The Planning Inspectorate
Yr Arolygiaeth Gynllunio

REPORT on the IMPLICATIONS for EUROPEAN SITES

Proposed Boston Alternative Energy Facility

An Examining Authority report prepared with the support of the Environmental Services Team

Planning Inspectorate Reference: EN010095

24 February 2022

[This page is intentionally left blank]

TABLE OF CONTENTS

[This page is intentionally left blank]

1 INTRODUCTION

1.1 Background

1.1.1 Alternative Use Boston Projects Limited (AUBP) (the Applicant) has applied to the Secretary of State (SoS) for a development consent order (DCO) under Section 37 of the Planning Act 2008 (PA2008) for the proposed Boston Alternative Energy Facility (BAEF) (the application). The SoS has appointed an Examining Authority (ExA) to conduct an examination of the application, to report its findings and conclusions, and to make a recommendation to the SoS as to the decision to be made on the application.

1.1.2 The relevant SoS is the competent authority for the purposes of The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) for applications submitted under the PA2008 regime. The findings and conclusions on nature conservation issues reported by the ExA will assist the SoS in performing their duties under the Habitats Regulations.

1.1.3 This Report on the Implications for European Sites (RIES) compiles, documents and signposts information provided within the DCO application and throughout the Examination by both the Applicant and Interested Parties (IPs), up to Deadline 6 (D6) of the Examination (8 February 2022), in relation to potential effects on European Sites[1]. It is not a standalone document and should be read in conjunction with the Examination documents referred to. Where document references are presented in square brackets [] in the text of this report, that reference can be found in the Examination Library published on the National Infrastructure Planning website at the following link:

1.1.4 http://infrastructure.planninginspectorate.gov.uk/document/EN010095-000547

1.1.5 It is issued to ensure that IPs, including Natural England (NE), the appropriate nature conservation body (ANCB), are consulted formally on Habitats Regulations matters. This process may be relied on by the SoS for the purposes of Regulation 63(3) of the Habitats Regulations. Following consultation the responses will be considered by the ExA in making their recommendation to the SoS and made available to the SoS along with this report. The RIES will not be revised following consultation.

1.1.6 The Applicant has not identified any potential impacts on European sites in any European Economic Area (EEA) State in their Habitats Regulations Assessment Report (HRAR) [APP-111]. Only European sites within the national site network and Ramsar sites are addressed in this report.

[1] The term European Sites in this context includes sites within the UK's national site network as defined in the Habitats Regulations, and Ramsar sites, which are included as a matter of Government policy. For a full description of the designations to which the Habitats Regulations apply, and/ or are applied as a matter of Government policy, see the Planning Inspectorate's Advice Note 10.

1.2 Documents used to inform this RIES

1.2.1 The Applicant provided a HRAR with the DCO application entitled 'Boston Alternative Energy Facility – Environmental Statement Appendix 17.1 Habitats Regulations Assessment' [APP-111], together with screening and integrity matrices (HRAR Appendices A17.1.1 and A17.1.2, respectively). The Applicant's screening assessment concluded that there was the potential for likely significant effects (LSEs) on three European sites and therefore information to inform an appropriate assessment was provided in the HRAR. The Applicant concluded that there would not be an adverse effect on the integrity (AEoI) of any of the European sites and did not take the HRA any further at that stage.

1.2.2 NE, the Royal Society for the Protection of Birds (RSPB) and Lincolnshire Wildlife Trust (LWT) submitted Relevant Representations (RRs) containing comments relevant to HRA matters. NE's submission combined both their Written Representation (WR) and RR.

Examination

1.2.3 The Examination began on 7 October 2021.

1.2.4 The Applicant responded at Deadline 1 (D1), in their Comments on Relevant Representations [REP1-035], to the comments on HRA matters made by NE, the RSPB and LWT in their RRs. To address concerns raised in the RRs it also submitted an Outline Marine Mammal Mitigation Protocol (OMMMP) [REP1-025] and a number of addendums to the HRAR (and ES Chapter 17 [APP-091]) including Ornithology [REP1-026] and Marine Mammals [REP1-027].

1.2.5 A number of Interested Parties (IPs) made submissions at D1 in respect of HRA matters. NE submitted a 'Risk and Issues Log' [REP1-057]; the RSPB made submissions that included their WR [REP1-060] and 'Comments on Interested Parties Relevant Representations' [REP1-062]; LWT submitted a WR [REP1-055]; and the Marine Management Organisation (MMO) made a submission that included their comments on the RRs, their WR and their response to ExQ1 [REP1-056].

1.2.6 The ExA issued a first round of written questions (ExQ1) [PD-008] on 14 October 2021, responses to which were due for D2 (11 November 2021). Questions Q3.1.2 - Q3.1.20 related to HRA matters and the content of the HRAR and all were directed to the Applicant except Q3.1.10 which was directed to NE. Responses to these questions were received at D2 from the Applicant [REP2-008], along with its 'Comments on Written Representations' [REP2-006]. NE did not provide a response to Q3.1.10.

1.2.7 The Applicant submitted at D2 its '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' [REP2-013]. NE provided a number of HRA-related submissions at D2 including comments on the Applicant's D1 submissions in relation to marine mammals [REP2-043], comments on the Ornithology Addendum [REP2-045] and an updated Risk

and Issues Log [REP2-048]. The RSPB's D2 submissions included comments on the Applicant's responses to RR [REP2-051] and a note on the Ornithology Addendum [REP2-053].

1.2.8 In response to the ExA's questions and representations made by IPs during the Examination, the Applicant's D3 submissions included updated HRA screening and integrity matrices [REP3-018], an updated Outline Landscape and Ecological Mitigation Strategy (OLEMS) [REP3-007], and a document entitled 'Autumn Surveys of Waterbirds at the Principal Application Site' [REP3-019]. NE submitted a number of HRA-related submissions at D3, including an updated Risk and Issues Log [REP3-029] and a response [REP3-031] to the Applicant's derogation case. The ExA accepted a late D3 submission dated 20 November 2021 made by NE: 'Natural England's Response to ISH2 (Environmental Matters) Questions' [AS-001]. The RSPB submitted a number of HRA-related submissions at D3, including their comments on responses to ExQ1 [REP3-033] and a 'Note on breeding redshanks on The Wash' [REP3-034].

1.2.9 At D4 the Applicant submitted a response to the MMO and NE's queries about marine mammals [REP4-014] and a document entitled 'Noise Modelling and Mapping Relating to Bird Disturbance at the Principal Application Site' [REP4-015]. LWT submitted their comments on the Applicant's derogation case [REP4-021]. The RSPB submitted a final (updated) version of their comments on the Ornithology Addendum [REP4-027] and comments on the Applicant's derogation case [REP4-028]. They also submitted their response [REP4-025] to the Applicant's comments on their WR but stated that it was submitted for completeness as many of the Applicant's comments were addressed in REP4-027. The ExA accepted a late D4 submission made by NE dated 20 December 2021 which contained a summary of NE's position on the potential impacts on The Wash SPA passage and overwintering birds [AS-002].

1.2.10 The ExA issued a second round of written questions (ExQ2) [PD-010] on 11 January 2022, responses to which were due for D5 (25 February 2022).

1.2.11 At D5 the Applicant's submissions included its responses to ExQ2 [REP5-004] and a HRA update [REP5-006]. NE's submissions included comments on the Applicant's D3 and D4 ornithology documents [REP5-013] and on the updated OLEMS [REP5-017]. The RSPB submitted a summary of their position and key concerns [REP5-018] and their responses to ExQ2 [REP5-019]. The ExA accepted a late D5 submission from NE which contained their updated Risk and Issues Log [REP5-021].

1.2.12 At D6 the Applicant's submissions included an updated OMMMP [REP6-021], an updated compensation measures document to address comments made by NE and the RSPB and to reflect new information on the potential compensation sites [REP6-026], and a 'Change in Waterbird Behaviour Report' [REP6-034]. It stated that it intended to submit an update to its derogation case assessment of alternatives and SoCGs with NE, the RSPB and LWT at D7 [REP6-029]. The RSPB submitted comments on the responses to ExQ2 [REP6-041].

1.2.13 The ExA issued a third round of written questions (ExQ3) [PD-013] on 15 February 2022, responses to which were due for D7 (1 March 2022) (after the date that this RIES is issued).

Application Documents

- Draft Development Consent Order (dDCO) [APP-005]
- Environmental Statement (ES) Chapter 5: Project Description [APP-043]
- ES Chapter 17: Marine and Coastal Ecology [APP-055]
- ES Figure 10.2: Baseline (Noise) Measurement Locations and Assessment Receptors [APP-080]
- ES Figures 17.1 – 17.10: Designated Sites near the Facility [APP-091]
- ES Appendix 17.1: Habitats Regulations Assessment Report (APP-111)
- Outline Landscape and Ecological Mitigation Strategy [APP-123]
- Register of Environmental Actions and Commitments (REAC) [APP-125]

Relevant Representations

- LWT [RR-011]
- NE (combined RR and WR) [RR-021]
- MMO [RR-008]
- RSPB [RR-024]

Procedural Decisions and Notifications from the Examining Authority

- Examining Authority's first round of written questions (ExQ1) (Issued 14 October 2021) [PD-008]
- Examining Authority's second round of written questions (ExQ2) (Issued 11 January 2022) [PD-010]
- Examining Authority's third round of written questions (ExQ3) (Issued 15 February 2022) [PD-013]

Examination Documents

Deadline 1 (D1) (19 October 2021)

- AUBP – updated dDCO (Tracked) [REP1-002]
- AUBP – updated REAC (Tracked) [REP1-015]
- AUBP - Outline Surface Water Drainage Strategy [REP1-017]
- AUBP - Outline Marine Mammal Mitigation Protocol (OMMMP) [REP1-025]

- AUBP – ES Chapter 15: Marine Water and Sediment Quality [APP-053]
- AUBP - ES Chapter 17: Marine and Coastal Ecology and Appendix 17.1: Habitats Regulations Assessment - Ornithology Addendum [REP1-026]
- AUBP - Addendum to Environmental Statement Chapter 17 and Appendix 17.1: Habitats Regulations Assessment - Marine Mammals [REP1-027]
- Applicant's Comments on Relevant Representations [REP1-035]
- LWT - Written Representation [REP1-055]
- MMO - Deadline 1 Submission (including Comments on RRs, RR Summary and WR) [REP1-056]
- NE - Risk and Issues Log [REP1-057]
- RSPB - Summary of the Written Representations for the Royal Society for the Protection of Birds [REP1-058]
- RSPB - Written Representations for the Royal Society for the Protection of Birds [REP1-060]
- RSPB - Comments on Interested Parties Relevant Representations for the Royal Society for the Protection of Birds [REP1-062]
- RSPB - Summary of the Relevant Representations for the Royal Society for the Protection of Birds [REP1-069]

Deadline 2 (D2) (11 November 2021)

- AUBP - Applicant's Comments on Written Representations [REP2-006]
- AUBP - Comments on Examining Authority's First Written Questions [REP2-008]
- AUBP - Navigation Risk Assessment (NRA) [REP2-010]
- AUBP - Without Prejudice Habitats Regulations Assessment Derogation Case: Assessment of Alternative Solutions [REP2-011]
- AUBP - Without Prejudice Habitats Regulations Assessment Derogation Case: Imperative Reasons of Overriding Public Interest (IROPI) Case [REP2-012]
- AUBP - Without Prejudice Habitats Regulations Assessment Derogation Case: Compensation Measures [REP2-013]

- NE - D2 Submissions Covering Letter (including Responses to ExQ1) [REP2-041]
- NE - Comments on the Applicant's Deadline 1 Submissions in Relation to Air Quality [REP2-042]
- NE - Comments on the Applicant's Deadline 1 Submissions in Relation to Marine Mammals [REP2-043]
- NE - Comments on Habitats Regulations Assessment - Ornithology Addendum [REP2-045]
- NE - Risk and Issues Log [REP2-048]
- RSPB - Comments on the Applicant's response to the RSPB's Relevant Representation [REP2-051]
- RSPB - Note on Outline Surface Water Drainage Strategy [REP2-052]
- RSPB - Note on Ornithology Addendum [REP2-053]
- RSPB - Note on the Statement of Commonality [REP2-054]

Deadline 3 (D3) (6 December 2021)

- AUBP – updated OLEMS [REP3-007]
- AUBP - Habitats Regulations Assessment Screening and Integrity Matrices [REP3-018]
- AUBP - Autumn Surveys of Waterbirds at the Principal Application Site [REP3-019]
- AUBP - Written Summary of the Applicant's Oral Case at Issue Specific Hearing 2 (ISH2) on Environmental Matters (Part 1) [REP3-023]
- NE - Deadline 3 Submission Cover Letter [REP3-028]
- NE - Appendix H3: Natural England's Risk and Issues Log - Deadline 3 [REP3-029]
- NE - Appendix I2: Natural England's Written Summary of Oral Representations made at Issue Specific Hearing 2 (ISH2): Environmental Matters [REP3-030]
- NE - Appendix J1 to NE's Deadline 3 Submission: Natural England's Advice on BAEP Derogation Case - Alternatives and Compensation Measures [REP3-031]
- NE - Appendix I1 to Natural England's Deadline 3 Submission: Natural England's Response to ISH2 (Environmental Matters) Questions (20 November 2021) [AS-001]

- RSPB - Comments on Responses to the Examining Authority's First Written Questions (ExQ1) [REP3-033]

Deadline 4 (13 December 2021)

- AUBP - Response to the Marine Management Organisation (MMO) and Natural England's queries regarding Marine Mammals and Fish [REP4-014]
- AUBP - Noise Modelling and Mapping Relating to Bird Disturbance at the Principal Application Site [REP4-015]
- LWT - Comments on draft in-principle Habitats Regulations derogation case [REP4-021]
- MMO - Deadline 4 Submission [REP4-022]
- RSPB - Deadline 4 Submission Cover letter [REP4-024]
- RSPB - Response to the Applicant's Comments on our Written Representations submitted at Deadline 1 [REP4-025]
- RSPB - Final comments on the Ornithology Addendum [REP4-026]
- RSPB - Comments on draft in-principle Habitats Regulations derogation case [REP4-028]
- NE - Appendix B3: A Summary of Natural England's Position on the Potential Impacts to The Wash SPA Annex I passage and Overwintering Birds (20 December 2021) [AS-002]

Deadline 5 (25 January 2022)

- AUBP - Updated Habitats Regulations Assessment Screening and Integrity Matrices (tracked changes version of D3 version) [REP5-003]
- AUBP - The Applicant's Responses to the Examining Authority's Second Written Questions [REP5-004]
- AUBP - The Applicant's Responses to the Examining Authority's Commentary on the Draft Development Consent Order [REP5-005]
- AUBP - ES Chapter 17 Marine and Coastal Ecology and Appendix 17.1 Habitats Regulations Assessment Update [REP5-006]
- AUBP - Report on Outstanding Deadline 2, 3 and 4 Submissions [REP5-008]
- NE - Deadline 5 Submission Cover Letter [REP5-012]
- NE - Appendix B3: Natural England's Advice on Ornithology Documents Submitted at Deadline 3 and 4 [REP5-013]

- NE - Appendix D3: Natural England's Advice on Outline Air Quality and Dust Management Plan [REP3-015] and Air Quality Deposition Monitoring Plan [REP5-014]
- NE - Appendix J2: Natural England's Advice on Outline Landscape Ecological Mitigation Strategy [REP5-017]
- NE - Appendix H4: Natural England's Risk and Issues Log [REP5-021]
- RSPB - Summary of the RSPB's position and key concerns regarding the Boston Alternative Energy Facility Development Consent Order Application [REP5-018]
- RSPB - Responses to Second Written Questions [REP5-019]

Deadline 6 (8 February 2022)

- AUBP - Draft Development Consent Order (Version 3) (Tracked) [REP6-003]
- AUBP - Updated Outline Marine Mammal Mitigation Protocol (Tracked) [REP6-021]
- AUBP - Updated Navigation Risk Assessment (Tracked) [REP6-023]
- AUBP - Updated Without Prejudice Habitats Regulations Assessment Derogation Case: Compensation Measures (Tracked) [REP6-026]
- AUBP - Air Quality Deposition Monitoring Plan (Tracked) [REP6-028]
- AUBP – Cover Letter [REP6-029]
- AUBP - Comments on Interested Parties Responses to the Examining Authority's Second Written Questions (ExQ2) [REP6-030]
- AUBP - Second report on outstanding submissions [REP6-032]
- AUBP - Technical Note for Navigation Management and Ornithology [REP6-033]
- AUBP - Change in Waterbird Behaviour Report [REP6-034]
- AUBP - Comparison of Predicted Critical Load and Level Results Using Maximum P Emissions Limits and Realistic Emission Scenarios [REP6-035]
- RSPB - Comments on Responses to the Examining Authority's Second Written Questions (ExQ2) [REP6-041]

1.3 Structure of this RIES

1.3.1 The remainder of this report is as follows:

- **Section 2** identifies the European sites that have been considered within the DCO application and during the examination period, up to

24 February 2022. It provides an overview of the issues that have emerged during the Examination.

- **Section 3** identifies the European sites and qualifying features screened by the Applicant for potential LSEs, either alone or in combination with other projects and plans. The section also identifies where IPs have disputed the Applicant's conclusions, together with any additional European sites and qualifying features screened for potential LSEs during the examination.
- **Section 4** identifies the European sites and qualifying features which have been considered in terms of adverse effects on site integrity, either alone or in combination with other projects and plans. The section identifies where IPs have disputed the Applicant's conclusions, together with any additional European sites and qualifying features considered for adverse effects on integrity during the examination.
- **Section 5** provides an overview of the information submitted by the Applicant and Interested Parties in relation to derogation under the Habitats Regulations during the Examination.

2 OVERVIEW

2.1 European Sites Considered

2.1.1 The Proposed Development is not connected with or necessary to the management for nature conservation of any of the European sites considered within the Applicant's assessment.

2.1.2 The Applicant's HRAR identified the following European sites (and features) for which the UK is responsible for inclusion within the assessment:

Table 2.1: Sites Screened into the HRA by Applicant

Name of European Site	Features
The Wash SPA	Bar-tailed godwit
	Bewick's swan
	Black-tailed godwit
	Common goldeneye
	Common scoter
	Common tern
	Curlew
	Dark-bellied brent goose
	Dunlin
	Gadwall
	Grey plover
	Knot
	Little tern
	Oystercatcher
	Pink-footed goose
	Pintail
	Redshank
	Sanderling
	Shelduck
	Turnstone
	Wigeon
	Waterbird assemblage
The Wash and North Norfolk Coast SAC	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
	Sandbanks which are slightly covered by sea water all the time
	Harbour (common) seal
	Otter
The Wash Ramsar site	*Ramsar criterion 1:* very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels
	Ramsar criterion 3: inter-relationship between its various components including saltmarshes, intertidal sand and mudflats and the estuarine waters
	Ramsar criterion 5: Assemblages of international importance
	Ramsar criterion 6 below:
	Bar-tailed godwit
	Black-headed gull
	Black-tailed godwit*
	Common eider
	Curlew
	Dark-bellied brent goose
	Dunlin
	Golden plover*
	Grey plover
	Knot
	Lapwing*
	Oystercatcher

	Pink-footed goose
	Redshank
	Ringed plover*
	Sanderling
	Shelduck

2.1.3 NE did not suggest in their RR/WR [RR-021] that any other European sites should have been considered in the HRA.

2.1.4 Baseline information for the three European sites is provided in HRAR Section A17.3. The features of The Wash SPA and The Wash and North Norfolk Coast SAC identified in the HRAR are consistent with those listed within the Conservation Objectives documents on NE's website. The features identified for The Wash Ramsar are consistent with those listed on the Ramsar Information Sheet (RIS) (as updated in May 2005), with the exception of those starred (*), which the RIS identifies as species/populations identified subsequent to designation for possible future consideration under Criterion 6.

2.1.5 The Applicant did not explicitly identify the scope of the assessment in the HRAR. It is stated in para A17.3.1 that it was concluded that the above three European sites (as shown on ES Figure 17.1 [APP-091]) required assessment based on the preliminary findings of ES Chapter 17 [APP-055] and in accordance with comments provided in the Planning Inspectorate's Scoping Opinion [APP-066].

2.1.6 NE, the RSPB and LWT did not identify any other UK European site or European site features in their RRs that could be affected by the project.

2.2 HRA Matters Considered During the Examination

2.2.1 The Examination has focussed on a number of HRA matters. In addition to issues identified by IPs in their RRs, a number of additional issues were raised by IPs during the Examination. Several of these issues are yet to be resolved at the time of issue of this RIES.

2.2.2 The HRA matters considered during the Examination include:

- confidence in the Applicant's data and whether it is comprehensive;
- the scope of the assessment;
- the Applicant's conclusions in relation to impacts on particular bird species and harbour seal;
- the adequacy of the proposed mitigation;
- the level of detail on and sufficiency of the proposed compensation measures; and
- the Applicant's conclusion of no adverse effect on the integrity of the European sites considered in the assessment.

2.2.3 Commentary on these matters is included in Sections 3, 4 and 5 of this report.

3 LIKELY SIGNIFICANT EFFECTS

3.0.1 The Applicant's screening exercise and conclusions on likely significant effects are set out in HRAR Section A17.4. Potential construction and operational effects on the three European sites are identified in Section 17.4 and Appendix A17.1.1, Table A17-1-1-1 ('Effects considered within the screening matrices').

3.0.2 The Applicant addressed potential in combination effects (ICE) within HRAR Section A17.5. HRAR paragraph A17.5.8 explains that, due to the wide-ranging nature of the harbour seal, which may forage at considerable distance from their principal haul-out site, there is the potential for ICE 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; SCOS, 2018) and that have the potential to overlap temporally were screened in for further assessment.

3.0.3 The following 11 plans and projects, identified in Table A17-5, were included in the in combination assessment carried out by the Applicant:

- Boston Tidal Barrier;
- Port of Boston Maintenance Dredging & Disposal 2015;
- Wolferton Pumping Station;
- RNLI Skegness - Emergency Works Application for Beach Re-Profiling;
- The Wash Tide Gauge;
- 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.

3.0.4 Of the 11 plans and projects identified it was concluded that there was potential for ICE with one project, the Viking Link Interconnector, on SAC harbour seal, resulting from underwater noise (from piling and dredging) and an increased risk of vessel collision and this was taken forward for further assessment.

3.0.5 The scope of the in combination assessment was disputed by NE. They raised a number of concerns in Appendix C of their RR/WR [RR-021]. They considered that it was:

- incomplete, particularly in relation to baseline disturbance (such as arising from changes to the route of the England Coast Path (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 European site interest features, eg in relation to marine mammals, Norfolk Vanguard, Boreas, Great Yarmouth Port and Lowestoft Port and Operations and Maintenance for operational windfarms.

Further commentary on ICE is provided in Section 4 of this Report.

3.0.6 It was considered in the HRAR that the pathway for an effect on European sites (or functionally linked land) during the construction phase could be the delivery of materials to the application site using vessels via The Wash and The Haven. 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 Proposed Development;
- 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 Proposed Development site; and
- disturbance effects from an increase in vessel numbers.

3.0.7 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 Proposed Development;
- 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.

3.0.8 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 European 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 European sites as a result of the emissions from the Proposed Development.

3.0.9 HRAR paragraphs A17.4.17 – A17.4.19 provided justification for concluding that there would be no adverse effects on otters and confirm

that they were not considered further in the HRA. NE, in their RR/WR [RR-021], acknowledged that no evidence of otters was found in the surveys and advised that preconstruction surveys would need to be carried out to verify their presence or absence.

3.0.10 Paragraph A17.4.10 explained that impacts from the decommissioning phase were not considered as the wharf would remain in place after the Proposed Development is decommissioned and the vessel movements arising from the operational phase would cease.

3.0.11 Screening matrices are provided in HRAR Appendix A17.1.1 for each of the three European sites considered in the HRA. Each matrix includes footnotes that set out evidence to support the Applicant's conclusions in relation to LSEs.

3.0.12 As a result of the screening assessment, the Applicant concluded that the project is **likely to give rise to significant effects**, either alone or in combination with other projects or plans, on the qualifying features of The Wash SPA, The Wash and North Norfolk Coast SAC and The Wash Ramsar site, as identified in Table 3.1 below.

Table 3.1: Likely significant effects concluded by Applicant

European site	Qualifying feature	LSE identified
The Wash SPA	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	Disturbance (construction and operation)

	Waterbird assemblage Wigeon	
	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 Wigeon	Changes to noise levels (construction and operation)
The Wash and North Norfolk Coast SAC	Harbour (common) seal	Increased collision risk (construction and operation)
		Disturbance (construction and operation)
		Changes to noise levels (construction and operation)
		In combination effects (construction)

	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 Sandbanks which are slightly covered by sea water all the time	Changes to air quality (operation)
The Wash Ramsar site	Redshank Curlew Oystercatcher Grey plover Knot Sanderling Black-tailed godwit Ringed plover Black-headed gull Common eider Bar-tailed godwit Shelduck Dark-bellied brent goose Dunlin	Disturbance (construction and operation)

	Golden plover Lapwing	
	Redshank Curlew Oystercatcher Grey plover Knot Sanderling Black-tailed godwit Ringed plover Black-headed gull Common eider Bar-tailed godwit Shelduck Dark-bellied brent goose Dunlin Golden plover Lapwing	Changes to noise levels (construction and operation)

3.1 Summary of HRA screening outcomes during the examination

3.1.1 The Applicant's conclusion of potential likely significant effects on the three European sites and their qualifying features were not disputed by any IPs during the Examination. However, IPs considered that some additional features of the SPA and Ramsar site should be included and taken forward for further assessment. Commentary on this is provided in Section 4 of this report.

3.1.2 The Ornithology Addendum [REP1-026] contained an update to the screening exercise, based on additional survey data that had been collected during the Examination for both the application site and the mouth of The Haven (MOTH). As a result, a number of additional features were screened in for further assessment in order to inform an appropriate assessment.

3.1.3 At the application site non-breeding waterbirds that are a 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 non-breeding waterbird assemblage at the application site were screened in for further assessment. At the MOTH non-breeding waterbirds that are a feature or part of the non-breeding 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. Dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone, and the non-breeding waterbird assemblage were screened in for further assessment.

4 ADVERSE EFFECTS ON INTEGRITY

4.1 Conservation Objectives

4.1.1 The conservation objectives for the European sites taken forward for consideration of effects on their integrity, and discussed in this section of this report, are set out in HRAR paras A17.3.5 and A17.3.7. In the absence of conservation objectives for Ramsar sites, the same objectives were assumed in the HRAR for The Wash Ramsar site.

4.2 The Integrity Test

Overview

4.2.1 The following matters were considered in the HRAR in relation to potential effects on site integrity:

- underwater noise effects from piling and dredging activities;
- collision risk;
- visual disturbance due to vessels and lighting;
- increased noise levels; and
- potential emissions of NOx, SO2, and deposition of nitrogen, acid and ammonia on designated Annex I habitats.

4.2.2 In respect of the SPA and Ramsar site, potential effects on birds are considered arising from habitat loss; disturbance through 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.

4.2.3 In relation to the SAC, changes in vessel traffic and movements during construction and operation leading to increased underwater noise, disturbance and collision risk are considered for harbour seals; and changes to air quality during operation are considered for all of the SAC qualifying habitats.

4.2.4 HRAR paragraph A17.6.9 stated that piling works, likely to be the noisiest construction activity, should be undertaken between May to September to avoid effects on overwintering birds, as winter is the time when the numbers of feeding waterbirds peak. Condition 14 of the DML in dDCO Schedule 9 [REP6-003], relates to piling and provides that a method statement must be submitted to the MMO for approval that includes details of timing of piling activities.

4.2.5 HRAR para A17.6.26 explained that in order to mitigate the loss of the roosting and foraging habitats for waders, in particular redshank, works were proposed to enhance the habitat within a 'Habitat Mitigation Area' (HMA) in order to improve the existing roosting and foraging habitat. The HMA covers 1.5ha and is comprised predominantly of saltmarsh with several small tidal creeks. It is located approximately 170m to the south

east of the application site and over 250m away from the closest edge of the proposed wharf. The proposed works would involve the creation of shallow pools (10-15cm 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 [REP3-008] and secured by dDCO R5 [REP6-003], 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 related to the terrestrial parts of the application site but Appendix 1 contained (in addition to information on biodiversity net gain (BNG) measures) information on intertidal mitigation measures, including in respect of the HMA.

4.2.6 HRAR paras A17.6.115 and A17.6.135 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 Proposed Development 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 R14, which requires that a Navigation Management Plan (NMP) 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. It was concluded that, as the assessment indicated that (based on a worst case scenario (WCS)) 1% of the SAC population of harbour seals could be disturbed as a result of vessel noise during construction and operation (HRAR paras A17.6.116 and A17.6.136), there would be no significant disturbance and no AEoI of the SAC in relation to harbour seals.

4.2.7 It was concluded in HRAR para A17.6.105 that harbour seal that are a feature of the SAC would not experience an adverse effect as a result of piling and dredging activities. Notwithstanding, para A17.6.106 explained that a precautionary approach had been adopted and in relation to piling noise a pre-piling watch for marine mammals and soft-start and ramp-up procedures would be undertaken when piling activities were undertaken during high tides. This would be secured by Condition 14 of the Deemed Marine Licence (DML) in Schedule 9 of the dDCO [REP6-003]. No mitigation was proposed for collision risk for seals during construction and operation. It was concluded in the HRAR 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).

4.2.8 The Applicant concluded that the Proposed Development would not adversely affect the integrity of the European sites and their features with the implementation of the proposed mitigation measures. The Applicant's conclusions in relation to the sites and features were disputed by IPs.

4.2.9 In their RR/WR [RR-021] NE stated that, on the basis of the information submitted, it was not satisfied beyond reasonable scientific doubt that the Proposed Development would not have an adverse effect alone or in combination on the integrity of The Wash SPA in relation to redshank, and on The Wash and North Norfolk Coast SAC in relation to harbour seal arising from additional vessel movements and anchorage. NE considered that the Proposed Development would result in an AEoI on the European sites and advised that compensation measures would need to be considered as part of a derogation case once the alternatives and imperative reasons of overriding public interest (IROPI) tests had been met. NE's RR focused on the SPA and SAC but also referred to effects on the Ramsar site and SPA bird assemblages using the feeding/roosting area at the MOTH arising from increased vessel movements.

4.2.10 In respect of The Wash SPA, NE considered in their RR/WR that the location of the Proposed Development would potentially result in an AEoI on redshank through the following risk pathways: loss of foraging habitat on site through modification; loss of roosts on site through modification or disturbance; and loss of foraging habitat along The Haven which may be degraded through boat wash along the channel.

4.2.11 NE provided a Risk and Issues Log at D1 [REP1-057] which summarised the issues raised in its RR/WR and provided an update on discussions held with the Applicant and other IPs since the submission of the RR/WR. It explained that it would submit an updated Log at all deadlines rather than work on draft SoCGs and intended that a final SoCG would be submitted only once all issues had either been resolved or progressed as far as was possible.

4.2.12 LWT agreed [RR-011] with NE and considered that the information and data provided in the application was insufficient to demonstrate no AEoI of the SPA and SAC. They raised the same concerns as NE that worst case scenarios (WCSs) had not been considered within the HRAR and highlighted the potential for significant effects on breeding and wintering redshank and breeding harbour seal.

4.2.13 LWT reiterated their position in their WR [REP1-055] and stated that WCSs should be clearly defined. They considered that necessary compensation or mitigation should be proposed for potential impacts on harbour seals of piling, ship movements and anchorage, and for the loss of priority habitat (saltmarsh and mudflat) and the effect of that on protected species. They stated that any areas chosen as compensation sites should be assessed for potential disturbance impacts during construction and operation on the SPA and SAC features. They also stated that they welcomed the Applicant's decision to submit an in principle derogation case and that the necessary compensatory measures should be secured in the application. They acknowledged that the Applicant was aware of recently available information about a serious and rapid decline in the east coast harbour seal population and requested in relation to this that the Applicant provide noise modelling information on the piling required for the Proposed Development.

4.2.14 The RSPB expressed concerns in their RR [RR-024] about potential effects on the SPA and Ramsar site; they considered that the Applicant had

provided insufficient information to demonstrate no AEoI of these sites and their features, particularly in relation to bird survey data. They set out similar concerns to NE and LWT and confirmed that they also supported the views of NE and LWT on potential effects on the SAC, notably in relation to adverse effects on harbour seal. They considered that the Applicant should submit a detailed derogation package, which should include a full suite of relevant and secured compensation measures in order to protect the overall coherence of the National Sites Network (NSN). In their WR [REP1-060] they stated that a key concern was that the Applicant had provided limited justification for the Proposed Development to be sited in the identified location and had not set out alternative options to demonstrate that there were no less environmentally damaging alternatives. Their WR reiterated information contained in their RR and also contained updated data tables and subsequent analysis.

4.2.15 The RSPB concluded in their WR that in relation to effects of the application both alone and in combination with other plans and projects they did not agree that an AEoI could be excluded for the following sites and qualifying species:

- redshank, dark-bellied brent goose, shelduck, oystercatcher, black-tailed godwit, lapwing, curlew, turnstone, golden plover, ruff, and common tern associated with The Wash SPA;
- redshank, dark-bellied brent goose, shelduck, oystercatcher, black-tailed godwit, lapwing, curlew, turnstone, golden plover, ruff, common tern associated with the Wash Ramsar site; and
- harbour seal associated with The Wash and North Norfolk Coast SAC.

4.2.16 The MMO, in Section 4 of its RR [RR-008], stated that it deferred to NE as the Statutory Nature Conservation Body (SNCB) (now ANCB) for the HRA. It also noted that the Applicant had included the proposed HMA within the application as mitigation for the loss of bird foraging area and stated its agreement with NE that the HMA should be viewed as compensation, and must be proven to be effective and secured in the DCO. It also confirmed in its WR and 'Comments on Relevant Representations' contained in Annex 1 of its Deadline 1 Submission [REP1-056] that it deferred to NE and supported their position on the effects of the Proposed Development on the European sites.

4.2.17 NE commented [RR-021] that the assessment within the HRAR of pressures on The Wash SPA did not consider how the pressures could impact the conservation objectives for the site and the current condition of the features, which would provide the necessary context to inform the significance of any effects [RR-021]. The RSPB considered that there was a lack of consideration of the full suite of conservation objectives for the designated sites.

4.2.18 The Applicant stated [REP1-035] that it had provided assessments within the HRAR which systematically addressed the potential routes for impacts on each conservation objective for the designated sites and their features, and that further detail had been provided in the ES/HRA Ornithology and

Marine Mammals Addendums submitted at D1. It considered that the potential impacts on the conservation objectives had therefore been properly assessed.

4.2.19 NE stated at D2 [REP2-045], having reviewed the Ornithology Addendum, that there was no change to the advice set out in their RR/WR. They considered that for a number of individual bird species and for the non-breeding waterbird assemblage as a whole an AEoI could not be ruled out beyond reasonable scientific doubt.

4.2.20 The RSPB confirmed [REP2-053], in their initial comments on the Ornithology Addendum, their view that an AEoI could not be ruled out for the waterbird assemblage or any of the individual qualifying features of the SPA and Ramsar site, and that the comments made in their WR still applied. They considered that all the qualifying features of The Wash SPA/Ramsar site that had been recorded as present along the navigation channel should be considered in the appropriate assessment. They set out their reasoning for why they disagreed with the Applicant's conclusion of no AEoI for the following specifically: dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone, lapwing, golden plover, common tern and the waterbird assemblage. They stated in REP2-051 that they disagreed with the Applicant's conclusion that common tern and shelduck could be excluded from the appropriate assessment.

4.2.21 In response to the Applicant's response to ExQ3.1.18, the RSPB reiterated [REP3-033] their view at D3 that common tern should be considered in the assessment. This was on the basis that 30-40% of the SPA population of common tern breed at RSPB Freiston Shore and RSPB Frampton Marsh, and that ringing recaptures had shown that the birds moved between these two sites and would be foraging within The Wash and along The Haven. They commented that WeBS data had recorded large numbers of common terns congregating at the MOTH post-breeding.

4.2.22 In the Applicant's written summary of its case made at ISH2 [REP3-023], it confirmed that it had requested the relevant data from the RSPB about common tern and would assess the potential for a LSE. It queried whether the common tern were breeding inside or outside of the designated sites. The RSPB responded that they were breeding adjacent to the SPA boundary.

4.2.23 The Applicant provided an assessment of the potential effects of vessel disturbance on breeding common tern at the MOTH, based on the data supplied by the RSPB, in its D5 HRA update [REP5-006]. It concluded that vessel movements along The Haven are outside of the distance considered likely to cause disturbance to common terns in the breeding colonies at Freiston Shore and Frampton Marsh reserves (3.5km and 1.8km from the MOTH, respectively), and that the conservation objectives were unlikely to be compromised.

4.2.24 In relation to a request from the ExA at ISH2 for NE and the Applicant to expand on their positions in respect of disturbance to birds at high tide, NE responded [REP3-030] that the information on the assessment of impacts remained insufficient and that their concerns therefore remained unchanged to those set out in their WR and D1 and D2 submissions.

4.2.25 LWT stated at D4 that they supported the views of NE and the RSPB and remained of the opinion that insufficient information had been presented to demonstrate no AEoI on the features of the SPA, Ramsar site and SAC, specifically harbour seal [REP4-021]. They considered that the concerns raised in their WR (REP1-055), ie impacts to harbour seal resulting from piling, ship movements and anchorage, had not been addressed in the OMMMP and HRA Marine Mammals Addendum submitted by the Applicant at D1. They set out their view that an AEoI could not be ruled out for redshank at the application site and for the SPA assemblage at the MOTH.

4.2.26 NE stated [REP5-012] at D5 that they disagreed with the Applicant's rationale as set out in the evidence notes to the updated integrity matrices [REP3-018] for excluding an AEoI of the SPA, Ramsar site and SAC and that all their previous outstanding concerns remained. In response to ExQ2.3.1.7, they confirmed [REP5-012] that they remained unclear whether all of the ICEs had been identified and/or appropriately assessed, with the exception of air quality, which they considered has been addressed within REP1-028. They suggested that the required ornithological mitigation and monitoring be secured in the DCO through a mitigation and monitoring plan with an outline version submitted into the Examination.

4.2.27 The RSPB stated [REP5-018] at D5 that their concerns remained the same as set out in their WR [REP1-060] and their comments [REP4-026] on the Ornithology Addendum. They considered that it could not be concluded that the Proposed Development would not have an AEoI of the SPA and Ramsar site and that the derogation case was inadequate.

Survey data

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

4.2.29 The Applicant stated in 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 D2. The measures set out in the Addendum and the updated OLEMS included the provision of additional habitat at the MOTH, (eg, creation of a sufficiently large wetland area) to provide refugia and additional roost sites in close proximity to the existing roosting and bathing sites, as well as around the application site. The Applicant confirmed that data had been collected at both broad (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 HRA Ornithology Addendum). Additional data had been collated for the WeBS sectors around and along The Haven and was discussed in the Ornithology Addendum.

4.2.30 The Ornithology Addendum contained updated information and assessment in respect of baseline information on estuarine birds, and provided an update to the HRAR in respect of the SAC 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 2021 survey data for the application site (A3.1) and 2019 – 2021 survey data for the MOTH (A3.2). It confirmed that there were no changes to the designated features and assemblages or to the conservation objectives of the designated sites identified in the HRAR.

4.2.31 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.

4.2.32 The Applicant explained that data had been collected over two full wintering bird seasons (October to March 2019/20 and January to March 2020/21, 18 visits in total) and two full breeding bird seasons (April to June of 2020 and 2021, 6 visits in total), therefore comprising two years of ornithological activity. Collection of data for passage numbers included two years of spring passage and one year of autumn passage. Changes in Behaviour (CIB) observation sessions quantifying bird responses to vessel movements at the application site were carried out on six dates in Winter 2020/21 and Summer 2021. CIB observation sessions were completed at the MOTH over two full winter seasons: November to March 2019/20, and January to March 2020/21, and also in May to July 2021 to quantify response to vessel traffic of waterbirds present during spring passage and the breeding season (although it was noted that The Wash SPA does not include any species that are part of a passage population).

4.2.33 NE 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 [REP3-029]. 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.

4.2.34 In NE's response [AS-001] to ISH2 Question 4.d, about whether they agreed that the Applicant had identified all of the relevant European sites and features in the HRA, they highlighted that the additional survey data and assessment only related to The Wash SPA over-wintering birds and didn't 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.

4.2.35 The Applicant stated in its written summary of its case at ISH2 [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 D3 [REP3-019]. 12 surveys of Sections A and

B (the area of the application site and the area adjacent to it, respectively) at high and low tides were undertaken in August, September and October 2021. The surveyed areas are depicted on Figure 1. The number of individual bird species recorded in each survey is presented in Tables 1 – 5 and their locations are depicted in Appendix 1 Figures 5 - 16. It was considered that most birds did not occur in significant numbers, however Ruff 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 5-year means. It was concluded in the survey report that these count numbers were significant.

4.2.36 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. They considered that further work was required to ensure that the impacts were avoided, reduced, mitigated and compensated for if necessary. They advised that measures proposed to manage risks to redshank would also manage risks to ruff.

The Wash SPA and Ramsar site - Disturbance effects on bird species - general

4.2.37 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 raised the same concern. NE also considered that seven SPA species were likely to be disturbed by increased boat traffic within The Haven, ie dark bellied brent goose, shelduck, lapwing, dunlin, black-tailed godwit, redshank and turnstone.

4.2.38 NE disagreed with the Applicant's characterisation of the period of disturbance being limited to 1-3.5 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. They 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 [RR-024] also raised concerns that the effects of pilot boat movements had not been fully considered in the assessment.

4.2.39 The Applicant responded in 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 will not be able to 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 (and ES) 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].

4.2.40 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].

4.2.41 The Applicant responded in 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. They also explained that a fuller assessment had been undertaken of this issue and was reported in the Ornithology Addendum.

4.2.42 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 Proposed Development would not significantly affect fishing vessel movements. It explained that it was working on a NRA, to be provided at D2, which would confirm the ability of fishing vessels to transit The Haven as currently, and that mitigation would be provided in the form of a 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 the 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.

4.2.43 The RSPB raised a concern at D3 [REP3-033] that the NMP may contain information that was relevant to HRA but would not be produced until post-consent. They considered that a draft should be made available to the Examination.

4.2.44 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 800m of The Haven as identified by the RSPB in their RR. It included the individual features and the assemblage waterbird species of the SPA and Ramsar site.

4.2.45 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 Port of Boston anchorage area, in addition to the application site and the MOTH. They 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. They considered that 2 years minimum of survey work was needed in order to cover all seasons and to account for annual variations. They were of the view that 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.

4.2.46 The Applicant noted that the central part of The Haven (ie, between the application site and the MOTH) 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 is narrow, does not have extensive areas of saltmarsh, is not recognised by any designations for its bird interest and has a footpath extending along the stretch which has the potential for causing disturbance, particularly to roosting birds.

4.2.47 In response to ISH2 Item 5 a) (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 part of the channel. 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 channel. It considered that there was a lack of evidence to demonstrate that the central part of The Haven 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.

4.2.48 The Applicant considered that it had demonstrated through its surveys that under baseline conditions a moderate number of birds roosting at the MOTH (mostly qualifying interests 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. It stated that 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.

4.2.49 It considered that according to the assessment presented in Appendix 1 of the Ornithology Addendum [REP1-026] the additional disturbance caused by the Proposed Development 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 proposal.

4.2.50 The Applicant addressed NE's and the RSPB's concerns about energy usage by birds disturbed by vessel movements in Section 7 of its D5 HRA Update [REP5-006]. Section 7.2 provides estimates of worst case energy budget expenditure arising from the Proposed Development for redshank, black-tailed godwit, dark-bellied brent goose, lapwing and golden plover at high tides. Based on research by Collop et al. (2016), 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, dark-bellied brent goose, 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 Proposed Development 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 dark-bellied brent goose at 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 Proposed Development 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.

4.2.51 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 Proposed Development 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.

The Wash SPA and Ramsar site - Disturbance to birds at the MOTH

4.2.52 NE stated [RR-021] that they had significant concerns about the feeding/roosting area at the MOTH. They 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. They 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. They considered that the data suggested that this results from visual/noise disturbance from the boats rather than from their wake.

4.2.53 The Ornithology Addendum [REP1-026] considered potential effects at the MOTH on the following bird species (for which it had identified an LSE) arising from vessel disturbance (visual, presence and noise during both construction and operation): dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone and the waterfowl assemblage.

4.2.54 In respect of the SPA population of these species it reported that the WeBS data showed that during high tide periods the MOTH area held:

- 5-8% of brent goose;
- 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.

4.2.55 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 and therefore they were not present when subsequent vessels passed. It was considered that 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 1km (apart from one occasion when oystercatcher were observed to fly 3.3km), within the MOTH and in the wider local area. It was considered that the energy expenditure associated with a single flight to a location less than 1km 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 Proposed Development 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 it was concluded that as lapwing and golden plover were not cited as The Wash SPA individual qualifying features, despite occurring in numbers considerably higher than many of the individual features, the small to moderate local-scale changes that could affect these two species as a result of increased vessel disturbance would not have an adverse effect on the conservation objectives of the SPA.

4.2.56 NE stated at D2 [REP2-045] that it was agreed 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. They noted that Appendix A1 Table 2 of the Ornithology Addendum indicated that, of the SPA waterfowl 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. They 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).

4.2.57 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 Proposed Development had been assessed. The proposed BNG measures would increase the roosting habitat available to waterbirds, as set out in the OLEMS [REP3-007].

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

4.2.59 NE also advised that the titles within Table 5-1 (Screening of SPA qualifying species for further assessment) 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 may result in a change to the species to be taken forward for appropriate assessment. They 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.

4.2.60 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 'Changes in Behaviour' surveys of bird responses to vessels did not include counts of birds on the ground.

4.2.61 In their final comments on the Ornithology Addendum the RSPB noted that no surveys had been conducted at the MOTH during August, September & October [REP4-026]. They 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 to moult before onward migration.

4.2.62 The RSPB stated [REP5-018] that the Applicant's surveys had demonstrated that there is existing disturbance to waterbirds using the MOTH, and considered that any additional disturbance would add to this pressure. Their greatest concerns related to dark-bellied brent goose, shelduck, oystercatcher, golden plover, lapwing, turnstone, redshank, black-tailed godwit, and the waterbird assemblage. They believed that 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. They also considered that evidence should have been provided on waterbird usage between the MOTH and the Port of Boston anchorage area.

4.2.63 The Applicant provided an assessment of effects on the SPA/Ramsar site bird assemblage based on the WeBS counts and the Applicant's high tide baseline observation sessions (November 2019 – March 2021) in its D5 HRA Update [REP5-006]. It anticipated that 1% of the 5-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 Proposed Development would not compromise the conservation objectives for the assemblage. This was based on the premise that the assemblage birds that use 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 relocate to a nearby alternative location (within 1km) or 'quickly' (within approximately two minutes) return to the original roost site once the vessel has 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.

4.2.64 The Applicant submitted an additional survey report [REP6-032] at D6 in respect of changes in waterbird behaviour due to vessel movements at the MOTH (although it includes information on bird movements at the wharf site). Five surveys were undertaken between January and November 2021, so included the Autumn migratory period. The survey area is depicted on Figure 1. The survey recorded the vessel types, all bird species that changed their behaviour due to the presence and or wash of river traffic, flight distances where birds were displaced, and flight time of birds that returned to their original location.

4.2.65 The results are set out in Section 4 of the survey report. Table 2 presents the peak count for all species where a behaviour change was observed. 21 bird species changed their behaviour due to the presence of boats or boat wash. Based on the latest available WeBS data six species were observed to be disturbed at levels over 1% of The Wash 5-year average; dark-bellied brent goose (8.49%), ruff (65.22%) lesser black backed gull

(8.21%), common sandpiper (8.11%), oystercatcher (4.03%), lapwing (3.70%) and great crested grebe (1.16%). Changes in behaviour were seen to be caused by boat presence for 99.88% of the total birds across all the surveys (stated as three rather than five surveys) with disturbance from boat wash disturbing 0.12% (100% of which was from pilot boats). Large cargo ships, pilot boats and small fishing vessels were responsible for disturbance of 52.90%, 47.04% and 0.06%, respectively of all birds. 100% of the birds present were disturbed by the large cargo ships. The report recommended that the main focus on mitigation should be for disturbance to wading birds, dark-bellied brent goose and ruff.

The Wash SPA and Ramsar site - Disturbance to birds at the application site

4.2.66 In respect of The Wash SPA NE considered in their RR/WR [RR-021] that the location of the Proposed Development would potentially result in an adverse effect on redshank through the loss of roosts on the site as a result of modification or disturbance.

4.2.67 In relation to disturbance to birds from piling during construction the Applicant submitted an updated version of the dDCO at D1 [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, ie, May – September, as set out in the REAC.

4.2.68 NE acknowledged [RR-021] the Applicant's justification for a 250m monitoring zone for noise and visual disturbance effects on birds and considered that this appeared to be appropriate for the Proposed Development considering its distance from the SPA and the reduced numbers of birds using the upper stretches of The Haven, However, it noted that data had shown that numbers of ruff and redshank in Sections A and B had exceeded the 1% threshold during monitoring, and requested assurance that it remained appropriate for ruff and redshank.

4.2.69 The Applicant responded within 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.

4.2.70 In REP2-006 the Applicant referred to information contained in ES Chapter 17 [REP1-026] about Environment Agency (EA) monitoring of ground investigation (GI) works in 2019, and the resulting suggestion by the EA that 250m was a more reasonable distance (than 500m) 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 250m away. The Applicant considered this to be a sound approach and that its proposed mitigation, ie monitoring and stopping works if a threshold number (to be agreed with NE) of birds was exceeded within a 250m radius, would successfully reduce disturbance to waterbirds.

4.2.71 In NE's response [AS-001] to ISH2 Question 4.b, they stated that the comments made in their D1 and D2 Risk and Issues Log [REP2-048] remained unchanged, ie they were still awaiting demonstration that the proposed 250m 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-precautionary enough.

4.2.72 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.

4.2.73 In response to NE's comments in their RR/WR [RR-021] and REP2-048 about the proposed 250m buffer zone, the Applicant submitted a technical note, 'Noise modelling and mapping relating to bird disturbance at the Principal Application Site' at D4 [REP4-015]. It is described as providing further quantitative information on the predicted noise levels associated with each phase and scenario of the Proposed Development, 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 250m monitoring zone).

4.2.74 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 Proposed Development.

4.2.75 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 250m monitoring zone, except during piling in the construction period. Caution noise levels were predicted to occur over at least 300m 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.

4.2.76 NE noted [REP5-013] that piling represented the highest risk activity. They agreed the proposed seasonal restriction would limit exposure to over-wintering birds and expressed support for it as a mitigation measure as long as it was appropriately secured. However, they 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. They agreed that operational noise was unlikely to be detrimental to the redshank roosting site.

4.2.77 NE agreed with the Applicant's proposed monitoring during construction of a 250m 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 250m from the point source and advised that the risk zone for piling activities should extend to 450m until bird responses were known. They queried how this mitigation would be secured and suggested it should be in the DCO/DML or a named plan.

4.2.78 The Ornithology Addendum considered potential effects at the application site on redshank and the non-breeding waterbird assemblage (for which it 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.

4.2.79 In respect of vessel disturbance of redshank in Section and Section B (shown on Addendum Figure 3-2), 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.

4.2.80 It was observed that the response of redshank to vessels was predominantly to fly to an alternative site, estimated to be between 100m - 400m 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 2 birds compared to 13 that moved elsewhere; for the other cargo vessel 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.

4.2.81 It was explained 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 – 300m 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.

4.2.82 It was considered 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, it was explained that, 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 3.5km 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 Proposed Development began.

4.2.83 It was concluded that roosting redshank at the application site that are disturbed by vessels would be able to either resettle on the roosting area at 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.) that demonstrated that redshank refuges (roost sites) should be no more than 3.5km apart to be within reach of at least 90% of individuals.

4.2.84 It was concluded that the additional vessel disturbance resulting from the Proposed Development 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 of the increase in vessel numbers resulting from construction and operation. 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

1km 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.

4.2.85 In relation to the non-breeding waterbird assemblage at the application site, Table 6-3 of the Ornithology Addendum presented the sources and rates of vessel-based disturbance to birds at the application site (based on the Changes in Behaviour 2021 survey data contained in Addendum 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.

4.2.86 It was considered apparent that there were alternative roost sites available to some of the assemblage species, (ie bar-tailed godwit, cormorant, curlew, herring gull, lesser black-backed gull, ruff and shelduck), which relocated 200-400m 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 500m 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.

4.2.87 It was stated that the proposed habitat offset measures and re-use of roosting rocks 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.

4.2.88 It was considered that the potential additional vessel disturbance from the Proposed Development 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.

4.2.89 In respect of both the MOTH and the application site it was concluded that, based on the additional bird survey data, there was no change to the conclusion in the HRAR of no AEoI on the SPA.

4.2.90 In their initial comments [REP2-053] on the Ornithology Addendum the RSPB requested that the Applicant provide noise contour maps

representing the baseline and for noise resulting from the construction and operation of the Proposed Development.

4.2.91 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 D3 [REP3-007]. It had been revised to take account of the noise monitoring results and included information on proposed noise mitigation and monitoring measures.

4.2.92 In a summary of NE's position (post-D4) on the potential impacts on the SPA passage and overwintering birds NE 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 [AS-002]. NE confirmed that its advice in respect of the need to mitigate direct habitat loss arising from the construction of the Proposed Development remained unchanged. They considered that if the impacts to the functionally linked land could be remedied within the existing functionally linked land the Applicant would have mitigated risks to the SPA features. However, they advised that if the proposed mitigation didn't satisfactorily minimise the impacts it would become an additional compensation issue.

4.2.93 The Applicant confirmed its view 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.

4.2.94 The RSPB acknowledged [REP5-018] the latest survey reports 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, ie shelduck, oystercatcher, turnstone, lapwing, black-tailed godwit, curlew and the waterbird assemblage. They 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. They were of the view that it should be included in the compensation measures within the Applicant's derogation case.

4.2.95 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, which formed part of the SPA non-breeding waterbird assemblage, had been considered in the (shadow) appropriate assessment. Dunlin, turnstone, oystercatcher, black-tailed godwit, curlew, grey plover and shelduck (SPA features) had not been included as counts had recorded them infrequently and in small numbers.

The Wash SPA and Ramsar site - Disturbance to birds along The Haven

4.2.96 NE stated (post-D4) 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 [AS-002]. They 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. They 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 Proposed Development.

4.2.97 The Applicant responded [REP5-008] that long term management of mitigation areas had been addressed in the updated OLEMS submitted at D3. It explained that surveys of those areas would be undertaken once they were in place but noted that their success would only be known once construction had started as prior to this the birds would still be using the area.

4.2.98 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 dark-bellied brent goose, 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. They 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. They believed that a minimum of 12 months survey work would be required to develop the evidence base, followed by an additional 12 months survey work to inform annual variation in waterbird use.

4.2.99 The Applicant addressed the concerns about impacts on birds using The Haven between the application site and the MOTH, 'the central part' of The Haven, at D5 [REP5-006]. It explained that as data for this stretch of The Haven was not available it was undertaking Winter 2021/2022 counts of SPA and assemblage waterbirds. It stated that in the absence of information on whether SPA populations would be impacted it had assumed that this stretch of The Haven qualified as SPA functionally linked land. It concluded that the proposed biodiversity BNG/compensation measures would provide alternative habitat for any birds that were displaced by any additional disturbance. It confirmed that the winter bird abundance and distribution surveys were being undertaken from December 2021 to March 2022 and the data would be made available during late March 2022. 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.

4.2.100 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]. It also noted that it was unclear whether IPs would be able to comment on the data from the winter bird surveys prior to the close of the Examination.

Habitat Mitigation Area

4.2.101 NE raised [RR-021] a number of other concerns, including that the area proposed as mitigation for effects on redshank which are part of the SPA population (the HMA), involving the addition of coastal lagoons to existing areas of saltmarsh, would constitute a compensation rather than a mitigation measure. In addition, as they considered that the Proposed Development would result in an AEoI of the European sites, they advised that compensation measures would need to be considered as part of a derogation case once the alternatives and imperative reasons of overriding public interest (IROPI) tests had been met. They advised, in Appendix G of their RR, that the Court of Justice of the European Union (CJEU) had held that the loss of SPA habitat cannot be mitigated for by "not reducing the total SPA habitat or enhancing it" and that instead compensatory measures should be considered. They considered that the required BNG proposals that had been proposed would address the loss of priority saltmarsh habitat but may not provide the required compensatory habitat for roosting and foraging redshank, and conversely that the proposed redshank compensation measures may result in further loss of saltmarsh habitat depending on their location.

4.2.102 NE expressed concern that the required works for the Habitat Mitigation Area, such as reprofiling of some low banks and flattening/removal of an "old bank", could also affect the surrounding saltmarsh, which is functionally linked to The Wash SPA habitat, and therefore could affect the SPA species. They raised concerns about the resulting loss of saltmarsh in the HMA from the creation of the pools/scrapes in addition to the 1ha lost due to construction of the wharf and berth. They also expressed concerns about the effectiveness of the proposed HMA for providing sufficient mitigation for effects on qualifying features of the European sites, and also about the assessment of effects arising from its construction and existence. They 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.

4.2.103 The Applicant stated in REP1-035 that further detail was provided in the Ornithology Addendum [REP1-026] and the updated OLEMS, and that the derogation case would cover potential mitigation measures. They explained that the information in the Addendum would comprise the basis for the compensation discussion.

4.2.104 NE considered [RR-021] that the Applicant had not recognised that the disturbance to birds in The Haven during construction and from vessels

during operation would also apply to birds using the HMA. The RSPB raised a concern [RR-024] that more information was needed to demonstrate that noise and visual disturbance during and after construction and recreational disturbance would be effectively managed to provide sufficient confidence that the proposed alternative roost would be effective for the full period of time non-breeding redshank were present, and so avoid the risk of an AEoI of the SPA and Ramsar site.

4.2.105 The Applicant responded [REP1-035] that the HRA had considered the additional disturbance to the HMA in relation to the distance of the habitat measures from the edge of the wharf and how redshank are affected by disturbance, using the bird mitigation toolkit. It stated that the works were planned for at least 250m away from the wharf edge as discussed in paragraph 17.8.206 of the HRAR. It also explained that further work had been undertaken in relation to this including survey work and assessment of energy budgets for disturbed birds and was included in the Ornithology Addendum.

4.2.106 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. They 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 Habitat Mitigation Area, and questioned if the location of the HMA was appropriate. The RSPB 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.

4.2.107 The Applicant agreed [REP1-035] that ongoing maintenance would be necessary and explained that it would be detailed further in the updated OLEMS to be submitted at D2. 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.

4.2.108 NE confirmed at D5 their agreement that there would be no effect on SPA features [REP5-012] 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.

4.2.109 NE noted [RR-021] that the loss of feeding grounds for 14-27 redshank 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. They noted that it was unclear whether The Haven is 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. They considered that it may, or may not be, of low risk to integrity and that the Proposed Development should aim to compensate for this loss to mitigate impacts on the SPA.

4.2.110 The Applicant responded [REP1-035] that the proposed mitigation provided additional foraging areas as well as roosting areas to take

account of the loss of intertidal feeding habitat. It explained that these foraging areas would be provided through reinstatement of overgrown shallow ponds within the HMA but would be situated far enough away to be outwith the prescribed disturbance levels. The Applicant considered that with these measures in place there would not be an AEoI and thereby no requirement for compensation. The Applicant confirmed, however, that a 'without prejudice' Habitats Directive derogation case was also being prepared which would include compensation measures where considered appropriate.

4.2.111 The Applicant also stated that recent analysis of the Ornithology Addendum had raised questions about whether the redshank at the application site were all part of the SPA assemblage and that although there was likely to be some mixing of populations the extent was unknown. It agreed that the distance between The Wash 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 present at the application site during high tide roosting could include individuals which foraged within the SPA, and conversely that redshanks foraging at the application site when mudflats are exposed could include individuals which roosted within the SPA. The Applicant stated that on this basis it had assumed in the HRA and the Ornithology Addendum that redshanks present at the application site have connectivity with the SPA.

4.2.112 NE noted at D2 [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 that information on how the HMA would be managed had not yet been provided. They also commented that 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. They noted that 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 Wash SPA was low if the mitigation was secured and proved to be suitable roosting habitat but still had significant doubts about its efficacy. They 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.

4.2.113 The RSBP [REP2-051] reiterated their 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.

4.2.114 The Applicant stated [REP2-006] that it did not consider that the provision of the HMA should necessarily be defined as compensation, and 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 D3. 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.

4.2.115 The RSPB stated at D3 [REP3-033] that their 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.

4.2.116 The Applicant submitted an updated OLEMS at D3 [REP3-007]. It reflected the outcomes of modelled noise levels 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 250m of construction activity, and actions to be taken in the event that 1% or more of the 5-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 and maintenance measures, such as of the condition of the saltmarsh habitat and scrapes in the HMA, would be undertaken.

4.2.117 In their 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. They requested that further details of the works were provided, including on the methods to be used and the volume of material to be removed. They also noted that the frequency of the proposed post-construction surveys was unclear.

4.2.118 The RSPB remained concerned at D5 that the HMA [REP5-019] was described as mitigation rather than compensation. They stated that they would be unable to agree the SoCG if this did not change.

The Wash SAC - Harbour seals – collision risk

4.2.119 NE advised [RR-021] that recent monitoring of The Wash harbour seals 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. They queried from where the predicted area of impact (10.46 km^2) for harbour seals was derived and stated that the assessment of collision risk was based on outdated survey data (Russell at al, 2017). The HRAR refers to the 2017 (Russell) data and also to 2018 seal count data (Thompson) in relation to potential effects on seals arising from disturbance and collision risk. HRAR para A17.6.95 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.

4.2.120 The Applicant explained [REP1-035] that 10.46km^2 represented the total area of the Port of Boston anchorage area within The Wash, the shipping channel between the anchorage within The Wash and the Proposed Development area (as described in the HRAR and ES Chapter 17 and shown on Figure 17.6 [APP-055]). 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 provision of adequate 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 (draft DCO Schedule 2, paragraph 14).

4.2.121 The Marine Mammals Addendum [REP1-027] included an update to the assessments to reflect the most recently published baseline information (Special Committee on Seals (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.). However, it explained that presented predicted distribution maps according to relative density (ie, percentage of the total at sea population in each 5km x 5km grid at any one time) whereas Russell et al. presented absolute density (ie, number within each grid at any given time). It confirmed that the assessments in the Addendum relied on Russell et al. as it was considered that it represented the best available information on absolute harbour seal densities. That indicated that harbour seal usage was high in and around the shipping channel and the anchorage area (3.189/km^2), and lower within The Haven itself (0.80/km^2).

4.2.122 NE welcomed [REP2-043] the Applicant's consideration of the most recent seal count data. However they 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 they advised that a more precautionary approach must be taken and impacts which could further hinder the restore objective should be avoided, reduced or mitigated. They noted that the Marine Mammals Addendum and OMMMP [REP1-025] relied on Russell et al. (2017) rather than Carter et al. (2020) and requested that the assessment was updated accordingly.

4.2.123 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%). It 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.

4.2.124 At D4 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 worst-case scenarios had been applied to all of the assessments.

4.2.125 In relation to NE's comment that the harbour seal density numbers should have been based on Carter et al., 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. provided the best available information.

4.2.126 In respect of the Applicant's proposal to have an observer on vessels as mitigation for potential collisions, NE considered in their RR/WR that due to the elevation of the vessels and need for views directly adjacent to the vessel in addition to the 360 degree views this measure was unlikely to provide the required mitigation.

4.2.127 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 4 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 for all vessels due to minimum speed requirements for safety and manoeuvrability, and that therefore the vessel speed limit needed to be 6 knots in both The Wash and The Haven.

4.2.128 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 (Permanent Threshold Shift (PTS)) to marine mammals resulting from the construction and operation of the Proposed Development. It consolidated measures contained within the dDCO. These included: observers 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 6 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.

4.2.129 NE commented on the Applicant's proposed mitigation measures at D2 [REP2-042]. They acknowledged that vessel crew members have the necessary training to be a Marine Mammal Observer (MMOb) but did not support having a non-dedicated MMOb as mitigation for a number of reasons: they would undertake this duty when not undertaking other work; due to the size of the vessels, they would not have 360-degree views looking away from the vessels and vertical views downwards adjacent to the vessel; and the cargo would be likely to obstruct the scan across the vessel. The LWT sough clarification [REP4-021] at D4 whether an 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. They considered that the MMOb role should be undertaken by a dedicated crew member.

4.2.130 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 2 MMObs on some vessels.

4.2.131 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.

4.2.132 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. They 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. They concluded that the evidence suggested that any speed below 6 knots provided a significantly decreased potential for collision.

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

4.2.134 The Applicant reiterated its arguments at D4 in respect of vessel speed as set out at ISH2 and in REP3-023 [REP4-014]. It explained at D5 [REP5-004] that the Port of Boston had stated that they would not agree to a speed limit within The Haven that compromised vessel safety. Therefore, vessels associated with the Proposed Development would have to conform to current practice in the Haven and adhere to a maximum speed limit of 6 knots.

4.2.135 The RSPB considered 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 [REP6-041].

The Wash SAC - Harbour seals – impacts within the anchorage area

4.2.136 NE considered [RR-021] that consideration of impacts to the SAC from anchorage in the Wash whilst waiting for an appropriate tidal window to enter The Haven had been omitted from the assessment. In particular, they were 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 Proposed Development to have guarded propeller ducts.

4.2.137 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.

4.2.138 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 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)), within the anchorage area, due to the high levels of fuel that would be required by this method. In the rare event that that DP was used, it was 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.) and that any corkscrew injuries were more likely to be a result of grey seal predation than the use of DP or ducted propellers.

4.2.139 Similarly, in respect of entanglement in anchor chains, it was concluded, 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.

4.2.140 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. 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.

4.2.141 The Applicant stated at ISH2 and in REP3-023 that DP systems are not generally fitted to cargo vessels and that the Port of Boston harbour master had confirmed that no vessels calling at the port had such systems onboard.

4.2.142 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 at D4 [REP4-021].

4.2.143 The Applicant reiterated [REP4-014] at D4 the points it made in REP3-023 and stated that DP was used only on specialist vessels, eg drill ships and rock dumping vessels, in order to hold their position in carrying out their work.

4.2.144 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 windfarm cable installation within The Wash, and that fishing vessels often have regular interactions with seals [REP2-043]. They 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.

4.2.145 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/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.

The Wash SAC - Harbour seals - disturbance

4.2.146 In relation to the piling needed to construct the wharf 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 ie, between May and September, didn't take into account impacts to harbour seals when they are at their most vulnerable during the pupping and moulting period, ie June – 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.

4.2.147 LWT 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 [RR-011].

4.2.148 The Applicant confirmed [REP1-035] that the piling assessment was based on worst-case assumptions for the piling works using the latest (published) thresholds for potential impacts to harbour seal, and therefore impacts were expected to be less 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, over 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). 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.

4.2.149 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.

4.2.150 OMMMP Table 2-1 [REP1-025] contains a summary of the assessment of potential impacts from underwater noise resulting from piling and dredging activities during construction (and from collision risk during construction and operation) and the proposed mitigation. It is explained that the outline mitigation measures as set out in ES Chapter 17 had been used to inform the OMMMP and comprised: a pre-piling watch for marine mammals (when piling activities are undertaken within three hours of high water) which would follow the standard JNCC Protocol (2010) for minimising the risk of injury to marine mammals from piling noise; and soft-start and ramp-up procedures for piling activities undertaken within three hours of high water. These measures would form part of the NMP. (Significant levels of noise were not anticipated from piling undertaken during low water due to the water levels at the application site during that period.) In the updated OMMMP [REP6-021] the references to within three hours of high water in respect of the pre-piling watch and soft-start and ramp-up procedures had been removed from the main text (but remained in the title of the piling mitigation protocol set out in Box 1).

4.2.151 In relation to disturbance from vessel noise during construction and operation, the updated data resulted in a small increase in potential harbour seal impacts, which increased the change in the predicted overall impact significance from 'negligible' to 'negligible to minor'. It was considered that this was not a significant impact and did not change the overall conclusions of the original assessment, and that with the proposed measures in place to reduce the potential for disturbance to harbour seal the impact would be reduced to negligible.

4.2.152 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 500m, 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.

4.2.153 An updated version of the REAC was submitted at D1 that included reference to the D1 HRA Marine Mammals Addendum and OMMMP and to the MMMP and NMP (to be prepared post-consent). An updated version of the dDCO [REP1-002] 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.

4.2.154 In response to ExQ2.10.0.1 the Applicant provided at D6 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 SoS 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.

4.2.155 NE commented on the Applicant's proposed mitigation measures at D2 [REP2-042]. They advised that JNCC's 2010 guidance was developed to mitigate impacts resulting from large scale piling operations for offshore windfarm arrays. They noted that the smaller (pin) pile for the Proposed Development was likely to be installed before the completion of the 20 minutes soft start and that the maximum hammer energy was likely to be reached almost immediately with no ability to ramp up. Therefore, they did not consider this to be appropriate mitigation. They 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].

4.2.156 LWT considered at D4 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 [REP4-021].

4.2.157 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 paragraph 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.

4.2.158 In relation to consideration of non-impact piling the Applicant stated [REP4-014] that a full review of potential pile and installation techniques would be undertaken once the final design of the Proposed Development

was confirmed and geotechnical information compiled. Any possible alternative piling options would be investigated further and confirmed in the final MMMP.

4.2.159 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 [REP4-014]. 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.

4.2.160 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. They 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 110m but as this was greater than the 90m 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 500m MMOb observational zone [REP4-021]. They requested that the Applicant justify the PTS range being set at 90m.

4.2.161 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 [REP6-021] at D6 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.

4.2.162 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. They 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 PAM was unsuitable mitigation. They 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 considered that it was not appropriate mitigation [REP4-021]. They also suggested that piling operations should be halted during periods of low visibility.

4.2.163 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 [REP6-021] the unsuitability of PAM had been acknowledged and the reference to its use had been removed.

Worst case scenarios and in combination effects

4.2.164 The Applicant considered in the HRAR [APP-111] whether there could be an in combination effect arising from the Viking Link Interconnector together with the Proposed Development on SAC harbour seal, resulting from underwater noise (from piling and dredging) and an increased risk of vessel collision. It concluded that on the basis of mitigation that would be provided by the Viking Link project and the predicted very low number (up to 33.4 seals/1%) of the SAC seal population that could be at risk from the Proposed Development there would not be an AEoI of the SAC. This conclusion was not questioned by IPs.

4.2.165 NE stated [RR-021] that they did not agree with the WCSs presented and the conclusions drawn from them, particularly in relation to the in combination assessments and/or indirect consequences of the proposal, eg relocation of fishing boats, increased dredging. They considered that the in combination assessment was incomplete and did not include other projects such as Norfolk Vanguard and Boreas offshore windfarms, Great Yarmouth Port, and Lowestoft Port and O&M for existing windfarms. The RSPB [RR-024] and LWT [RR-011] also considered that the WCS had not been sufficiently defined. The RSPB expressed concern that the in combination assessment was lacking and did not fully consider baseline disturbance effects.

4.2.166 In REP1-035 the Applicant responded 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. It is recorded within REP1-035 that NE 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 stated that this was addressed in the Ornithology Addendum [REP1-026].

4.2.167 The Applicant responded 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. The Applicant confirmed that 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. It was concluded that there was no change to the conclusion in the HRAR that there would be no ICE that would result in an AEoI of the SPA. The Applicant explained its

stance [REP2-006] in respect of each of the projects identified by the RSPB in their WR that they considered should be included in the ICE assessment.

4.2.168 In relation to possible relocation of the fishing fleet, the Applicant stated in the Ornithology Addendum that a NRA would be submitted to the Examination at D2 which would confirm the ability of fishing vessels to continue to transit The Haven similarly to the present. It was considered that the Proposed Development would not operate in any way that significantly affected fishing vessel movements, and mitigation (in the form of a NMP) was proposed to help achieve this, together with the further certainty provided by the NRA. A NRA [REP2-010], was submitted at D2, an updated version of which [REP6-022] was submitted at D6 in response to comments from the Port of Boston (on a draft of the D2 version).

4.2.169 In NE's response to ISH2 Question 4.c, they noted that no further projects had been identified by stakeholders for consideration within the ICE assessment and confirmed that they had no outstanding concerns about its scope [AS-001]. However, they caveated that this was subject to change if an application was submitted for the nearby proposed solar farm during the Examination. 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].

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

4.2.171 The Applicant responded [REP6-032] that the assessment of impacts at the application site and the MOTH in turn was the correct approach. They argued that the connectivity between the two locations was in doubt 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) appropriate assessment on a precautionary basis at an earlier stage. Due to this and the unlikely connectivity, in combination effects of activities at the application site and at the MOTH were not considered likely to affect an individual redshank. They also highlighted that impacts at the two locations would relate to the same project.

4.2.172 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. They 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 raised similar concerns [REP2-051].

4.2.173 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 Proposed

Development at the Port Of Boston would be at evenly spaced intervals, as occurred with commercial vessels currently. The assessment was based on a worst case scenario of 5 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 Proposed Development.

4.2.174 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. However, they believed that at least 12-24 months of further survey effort was needed to provide the necessary data. They subsequently noted that the Applicant had explained that recreational activities had been included within the baseline description but considered that it was unclear what data had been used and how it had informed the assessment [REP3-033].

4.2.175 The RSPB also considered that no new information had been presented to demonstrate that the full suite of WCSs had been assessed. They raised particular concerns about a failure to assess the maximum noise levels, maximum vessel movements and the impact of night-time operation of the Proposed Development. They stated 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.

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

4.2.177 The RSPB also commented [REP3-033] on the Applicant's response to ExQ3.1.8 that habitat loss had not been considered in the HRA because none would occur within the European sites and the impacts of habitat loss resulting from construction of the wharf were expected to be low once the HMA was in place. The RSPB were of the view that the Applicant had underestimated the scale of habitat loss that could occur and that the habitat loss worst case remained uncertain as scour protection at the wharf site did not appear to have been considered.

4.2.178 The Applicant stated at D3 [REP3-030] that the worst-case scenario had been assumed in assessments and habitat loss calculations. It had been assumed that scour protection would be required at the wharf and that the worst case solution would be required, and this was reflected in the OLEMS.

4.2.179 In response to ExQ2.3.1.7, NE stated [REP5-012] that it remained unclear whether all of the ICEs had been identified and/or appropriately assessed, with the exception of air quality ICEs, which it considered had been addressed [REP1-028].

4.2.180 The RSPB reiterated their concern at D5 that not all potential projects that could have an ICE with the Proposed Development had been considered and that it was not appropriate to rule out ICEs at screening stage [REP5-019]. They drew particular attention to the Boston Solar Park. They 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.

4.2.181 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.

Air quality impacts

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

4.2.183 The Applicant responded in REP1-035 that, although the PC CLs were exceeded, 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, ie the PEC CLs.

4.2.184 NE confirmed at D2 [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, they 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 appropriate assessment within the HRAR. In relation to the information contained in REP3-015 on construction dust impacts they 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 ExQ2.3.1.7, it confirmed [REP5-012] that it considered air quality ICEs had been addressed within REP1-028.

4.2.185 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.

4.2.186 In relation to the Applicant's statement about N deposition it explained [REP6-028] that the assessment assumed that nitrogen oxides would be emitted at 100% of their permitted levels (120 mg Nm^{-3}), but the emissions monitoring results of all energy from waste plants (EfW) in the UK demonstrated that typical emissions of NOx are at approximately 80% of the permitted levels. It also considered that the limits set by the EA in the environmental permit for the Proposed Development would almost certainly be less than 100% of the allowable limits.

4.2.187 In response to NE's queries contained in REP5-014 the Applicant clarified in 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 Proposed Development using the realistic emissions scenario, which reflects a reduction in nitrogen deposition compared to the worst case scenario (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 the HRA had concluded that the Proposed Development would not result in significant effects according to a worst case scenario it was not necessary to update the HRA to reflect the realistic scenario.

Water quality

4.2.188 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.

4.2.189 The Applicant responded in 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 D1 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.

4.2.190 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 Proposed Development into the drainage network and the volume that would be disposed of via infiltration; and for a water quality monitoring plan.

4.2.191 The Applicant, in 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 Proposed Development via quality or quantity of water in the terrestrial drainage system and the European sites and therefore this was not considered within the HRA.

Lighting

4.2.192 The RSPB also raised a concern [RR-024] about the potential impacts of lighting for the Proposed Development on bird species using The Haven.

4.2.193 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 Proposed Development, and it was not anticipated that lighting would have an adverse effect on birds. In REP2-006 the Applicant explained that R10 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.

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

4.2.195 The Applicant addressed the RSPB's concerns and provided an assessment in its D5 HRA Update [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.

4.2.196 As comments on D5 and D6 submissions are due at D7, which is after the publication of this RIES, there are no subsequent comments from IPs on these matters.

4.2.197 Table 4.1 below identifies the features of the SPA, Ramsar site and SAC for which, at the time of writing of this RIES, IPs did not agree with the Applicant's conclusion of no AEoI.

Table 4.1: European site features for which the effect on integrity is not agreed

The Wash SPA and The Wash Ramsar site
Bar-tailed godwit
Black-tailed godwit
Curlew
Dark-bellied brent goose
Grey plover
Oystercatcher

Shelduck
Redshank
Turnstone
Wigeon
Waterbird assemblage (some component species)
The Wash Ramsar site
Bar-tailed godwit
Black-tailed godwit
Curlew
Dark-bellied brent goose
Golden plover
Grey plover
Lapwing
Oystercatcher
Redshank
Ringed plover
Shelduck
Assemblages of international importance (some component species)
The Wash and North Norfolk Coast SAC
Harbour seal

5 ALTERNATIVES, IROPI AND COMPENSATION

Overview

5.0.1 At D2 the Applicant reasserted its conclusion set out in the HRAR of no AEoI alone or in combination of any of the European sites [REP2-011, REP2-012 and REP2-013]. Notwithstanding, in response to comments made in the RRs and WRs submitted by NE, the RSPB and LWT, the Applicant provided at D2 a derogation case comprised of information on alternatives, IROPI and compensation measures. It was described as submitted on a "without prejudice basis to allow for full consideration of all aspects during the Examination" and in the event that the SoS was minded to disagree and conclude an AEoI of any of the European sites following appropriate assessment.

5.0.2 The Applicant's derogation case was contained within the following documents:

- 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 [REP2-013].

5.0.3 They included reference to Defra's 2021 guidance, 'Habitats regulations assessments: protecting a European site' and a checklist for compensatory measure submissions produced by NE (date unspecified).

5.0.4 At the ISH on 24 November 2021 NE expressed an initial view that the information provided on alternatives and 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.

5.0.5 NE responded to the Applicant's derogation case in relation to alternatives and compensation at D3 [REP3-031]. Their submission included a checklist for compensatory measure submissions for developers (Annex 1).

5.0.6 NE explained in REP3-028 that it did not intend to comment on the IROPI case but could comment on any options proposed by the Applicant and assist in signposting to relevant guidance on mitigation and/or compensatory measures.

5.0.7 The RSBP noted at D4 [REP4-024] that they were continuing to discuss compensation measures with the Applicant and were due to meet them on 12 January 2022. They provided their initial comments on the derogation package, which they considered to be high level at that stage [REP4-028]. They stated that they had no comments on the IROPI case at that time.

5.0.8 LWT responded to the Applicant's derogation case at D4 [REP4-021]. They stated that they 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.

5.0.9 The MMO stated at D4 that they deferred to NE on HRA matters and supported NE's D3 comments on the derogation case [REP4-022]. They also highlighted that (relevant) conditions may need to be included in the DML.

Assessment of Alternatives

5.0.10 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, ie that an AEoI could not be excluded for the SPA, Ramsar site and SAC.

5.0.11 Section 7 Table 7-2 of REP2-011 presents a 'long list' of 12 alternative solutions considered by the Applicant and sets out how each could affect the potential for harm on the European sites during construction and operation. Table 7-2 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' for further assessment. Appendix 1 of the document contains a detailed assessment of the alternative modes of transport that were considered, ie road and rail.

5.0.12 The short list comprised five options: reduced RDF capacity; use of larger vessels to transport RDF during operation; and a number of changes to the timing of vessel movements during operation, including an option for vessels to only arrive at the Proposed Development at night. Section 8 Table 8-1 presents an assessment of the legal, technical and financial feasibility of the short-listed options, and identified that only the use of larger vessels during operation was considered to be feasible. Following further assessment of this option it was concluded that although it would result in a reduced number of vessel movements it was unlikely to change the view of NE, the RSPB and LWT that an AEoI of the SPA, Ramsar site and SAC could not be excluded. This was on the basis that there would continue to be repeated vessel movements on a daily basis at the MOTH, the vessels would still require anchorage, and it would not affect the requirement for a wharf and the associated loss of foraging and roosting habitat for redshank.

5.0.13 NE confirmed at D3 that they agreed with the Applicant that use of larger vessels would not sufficiently reduce the number of vessel movements to address their concerns and also highlighted that other impacts, for example vessel wash, would be likely to increase [REP3-031].

5.0.14 The RSPB questioned whether the long list of alternatives captured all potential alternative options and took the view that the Applicant should consider national alternative locations [REP4-028]. They considered that 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 Proposed Development as

set out in Table 5-1 of the Applicant's assessment of alternatives [REP2-011]. They confirmed that the comments made in their WR and their initial comments on the Ornithology Addendum set out their concerns with the Applicant's assessment, data gaps and the reasons why they considered that an AEoI of the SPA and Ramsar site could not be ruled out beyond reasonable scientific doubt.

5.0.15 The Applicant stated [REP6-029] at D6 that its position on alternatives remained unchanged from that set out in REP2-011 but that it would provide an update at D7 to address the RSPB's concerns.

Assessment of IROPI

5.0.16 The Applicant stated in Section 2 of REP2-012 that as it had concluded that the Proposed Development 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 or economic benefits.

5.0.17 It considered that IROPI was justified in relation to the Proposed Development based 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.

5.0.18 Sections 3 – 8 of the document considered the above matters in detail. Reference was made to Government policy set out in the Overarching National Policy Statement for Energy (EN-1) and National Policy Statement for Renewable Energy Infrastructure (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).

5.0.19 In relation to the need for lower carbon transportation Section 5 highlighted information contained in its '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.

5.0.20 The Applicant considered that the Proposed Development would support good human health and public safety through diversifying energy supply, improve energy security, provide additional electricity generation to meet rising demand, divert waste from landfill, and provide key social and economic benefits both UK-wide and locally. It concluded that this

established that the Proposed Development would have long term benefits which were imperative and overriding, and that there was a public interest in it proceeding which outweighed the views of NE and other IPs on its potential effects on the conservation objectives of the European sites.

Compensation measures

5.0.21 Section 3 of REP2-013 provides information on potential compensation measures to provide additional or enhanced habitat for birds should this be required. It is explained that no compensation was identified in relation to harbour seals as following the assessment of the additional data obtained it was concluded that the proposed mitigation measures, as set out in the ES/HRA Marine Mammals Addendum, would reduce any potential effects.

5.0.22 It is stated that, given the limited time period available to investigate compensatory measures, the options discussed had only been developed in outline but consultation had been progressed with relevant land owners/managers to ensure that the options were capable of implementation. Initial consultation had been held with the following organisations with a positive initial response received: North Sea Camp Prison, Boston; local landowner/farmers; and Boston Borough Council (for sites within the Havenside Local Nature Reserve (LNR)). Other options had been identified and would be put forward and discussed with the relevant stakeholders.

5.0.23 It was anticipated that, in the event that the SoS 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.

5.0.24 Table 3-1 identifies six options for compensation measures under consideration and their approximate site locations are depicted on Figure 3-1. These options comprise:

- 1 - habitat management of areas within the North Sea Camp Prison, Boston, to encourage birds to use the area – to provide foraging habitat for dark bellied brent goose and black-tailed godwit;
- 2 - habitat reinstatement of overgrown freshwater habitat within the Havenside LNR – to provide additional habitat for waders and wildfowl;
- 3 - potential for habitat creation alongside The Haven on the north bank within the Havenside LNR - to provide additional habitat for waders and wildfowl;
- 4 - provision of artificial wader roosting habitat within the SPA – to provide additional habitat particularly for black-tailed godwit, turnstone, oystercatcher and redshank;

- 5 - potential for creation of shallow scrapes within agricultural fields – potential habitat for redshank, lapwing and golden plover; and
- 6 - potential for measures to reduce predation risk to shorebirds – to assist with reduction of predation risk.

5.0.25 It was stated that the potential and location for habitat creation within the SPA had not yet been discussed with NE or The Crown Estate. It was explained that the following steps were needed to develop these options: engagement with landowners and stakeholders; feasibility studies to determine which measures should be taken forward; and compensation plans which set out the measures and delivery and monitoring mechanisms in detail. Further detail was expected to be provided at D3.

5.0.26 NE stated at D3 [REP3-031] that the information provided on compensation measures was high level and lacked detail and certainty. They explained that they would provide further comments on the ecological merits of the compensation measures and whether they addressed their concerns once the Applicant had submitted an updated derogation case. In relation to the requirement for compensation they noted that as the design of the Proposed Development was still being refined and further data and assessment was required there could be as yet unidentified impacts on other species/habitats.

5.0.27 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. They advised that when exploring compensation measures the Applicant should take into consideration that roosts are most well utilised where they are surrounded by or situated in shallow water as it provides additional protection from terrestrial predators. They also highlighted some additional criteria to be considered in respect of compensation roosts. They should be located away from land-based or boat disturbance, able to accommodate all key species, have water as a protective feature, difficult to access by terrestrial predators, and not nearby agricultural bird scarers.

5.0.28 In relation to the compensation measures options set out in Table 3-1 of REP2-013 (and summarised above) NE made a number of observations:

- Option 1 - more information was needed on the Prison's objectives to indicate if they were compatible with the requirements of the affected species, but there was good potential for supporting the SPA features affected at the MOTH;
- Options 2 and 3 – potential for supporting species displaced at the application site if an undisturbed area was available, some improvements, such as to the site fencing, would be welcomed;
- Option 4 – not supportive of this on the basis that the implementation of compensation measures should not be to the detriment of another designated site feature; and
- Options 5 and 6 – while beneficial, unlikely to meet roost site resource requirements.

5.0.29 NE agreed 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.

5.0.30 The Applicant confirmed at D3 [REP3-023] that it would take into account recreation and predation pressures when considering compensation sites.

5.0.31 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 Proposed Development would be negligible.

5.0.32 In response to ExQ2.1.0.4 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 Proposed Development including to the end of decommissioning [REP5-004]. It was explained that if the SoS 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.

5.0.33 The compensation would be secured by a without prejudice DCO Schedule 11: 'Ornithology Compensation Schedule', a draft of which is contained in Appendix 1 of REP5-005 (and also in the updated dDCO submitted at D6 [REP6-003]). It requires the SoS's approval of an ornithology compensation implementation and monitoring plan (OCIMP) of measures designed to compensate for the predicted disturbance to waterbirds. It provided that it had to be based on the principles of ornithological compensation set out in the derogation case compensation measures document (the 'ornithology compensation plan'). The OCIMP must include an implementation timetable that ensured that all the compensation measures were in place prior to the impacts occurring during construction (eg, from dredging or construction works on the intertidal habitat) and operation (from disturbance at the mouth of The Haven). 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 security mechanism "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 Proposed Development.

5.0.34 The RSPB commented that Defra and EC guidance were clear that compensation measures should be fully functional before any damage occurs [REP6-041]. They 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 they were unable to assess the Applicant's statement that sufficient funding would be available to establish and maintain any compensation measures.

5.0.35 NE stated post-D4 [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). They also considered 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.

5.0.36 The Applicant responded that the compensation measures being developed for the roosting areas around the MOTH were for all species that could require compensation, should the SoS decide that an AEoI of the SPA could not be ruled out [REP5-008].

5.0.37 NE advised that as there were uncertainties about the scale of impacts and deliverability of compensation, a higher ratio of compensation was required [AS-002]. They 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.

5.0.38 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 REP6-026 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.

5.0.39 At D4 the RSPB summarised their approach to assessing compensation proposals [REP4-028]. They were of the view that the Applicant had not provided sufficient detail to enable proper scrutiny of the proposed compensation measures, they were not fit for purpose, and substantive work was required to develop them. Table 1 presented their comments on each of the options proposed:

- Option 1 – the creation of a lagoon could provide an alternative location for dark-bellied brent goose to bathe and could work well for roosting redshanks and other species, providing it was large enough, undisturbed and had unvegetated or sparsely vegetated islands or very shallow water. However, brent goose already make good use of the prison fields and the creation of a lagoon could result in foraging habitat loss and reduce their overall use of the site, ie it could have an adverse effect on this land which is functionally linked to the SPA/Ramsar site. The fields also offer

potential foraging areas for black-tailed godwit, curlew, ruff and other species. It needed to be made clear whether the Prison's objectives could render it difficult or impossible to meet the SPA/Ramsar site objectives. The principles could be appropriate but the Applicant should also explore other adjacent land that could deliver the same ecological requirements but would not conflict with current waterbird activity;

- Option 2 – could deliver some small BNG but would not deliver any meaningful habitat improvements for waders and wildfowl due to its very small size, high level of disturbance due to proximity to walkers, dogs (whether on a lead or not) and presence of mature hedgerows.
- Option 3 – appears to be unsuitable for the creation of additional wetland habitat for waterbirds due to its insufficient size, being too linear to allow appropriate disturbance-free habitat to be developed, existing disturbance by walkers, dogs and other activities, and the existence of mature hedgerows that affect sightlines for birds scanning for predators so that they will actively avoid such sites. Acknowledge that the shape of the largest block (4ha) had more potential but still unlikely to be large enough to support waders and wildfowl;
- Option 4 – would destroy existing SPA/SAC/Ramsar habitat and necessitate additional compensation. Not compatible with the Habitats Regulations tests as it would result in adverse impacts in its own right. Should not be taken forward as an option;
- Option 5 – agree with the Applicant's assessment of low confidence that this would be successful due to its distance from The Haven and the indication that agricultural operations would continue. Unlikely to be suitable for redshanks which typically do not roost far from the intertidal habitat and would likely require islands surrounded by water, such as a lagoon with an island. Note that no locations had been identified and that it is not explained why fields closer to The Haven had not been considered. A suitably large area that could deliver lagoon creation and potentially foraging habitat might be more appropriate; and
- Option 6 – concerned by this option because no specific areas identified, no details provided on the type of vegetation management proposed, no details of the predators that would be targeted, no evidence presented to demonstrate that predation risk is an issue for the SPA and Ramsar site waterbirds, and no information on the potential impacts on other SPA/Ramsar site/SAC features. Applicant has not clarified whether this option is proposed to provide benefits for breeding waterbirds, roosting waders,

nonbreeding wildfowl, or all of these. Would have little or no compensatory benefits for the qualifying features of The Wash SPA and Ramsar site; would be more appropriate as a BNG measure.

5.0.40 The RSPB considered that the proposed options contained no detail on their location, scale or mechanism for delivery and that therefore it was as yet unknown whether they would meet the ecological requirements of the affected species. They also considered that there were additional options that the Applicant had not yet identified, such as other areas along The Haven that could be appropriate for habitat creation, but that the position was uncertain until the scale of displacement and habitat/ecological function loss was agreed.

5.0.41 The Applicant stated [REP6-032] that the level of detail that could be provided on the compensation options was limited by the amount of information and survey that could be undertaken on sites before they were secured, which could only occur post-decision if the Proposed Development was granted consent. They explained that landowners had been approached in relation to two sites and had given in principle agreement for long-term leases of agricultural fields. They also stated that the proposed works to the Havenside LNR related more to BNG than compensation measures.

5.0.42 The LWT deferred to NE and the RSPB in relation to impacts on the SPA features but stated that options for compensatory sites for the functionally linked land needed to be assessed and secured, and the appropriate habitat needed to be created and functioning prior to construction [REP4-028].

5.0.43 In its updated compensation measures document [REP6-026] submitted at D6 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 the sites were considered to be functionally linked.

5.0.44 It stated that site selection and land acquisition for compensatory sites was ongoing and two sites were securable in principle but the land was not secured pending the decision on the application. Following further investigation the previous Options 1, 4, 5 and 6 had been discounted. The North Sea Camp Prison option had been discounted after concluding that there was insufficient space to create suitable habitat without affecting grazing land and there was potential for impact on waterbirds that already used the area.

5.0.45 Three options were proposed in total in the updated document: a new Option 1 and the previous Options 2 and 3 located at the Havenside LNR. Option 1 comprised various sites ranging from adjacent to The Haven to 1km distant from it, to provide foraging, bathing and roosting habitat for waterbirds that could be affected by disturbance from vessels using The

Haven. It was explained that Options 2 and 3 were more related to BNG but had been included as they could offer some potential as compensation sites. Additional searches for other potential sites were continuing in an initial search zone of a 1km wide band running from the MOTH and along The Haven. A secondary zone which extended the search area would be established if a sufficient number of suitable sites could not be identified within the initial search zone, and this would be further extended to a third zone in the event that not enough sites could not be found in the other two zones.

5.0.46 Two sites had been identified under Option 1: one adjacent to The Haven and one approximately 650m from the RSPB's Frampton Marshes reserve. The first site of approximately 19ha is approximately 1.2km from the SPA boundary and 1.3km 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 7.3ha, was considered to provide suitable habitat for lapwing and golden plover. 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.

5.0.47 If any compensation measures were proposed in intertidal areas the Applicant would engage with the MMO and obtain a Marine License if required, and if any measures triggered the need to obtain an environmental permit for a flood risk activity the Applicant would apply to the EA. The Applicant considered that any consenting processes could be completed in time for the measures to be implemented sufficiently in advance of impacts occurring.

5.0.48 As comments on D5 and D6 submissions are due at D7, which is after the publication of this RIES, there are no subsequent comments from IPs on the updated information on compensation measures.