely to be suitable to support bird features of The Wash SPA and Ramsar as required. Regarding the technical feasibility of wetland habitat creation, the Secretary of State considers that the Landscape Engineers Report on Compensation Sites (Appendix A of the Compensation Addendum) and other information and responses provided by the Applicant provide some comfort that this is achievable at the identified sites. He also notes the Applicant's view that the methods for creating wetland would not be novel or untested. Given NE and the RSPBs remaining concerns including regarding the feasibility of creating and maintaining functional wetland habitat at the identified sites, the Secretary of State places significant weight on the adaptive management of the proposed compensatory sites. The provision of ongoing monitoring and adaptive management is secured in Paragraph 5 (e – i) and Paragraph 8 of Schedule 11 of the DCO. This includes the requirement for the OCIMP to include the criteria for assessing the effectiveness of the compensatory measures, details of the proposed ongoing monitoring and reporting of effectiveness, including: survey methods; success criteria; adaptive management measures; timescales for the monitoring and monitoring reports to be delivered and details of the factors used to trigger alternative compensation measures and/or adaptive management measures. The results from the monitoring scheme must be reported at least annually to the Secretary of State and the OEG and made publicly available. This must include details of the use of each site by waterbirds (split into species accounts) to identify barriers to success and target the adaptive management measures, and details of any finding that measures have been ineffective in creating suitable roosting sites to support displaced birds, and in such case, proposals to address this. Any proposals to address effectiveness must thereafter be implemented by the Applicant as approved in writing by the Secretary of State in consultation with the OEG.

The Secretary of State supports the establishment of the OEG, the plan for the work of which must be submitted to and approved by the Secretary of State following consultation by the Applicant with the members of the OEG. This will include as a minimum the SNCB and the RSPB. The OEG must be consulted in developing the OCIMP, which must be submitted to and approved by the Secretary of State in consultation with the relevant local authority(s) and the OEG. The monitoring results will also be shared with the OEG, followed by discussion of any changes as part of the adaptive management strategy.

The Secretary of State notes that the updated timeline for implementation of compensatory measures (Figure 4-2 of the final CMD) allows for 2 years and 1 month of monitoring and adaptive management of the compensatory measures prior to the onset of the impact (hot commissioning of Line 2), and at least three years before the Project becomes fully operational. The updated timeline also allows for 5 months to secure compensatory sites, and 12 months for conceptual design in recognition of the potential complexities of water, habitat and species management, noting the need to potentially manage water levels and the range of habitats. The implementation timeline is also based on a worst-case situation where planning permission was required. The Secretary of State notes that NE [REP9-058] previously agreed that two years should be allowed between compensation site establishment and its need to provide compensation. He also notes NE's advice[35,36] that the proposed compensation locations should, in principle, be able to compensate for most SPA impacts, but that it could not advise with

certainty until the required surveys and compensation design are complete. The Secretary of State attributes substantial weight to the advice of the SNCB and agrees that there are remaining uncertainties. For example, potential disturbance from recreational users at the identified compensation sites was identified during the additional bird surveys, which the Applicant states may require additional fencing or barriers to reduce disturbance levels. However, he is satisfied that the detailed compensation designs can be finalised post-consent and that the measures secured in Schedule 11 of the DCO (and the final CMD) including adaptive management provide an appropriate mechanism for remaining uncertainties to be addressed when developing the compensation options and during their ongoing delivery, in consultation with the OEG. Therefore, the Secretary of State agrees with the Applicant[62] that the suggestion of NE and the RSPB for a requirement for compensation to be fully functioning prior to works commencing is not necessary in this instance. He also notes that, whilst subsequent consents and EPs may be required for the wetland habitat creation, these would be applied for during the 12-month post-consent design period, and that Paragraph 6 of Schedule 11 secures that no hot commissioning of line 2 may begin until two full years following the implementation of the measures set out in the OCIMP, as approved by the Secretary of State in consultation with the relevant local authority(s) and the OEG.

The Secretary of State notes outstanding concerns of NE and the RSPB regarding the role of the OEG. In response to the fifth consultation letter for example, the RSPB[85] stated that: "*the OEG should be able to report to the SoS to confirm it is satisfied that all measures have been undertaken by the Applicant to ensure suitable compensation measures will be in place and that the OEG is satisfied that all necessary ecological requirements will be met.*". The Secretary of State considers that he, as the competent authority under the Habitats Regulations, must be responsible for approving or not approving the CIMP but he acknowledges and highlights the importance of the OEG in shaping the development of the compensatory measures and advising him on their suitability at that time. Therefore, and in considering the RSPBs outstanding concerns regarding the DCO, the Secretary of State has made amendments to Schedule 11 which he considers clarify and reinforce the role of the OEG. This includes adding provisions which ensure that all members of the OEG and the relevant local planning authority or authorities must be consulted by the Secretary of State in the event that the Applicant requests to vary the CIMP once approved. The Secretary of State has also made amendments to require that he must consult all members of the OEG when deciding whether to approve the CIMP. The Secretary of State is satisfied that this provides an appropriate mechanism for the OEG to report its satisfaction, or otherwise, to the Secretary of State at that time.

The Secretary of State notes that compensatory measures themselves must not have a negative effect on the NSN as a whole[8]. Regarding the additional proposed measures of a dock-level roosting platform adjacent to the PoB and the creation of a like-for-like alternative roost at the MOTH, the Secretary of State acknowledges the ecological merit of these measures for birds and encourages the Applicant's ongoing investigation into them. However, he considers that based on the information and advice of NE currently available to him, the creation of a like-for-like alternative roost *may* have an adverse impact on qualifying features of The Wash and North Norfolk Coast SAC. He considers that further information is required, especially in light of concerns raised by the RSPB[94]. The likelihood of obtaining any other relevant consents and/or permissions and/or licences as may be required from other appropriate authorities, such as a Marine Licence and an associated HRA, is at this stage uncertain. The Secretary of State considers that, whilst this cannot currently be relied upon for providing compensation for the

reasons set out above, the Applicant may wish to explore the additional measures as part of developing the post-consent OCIMP in consultation with the OEG, subject to the conclusions of any necessary additional assessments and consents as may be required.

Overall, the Secretary of State considers that further studies and environmental appraisals are required to progress and refine all proposed compensatory measures, but he is satisfied that this is amenable to development post-consent and that a sufficient level of detail has been provided at this stage to give the required level of confidence that a package of measures which would protect the overall coherence of the NSN as required by Regulation 68 of the Habitats Regulations can be provided. Having made amendments, the Secretary of State is satisfied that Schedule 11 of the DCO provides an effective mechanism for securing and delivering compensatory measures.

10.2 The Wash and North Norfolk Coast SAC

No without-prejudice compensation measures were proposed by the Applicant with the Application or during Examination regarding collision risk to harbour seal of the Wash and North Norfolk Coast SAC. The Applicant explained [REP8-006] that no compensation was identified in relation to harbour seals as following the assessment of the additional data obtained it was concluded by the Applicant that the proposed mitigation measures, as set out in the ES/HRA Marine Mammals Addendum [REP9-020], would reduce any potential effects to not significant. The Secretary of State notes that this was despite NE as the SNCB and other IPs consistently raising concerns before and throughout Examination regarding AEoI, and the need for compensation due to impacts on this feature.

Taking account of the advice the SNCB, all IPs and the recommendation of the ExA, and after fully considering the Applicant's case and all further information provided, the Secretary of State cannot, beyond all reasonable scientific doubt, exclude an AEoI of The Wash and North Norfolk Coast SAC due to collision risk impacts on harbour seal (see Section 5.8.1).

10.2.1 Additional information

In his first consultation letter, the Secretary of State requested the Applicant to provide without-prejudice compensation measures with regards to collision risk impacts on harbour seal. This was requested in the event that the Applicant's response to the request to provide additional or enhanced mitigation measures for impacts to harbour seal proved unsatisfactory for the Secretary of State to exclude an AEoI (see Section 5.8.1). The Applicant responded on 11 November 2022[33] and did not provide without-prejudice compensation measures.

In commenting on the Applicants response to the Secretary of State's request for the Applicant to provide without-prejudice compensation measures, NE stated[35,36] that it agrees that the decline in harbour seal numbers is not likely to be as a result of vessel movements, the cumulative impacts to that ecological receptor from all the different pressures need to be considered and further negative pressures avoided, reduced, and mitigated. NE does not agree that a sufficiently precautionary approach has been taken and is in doubt over the effectiveness of the proposals to avoid, reduce and mitigate impacts.

In his third consultation, the Secretary of State again requested the Applicant to provide without-prejudice compensation measures. The Applicant responded on 10 March 2023. It provided a

Without Prejudice Habitats Regulations Assessment Derogation Case: Compensation Measures for Harbour Seal document[97] (the "harbour seal compensation document"). The Applicant proposes two measures.

Firstly, this is to provide funding of £10,000 per year throughout the operational lifetime of the Project for the rehabilitation of harbour seals in The Wash. This would be delivered through partnering with the Skegness Natureland Seal Sanctuary, which is a family-run facility that rehabilitates harbour seals into The Wash and covers an area from Anderby Creek to Boston. A letter of support from Skegness Natureland was provided at Appendix A, which concludes: *"The support that AUBP is committing to provide would be a substantial help, and would provide compensation for the potential effects of increased traffic in The Wash, as well as helping with Natureland's goals to improve facilities, allowing an even higher standard of seal care and rehabilitation."*. It is stated that it costs Skegness Natureland Seal Sanctuary £2000 on average to rehabilitate a seal. Therefore, the £10,000 annual funding equates to the rehabilitation of five seals per year on average for the operational lifetime of the Project (which is anticipated to be at least 25 years). Upon making of the DCO, the Applicant would enter into a contractual funding arrangement with Skegness Natureland.

The second measure is to support and contribute funding towards research to understand reasons for harbour seal population decline and threats. The Applicant states that it has been in contact with the Sea Mammal Research Unit ("SMRU") to investigate opportunities to support research, either through financial contributions and / or the provision of contemporary AIS vessel data to be used alongside tagging. The Applicant also states that, following discussions with LWT, a collaborative approach to researching the pressure levels of recreational vessels on the harbour seal population of The Wash could be adopted. The research options need to be coordinated with other ongoing research in the area and the Applicant states that the Project will provide support to facilitate this coordination through ongoing discussion with the LWT, NE and the SMRU to understand the research that is currently being undertaken and to ensure that the research funds are being used to maximise the potential to understand the changes within the local harbour seal population. The Applicant proposes to fund research up to the value of £10,000 per year for 3 years from the commencement of construction (anticipated to be 2025).

The updated draft DCO provided by the Applicant[90] included a new Schedule 12 as a mechanism to secure the compensation for harbour seal. The Secretary of State particularly notes Part 2 which states: *"No part of the authorised development may commence until a harbour seal compensation strategy has been submitted to and approved by the Secretary of State, following consultation with the relevant statutory nature conservation body."*.

and Part 3 which states: *"The strategy submitted for approval must be based on the measures set out in the harbour seal compensation document and must include—*

> *(a) details of the compensation measures to be provided including the timeframe the measures are to be provided for; and*
>
> *(b) evidence of how the compensation measures are to be funded and the legal mechanisms in place to ensure that that they are funded over the specified timeframe."*.

[97] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-001422-9.110-Without-Prejudice-Compensation-Case-for-The-Wash-and-North-Norfolk-SAC-for-Harbour-Seals.pdf

The Applicant engaged with NE via its Discretionary Advice Service regarding the proposed without-prejudice compensation case for harbour seal. NE responded[49] to the third consultation letter, stating: *"Natural England welcomes the proposals presented by the Applicant and agrees that the measures proposed would offset any losses of Annex II Harbour Seals from the Wash and North Norfolk Coast SAC, thus removing an AEoI. However, we advise that if required as compensation there will need to be a draft in principle condition to be included in the DCO, naming a plan is insufficient in this instance."*. The Applicant also states that the proposal to support and fund ongoing research into the causes of decline in The Wash harbour seal population was a measure previously suggested by NE.

The Secretary of State is satisfied, having regard to relevant guidance, that the proposed compensatory measures, specifically the species recovery and reinforcement provided by the rehabilitation of approximately five harbour seals per year on average, are appropriate to fully offset any residual negative effects to harbour seal resulting from the Project, so that the overall coherence of the NSN is maintained. Notably, he considers the measure to be ecologically relevant and in the same biographic region of the qualifying feature which would be affected and the measure itself will not have a negative effect on the NSN. The Secretary of State considers the rehabilitation of harbour seals to be additional to the normal/standard measures required for the designation, protection and management of protected sites under the Habitats Regulations[7] as targeted species recovery and reinforcement measures are not carried out by any statutory body responsible for the designation, protection and management of The Wash and North Norfolk Coast SAC. The Secretary of State is supportive of the proposals to fund and support research into the decline of the harbour seal population as a supplementary measure and encourages the Applicant to deliver this, but he considers that, as this proposal does not comprise an ecological measure as set out in relevant guidance, this cannot be considered a suitable compensatory measure under the Habitats Regulations at this time.

The Secretary of State has made several amendments to Schedule 12 of the DCO to satisfy himself that appropriate compensatory measures are adequately secured for the lifetime of the Project. The Secretary of State is therefore satisfied that Schedule 12 of the DCO provides an effective mechanism for securing and delivering compensatory measures. On the basis of the information available to him, the Secretary of State is satisfied that a package of measures which would protect the overall coherence of the NSN as required by Regulation 68 of the Habitats Regulations can be provided.

11 Conclusions

The Secretary of State has carefully considered all information presented within the Application, during the Examination and the representations made by all IPs, along with the ExA's Recommendation Report and all responses to the Secretary of States consultation letters.

The Secretary of State concludes that LSEs cannot be excluded at three protected sites, when the Project is considered alone or in-combination with other plans or projects. These sites were taken forward to an AA to consider whether the Project would result in any AEoI of these sites.

Having considered the information and analysis available to him, and having made a full assessment of the potential for an AEoI of each of the protected sites for which the potential for LSE was identified, taking into account the views of the Applicant, all IPs and the recommendation of the ExA, the Secretary of State concludes that an AEoI cannot be excluded beyond reasonable scientific doubt due to:

- alone effects due to vessel disturbance on:
  - the redshank and waterbird assemblages features of The Wash SPA and Ramsar, at the application site;
  - the waterbird assemblages feature of The Wash SPA and Ramsar, along The Haven; and
  - the DBBG, black-tailed godwit, oystercatcher, redshank, turnstone and waterbird assemblages features of The Wash SPA and Ramsar, at the MOTH.
- alone effects due to collision with vessels on the harbour seal feature of The Wash and North Norfolk Coast SAC.

The Secretary of State is satisfied that there are no feasible alternative solutions to fulfilling the objectives of the Project which would have a lesser effect on the protected sites. The Secretary of State is also satisfied that there are IROPI for the Project to proceed.

With regards to The Wash SPA and Ramsar, having sought further information and updates, the Secretary of State is satisfied on the basis of the information provided that appropriate compensatory measures can be secured which would maintain the overall coherence of the UK NSN. With regards to The Wash and North Norfolk Coast SAC, having sought without-prejudice compensatory measures for harbour seal the Secretary of State is satisfied that these measures are appropriate to fully offset any adverse impacts to harbour seal. The Secretary of State has made amendments to Schedules 11 and 12 to ensure that appropriate compensatory measures are secured for the lifetime of the Project. The Secretary of State concludes that a package of measures which would maintain the overall coherence of the NSN as required by Regulation 68 of the Habitats Regulations can be provided.

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