Planning Inspectorate

REPORT on the IMPLICATIONS for EUROPEAN SITES

Proposed Five Estuaries Offshore Wind Farm

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

Planning Inspectorate Reference: EN010115

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1 INTRODUCTION

1.1 Background

1.1.1 Five Estuaries Offshore Wind Farm Limited (the Applicant) has applied for a development consent order (DCO) under section 37 of the Planning Act 2008 (PA2008) for the proposed Five Estuaries Offshore Wind Farm (the Proposed Development). On behalf of the Secretary of State for Housing, Communities and Local Government, an Examining Authority (ExA) has been appointed to conduct the Examination of the Application for the Proposed Development. The ExA will report its findings and conclusions and make a recommendation to the relevant Secretary of State (SoS) as to the decision to be made on the Application.

1.1.2 For applications submitted under the PA2008 regime, the relevant SoS is the competent authority for the purposes of The Conservation of Habitats Regulations and Species Regulations 2017 (the Habitats Regulations) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Offshore Marine Regulations), which apply beyond UK territorial waters (12 nautical miles). The findings and conclusions on nature conservation issues reported by the ExA will assist the SoS in performing their duties under the Habitats Regulations and the Offshore Marine Habitats Regulations.

1.1.3 This Report on the Implications for European Sites (RIES) documents and signposts the information in relation to potential effects on European sites that was provided within the Application and submitted during the Examination by the Applicant and interested parties (IPs), up to **Deadline 5** (DL5) of the Examination (10 January 2025). 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 (EL) published on the Find a National Infrastructure Project website at the following link:

http://infrastructure.planninginspectorate.gov.uk/document/000464

1.1.4 For the purposes of this RIES, in line with the Habitats Regulations and relevant Government policy, the term 'European sites' includes Special Areas of Conservation (SAC), candidate SACs, proposed SACs (pSACs), Special Protection Areas (SPA), potential SPAs, listed and proposed Ramsar sites and sites identified or required as compensatory measures for adverse effects on any of these sites. For ease of reading, this RIES also collectively uses the term 'European site' for European sites as defined in The Habitats Regulations 2017 and 'European Marine Sites' defined in The Offshore Marine Habitats and Species Regulations 2017, unless otherwise stated. The 'UK National Site Network' refers to SACs and SPAs belonging to the United Kingdom already designated under the Directives and any further sites designated under the Habitats Regulations

1.1.5 This RIES is issued to ensure that IPs including the Appropriate Nature Conservation Bodies (ANCB), the Joint Nature Conservation Committee

(JNCC) and Natural England (NE), 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 and Regulation 28(4) of the Offshore Marine Regulations.

1.1.6 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.

1.1.7 The RIES also aims to identify and close any gaps in the ExA's understanding of IPs' positions on Habitats Regulations matters, in relation to all European sites and qualifying features as far as possible, in order to support a robust and thorough recommendation to the SoS.

1.2 Documents used to inform this RIES

1.2.1 The Applicant's Habitats Regulations Assessment (HRA) Report comprised the following documents:

- Report to Inform Appropriate Assessment (RIAA) [APP-040], updated at DL1 [REP1-016] and associated sub-reports:
  - HRA Site Integrity Matrices [APP-041] (updated by [REP2-004])
  - HRA Screening Report [APP-042]
  - HRA Screening matrices [APP-043] (updated by [REP5-011])
  - Summary of Designated Sites [APP-044]
  - Lesser Black-Backed Gull (LBBG) HRA [APP-045] (updated by [AS-039] and [REP4-007])
- Habitats Regulations Derogation Case [APP-046] (superseded by [AS-003] to address omissions and drafting errors raised in s51 advice as part of the Application's acceptance) and associated sub-reports:
  - Benthic Compensation Strategy Roadmap [APP-047]
  - Outline Benthic Implementation and Monitoring Plan (BIMP) [APP-048] (updated by [REP5-013])
  - LBBG Compensation – Evidence, Site Selection and Roadmap [APP-049] (updated by [REP2-006] and [REP5-015])
  - Kittiwake – Evidence, Site Selection and Roadmap [APP-050] (updated by [REP2-008] and [REP5-017])
  - Guillemot and Razorbill – Evidence, Site Selection and Roadmap [APP-051] (updated by [REP2-010] and [REP5-019])
  - LBBG Implementation and Monitoring Plans [APP-052] (updated by [REP2-012] and [REP5-021])

- Kittiwake Implementation and Monitoring Plans [APP-053] (updated by [REP2-014] and [REP5-023])
- Guillemot and Razorbill Implementation and Monitoring Plans [APP-054] (updated by [REP2-016] and [REP5-025])
- LBBG Compensation Site Suitability Report [APP-055]
- Compensation Measures Funding Statement [APP-056]
- Compensation Longlist and Shortlist [APP-057]

1.2.2 The HRA Report concluded that adverse effects on the integrity (AEoI) of the Alde-Ore (AOE) Estuary SPA and Ramsar site cannot be excluded. The HRA Derogation Case [AS-003] describes how the derogations under the Habitat Regulations are engaged and proposals for compensatory measures in respect of these European sites. An overview of these matters is provided in Section 4 of this RIES.

1.2.3 The Applicant also provided a 'without prejudice' case on the derogations under the Habitats Regulations and proposals for compensatory measures in respect of several other European sites in [AS-003]. Section 4 of this RIES also provides an overview of these matters.

1.2.4 The Applicant provided a separate HRA Report for works proposed to compensate for predicted effects to LBBG of the AOE SPA and Ramsar site arising from the Proposed Development on a site at Orford Ness. The separate HRA comprised screening and a report to inform appropriate assessment in the LBBG HRA [APP-045] ('the LBBG HRA Report').

1.2.5 In addition to the HRA Report and LBBG HRA Report, the RIES refers to representations submitted to the Examination by IPs, Issue Specific Hearing (ISH) documents, Statements of Common Ground (SoCG), Principal Areas of Disagreement Summary Statement (PADSS) and other examination documents as relevant. All documents can be found in the EL.

1.3 Change Requests

1.3.1 To date, the Applicant has made the following change requests:

- Change Request Cover Letter [AS-014] and Report on Proposed Changes [AS-057], submitted 10 October 2024

1.3.2 This Change Request comprised 10 proposed changes. Change 1 consists of a minor reduction in the offshore array boundary which the Applicant considered would have no effect on the assessments or conclusions of the environmental statement (ES) or HRA. Changes 2 to 8 and Change 10 consist of minor changes to the onshore order limits and are similarly not considered to have any effect on assessments or conclusions of the ES or HRA.

1.3.3 Change 9 comprises order limit changes to the LBBG compensation area at Orford Ness. Under this change the Applicant amended the extent of the LBBG compensation area subject to Work Number 18B of the draft DCO (dDCO) to 6.0 hectares.

1.3.4 This change resulted in an update to the LBBG HRA Report [AS-039] to provide information to support the change request, primarily concerning impacts associated with a new proposed ditch crossing (either temporary bridge or culvert).

1.3.5 Proposed Changes 1 to 10 were accepted by the ExA on 22 October 2024 [PD-012].

1.3.6 Relevant HRA matters arising from these changes are detailed in sections 2 to 4 of this RIES.

1.4 RIES questions

1.4.1 This RIES contains questions predominantly targeted at the Applicant and NE, which are drafted in **blue, bold text**.

The responses to the questions posed within the RIES and comments received on it will assist the ExA in understanding IPs' positions on Habitats Regulations matters. It is stressed that responses to other matters discussed in the RIES are equally welcomed. In responding to the questions, please refer to their ID numbers.

1.4.2 In responding to the questions in the tables, please refer to the ID number in the first column.

1.4.3 Comments on the RIES are timetabled for **DL7** (3 March 2025).

1.5 HRA matters considered during the Examination

1.5.1 The Examination to date has focussed on the following matters:

- The adequacy of the Applicant's baseline data and mitigation proposals in relation to the LBBG compensation site (AOE Ramsar, Orfordness - Shingle Street SAC).
- The adequacy of the Applicant's modelling in relation to disturbance and collision risk to offshore ornithology.
- The assessment of effects on marine mammals including the use of the interim Population Consequences of Disturbance (iPCoD) modelling and the adequacy of mitigation proposals
- The assessment of effects on the Margate and Long Sands (MLS) SAC including the definition of the maximum design scenario (MDS) or worst-case scenario (WCS), conclusions on AEoI, and the adequacy of proposed compensatory measures
- The range of potential LSE on the Stour and Orwell SPA and Orfordness – Shingle Street SAC.
- IPs disputed the Applicant's conclusions on LSE (nightjar and marsh harrier at Minsmere to Walberswick SPA and harbour porpoise at various North Sea sites).

- Applicant's conclusions in relation to AEoI on the kittiwake, northern gannet, guillemot and razorbill qualifying features of the Flamborough and Filey Coast (FFC) SPA and the red-throated diver feature of the Outer Thames Estuary (OTE) SPA.
- The feasibility, deliverability and likely success of the proposed compensatory measures (against various criteria) in respect of LBBGs, kittiwakes, guillemots and razorbill qualifying features.
- The availability of strategic compensation (being developed by Defra with NE and JNCC) for MLS SAC.

1.6 Structure of this RIES

1.6.1 The remainder of this report is as follows:

- **Section 2** summarises matters in the Examination relating to the Applicant's screening for potential LSE to European sites, either alone or in-combination with plans and projects.
- **Section 3** summarises matters in the Examination relating to the Applicant's assessment of AEoI, either alone or in-combination with plans and projects.
- **Section 4** provides an overview of the Examination related to the Derogations, including Imperative Reasons of Overriding Public Interest (IROPI), alternative solutions and compensatory measures (CM).
- **Annex 1** lists the European sites, qualifying features and impact pathways the Applicant carried forward to consideration of AEoI in the Main HRA Report and the LBBG HRA Report.

2 LIKELY SIGNIFICANT EFFECTS

2.1 European sites considered

Introduction

2.1.1 The Proposed Development (including the proposed LBBG compensation) is not connected with or necessary to the management for nature conservation of any European site.

2.1.2 The European sites considered by the Applicant are listed in matrices 1 to 105 of the HRA Screening Matrices [REP5-011] and Table 3.1 of the LBBG HRA Report [APP-045]. A total of 110 European sites (and their qualifying features) were screened for LSE by the Applicant, comprising 107 European sites in the HRA Screening Report [APP-042], and 11 European sites in the LBBG HRA Report [APP-045] (8 European sites are common to both, with 3 unique European sites considered in the LBBG HRA Report). Of this total, 98 sites are within the UK National Site Network (NSN) and 12 are non-UK European sites. The latter are all European sites in European Economic Area (EEA) states. The Applicant concluded that LSEs could not be excluded for several European sites in EEA States [APP-042]. Only UK European sites are addressed in this RIES.

2.1.3 The location of each European site relative to the Proposed Development is depicted in the figures within the Summary of Designated Sites [APP-044] and in Drawing 1 European and Ramsar Sites in the LBBG HRA Report [APP-045].

Applicant's screening methodology

Main HRA Report

2.1.4 Section 3 of the HRA Screening Report [APP-042] summarised the screening exercise undertaken by the Applicant.

2.1.5 Section 3.6 of [APP-042] stated that an initial 15km buffer zone around the onshore export cable corridor (ECC) was used for the screening exercise for onshore European and Ramsar sites and their qualifying features. It is stated that there are no hydrological links beyond this distance, and no sites designated for bats or pink-footed goose (noted as a highly mobile forager) within 25km.

2.1.6 For the offshore environment, section 3 described the site selection process by receptor group. For subtidal and intertidal benthic ecology, paragraph 3.2.1 states that an initial range of 50km was applied to identify designated sites with benthic features, followed by a precautionary range of 22.5km as the distance threshold for LSE based on the maximum tidal excursion range as illustrated on Figure 2 in the Physical Processes Technical Assessment [APP-101].

2.1.7 For marine mammals, paragraph 3.3.1 states that site selection is dependent on the species and their relevant management units (MU). Table 3.1 presented the 4 marine mammal species of relevance together with their relevant MUs, the location of which were shown on Figure 3.1.

Paragraph 3.3.2 states that all European sites within these MUs were considered.

2.1.8 Section 3.4 describes the approach to offshore and intertidal ornithology. Table 3.2 listed 4 criteria used for site selection, including:

- Criteria 1: overlap between the Proposed Development (split into array area (A) and ECC (B)) and European and Ramsar sites.
- Criteria 2: European and Ramsar sites within a defined range of effect based on maximum foraging range and mean maximum foraging range +1 Standard Deviation (MMF+1SD) for breeding bird qualifying features.
- Criteria 3: based on advice from statutory nature conservation bodies (SNCBs), European and Ramsar sites within range of the maximum extent of displacement or disturbance from project activities, stated to be 0.5km for intertidal and 10km for offshore receptors.
- Criteria 4: SPAs and Ramsar sites with breeding bird qualifying features on the eastern seaboard of the UK that might pass through the array area on migration or in winter.

2.1.9 Paragraph 3.4.3 states that additionally, all European sites with non-seabird qualifying features at risk of collision with the wind turbine generators (WTG) were considered. These sites are listed in Table 3.4.

2.1.10 For migratory fish, paragraph 3.5.1 states that a precautionary range of 100km to the relevant estuary mouth was considered. It is stated that this is considerably greater than the potential underwater noise footprint of the Proposed Development.

LBBG HRA Report

2.1.11 Section 3.3 of the LBBG HRA Report [APP-045] summarises the screening exercise for the LBBG compensation works. An initial list of European sites within a 10km search area of the compensation site was compiled. The Applicant used a source-pathway-receptor analysis to assess whether there could be potential connections from the compensation works to the European sites (and their qualifying features) within the 10km search area.

In-combination effects

Main HRA Report

2.1.12 The HRA Screening Report [APP-042], section 5.1 detailed the Applicant's approach to assessing in-combination effects. This followed a tiered approach. Paragraph 5.1.7 states that full details of the methodology, including how a long list of projects and plans was generated based on a precautionary distance or rationale for each receptor type, are presented in ES Part 1, chapter 3 [APP-063]. Further information is also provided in ES Part 1, Annex 3.1 [APP-064].

2.1.13 The projects and plans considered for the in-combination assessment for each receptor type are identified in the relevant sub-section of the HRA Screening Report [APP-042] (sections 5.2 to 5.6). Paragraph 5.1.10 states that this list was precautionary as at the time of screening the final long list was not available.

2.1.14 Table 5.1 of [APP-042] lists the European sites screened into the in-combination assessment by receptor type.

2.1.15 The RIAA [APP-040] in Tables 9.5 to 9.9 identifies the final list of projects and plans by receptor type considered in the in-combination assessment, which was undertaken at AEoI stage only.

LBBG HRA Report

2.1.16 Section 2.3 of the LBBG HRA Report [APP-045] describes the Applicant's approach to assessing in-combination effects for the LBBG compensation site. Projects and plans considered for the in-combination assessment are listed in section 2.4. Paragraph 3.5.2 states that the same European sites screened in for LSE for the Proposed Development alone would also be considered for LSE in-combination with other projects and plans.

2.1.17 No additional plans or projects have been highlighted by IPs in the Examination to date for either the main HRA Report or LBBG Report. Other concerns regarding the outcomes of the in-combination assessment for specific sites and features are addressed where relevant in sections 2.4 or 3 of this RIES.

2.2 The Applicant's screening assessment

European sites within the UK NSN

Main HRA Report

2.2.1 The HRA Screening Report [APP-042] and HRA Screening Matrices [APP-043] originally identified 30 European sites (and their qualifying features) for which the UK is responsible, for inclusion within the screening assessment.

2.2.2 Section 9.1 of the RIAA [APP-040] summarises updates made to the HRA screening exercise in response to consultation comments and changes to the Proposed Development prior to the Application's submission. Paragraph 9.1.4 states this resulted in changes to LSE conclusions compared to those presented in the HRA Screening Report [APP-042], including some offshore and intertidal ornithological receptors being screened out for LSE, either entirely or for some impact pathways. Greater Wash SPA was also screened out (in its entirety) for LSE, resulting in 29 UK European sites (and their qualifying features) being taken forward for consideration of AEoI in the RIAA.

2.2.3 Table 9.1 of the RIAA [APP-040] summarises the updated LSE conclusions with further justification presented in [APP-044]. The HRA Screening Report [APP-042] and the HRA Screening Matrices [APP-043] however were not revised to reflect these updates. That was requested by the ExA

[ME.2.14 in PD-014] and updates to the screening matrices were provided at DL5 [REP5-011].

2.2.4 The full list of European sites and qualifying features considered for LSE within the Applicant's main HRA are presented in the HRA Integrity Matrices [APP-043] and are not replicated in this RIES.

2.2.5 Whilst the Proposed Development is in England and English waters, 43 European sites located in Scotland, 3 in Wales and 1 in Northern Ireland have been included within the Applicant's screening assessment [APP-042] [APP-043]. Of these, Berwickshire and North Northumberland SAC (a cross-border site within England and Scotland) was carried forward to consideration of AEoI [APP-040] [APP-041].

Additional sites

2.2.6 In its relevant representation (RR), NE (Issue ID C23 [PD2-005]) queried the omission of 2 sites from the HRA Screening Report [APP-042]: Alderney West Coast and the Burhou Islands Ramsar site (located in Guernsey) and the Cote de Granit Rose-Sept Iles SPA (France), on the basis that it held pre-application discussions concerning apportioning gannets to these sites with the Applicant.

2.2.7 In response, the Applicant clarified [REP1-051] [REP4-040] that it had apportioned breeding season impacts to gannets to the Alderney site, as set out in the RIAA [REP1-016] and Apportioning Note [REP1-020].

2.2.8 NE [REP3-034] agreed with the level of apportionment to the Alderney Ramsar but considered that the HRA Screening Report should therefore include the site. Paragraph 11.4.85 of the RIAA [REP1-016] confirms that there is connectivity between the Alderney Northern gannet colony and the Proposed Development array area.

Q2.2.1 [To the Applicant] The Applicant is requested to update the suite of HRA documents to assess the impacts to the Alderney West Coast and the Burhou Islands Ramsar site.

2.2.9 The German Federal Maritime and Hydrographic Agency [RR-035] raised the issue of collision risk to migratory bat species. The Applicant confirmed in response to (ME.2.09) that this pathway does not impact European sites designated for bats within the UK NSN [REP4-039].

Q2.2.3 [To NE and all IPs] Other than the sites and features listed above, the ExA is not aware of any representations from IPs identifying any additional UK European sites or qualifying features for inclusions in the Applicant's HRA. IPs are requested to advise if they consider that additional sites or qualifying features could be affected by the Proposed Development.

LBBG HRA Report

2.2.10 Table 3.1 of the LBBG HRA Report [APP-045] identified 6 European sites (and their qualifying features) for which the UK is responsible for inclusion within the screening assessment for the LBBG compensation works. Annex 1, Table 2 of this RIES lists the European sites, qualifying features and impact pathways.

2.2.11 To date in the Examination, no additional UK European sites or European site features have been identified by IPs that could be affected by the LBBG compensation works for inclusion within the LBBG HRA Report.

Potential effect pathways considered

Main HRA Report

Effects from the Proposed Development alone

2.2.12 Section 4 of the HRA Screening Report [APP-042] details the potential impacts from the Proposed Development by receptor group. Tables in [APP-042] list the sites and qualifying features, the impact pathways which could affect them, and the LSE conclusion and justification, by receptor group as follows:

- Table 4.10 – subtidal and intertidal benthic ecology
- Table 4.12 – marine mammals
- Table 4.14 – offshore and intertidal seabird ornithology
- Table 4.16 – SPAs and Ramsar sites with non-seabird features, which could be at risk of collision during migration
- Table 4.18 – migratory fish
- Table 4.20 – onshore ecology

2.2.13 This information should be read in conjunction with section 9.1 and Table 9.1 of [APP-040], which summarises the updated LSE conclusions for offshore and intertidal ornithology that are not reflected in [APP-042].

2.2.14 The HRA Screening Report [APP-042] assessed the potential impacts during construction, operation and maintenance and decommissioning.

Effects from the Proposed Development in combination

2.2.15 The Applicant's approach to in-combination effects, as described in section 5 of the HRA Screening Report [APP-042] was to assume that where the potential for LSE had been identified for the Proposed Development alone, there was also potential for in-combination LSE. Paragraph 5.1.2 stated that consideration was also given to the potential for effects that were insufficient to lead to LSE alone, to trigger the threshold for in-combination LSE. However, the Applicant stated that due to the precautionary nature of screening alone, only one example of this was identified for benthic habitat loss in the Southern North Sea (SNS) SAC. This appears to be a typographical error as the SAC does not have benthic qualifying features [APP-044].

2.2.16 The in-combination effects identified by the Applicant were therefore the same as the effects from the Proposed Development alone, as presented in Table 6.1 of [APP-042] and supplemented through updated screening information in section 9.2 of the RIAA [APP-040].

2.2.17 The Applicant included a detailed assessment of in-combination effects in the assessment of effects on the integrity of the affected European and Ramsar sites in the RIAA [APP-040].

LBBG HRA Report

Effects from the Proposed Development alone

2.2.18 Paragraph 3.2.8 of the LBBG HRA Report [APP-045] listed the potential impact pathways from the LBBG compensation works. Table 3.1 lists the European sites and qualifying features against the relevant impact pathways. The LBBG HRA Report [APP-045] assessed the potential impacts during installation of the LBBG compensation works. This included installation of predator fencing, as well as the operation and maintenance and removal (decommissioning) of the fencing.

2.2.19 Paragraph 3.4.15 indicates that the same impact pathways were considered for the Proposed Development alone and in-combination with other projects and plans.

2.2.20 Paragraph 3.3.9 of [APP-045] states that Minsmere-Walberswick Ramsar site and SPA shares mobile bird qualifying interest features with the Orford Ness designated sites (AOE Ramsar site and SPA), which may be linked populations. The Applicant states that LSE to the Minsmere-Walberswick sites could not be excluded as this relies on an assessment of the Orford Ness sites to determine no AEOI to those populations first.

Q2.2.4 [To the Applicant] Confirm which effect pathways were considered for potential LSE to the Minsmere-Walberswick sites, as Table 3.1 of [APP-045] identifies only one pathway (disturbance during construction and maintenance) but for the Alde-Ore Estuary sites several more pathways were identified for the same bird qualifying features.

Additional pathways

2.2.21 During the Examination, IPs identified the following additional impact pathways (see Table 2.1 of this RIES for further details):

- impacts from operational port activities
- indirect damage to habitats and impacts from climate change on the LBBG compensation site
- impacts from unexploded ordinance at the LBBG compensation site.

2.3 Summary of the Applicant's conclusion on LSE

Main HRA Report

2.3.1 The Applicant's conclusions in respect of screening are summarised in Table 9.1 of the RIAA [APP-040] and in the HRA Screening Matrices in [APP-043]. The HRA Screening Report [APP-042] provided further detail with regards to Applicant's screening assessment but as noted above, this was not updated for the Application's submission and is therefore not the

latest screening assessment. The Applicant's latest HRA screening is presented in the HRA Screening Matrices [REP5-011].

Sites for which the Applicant concluded no LSE on all qualifying features

2.3.2 The European sites and qualifying features for which the Applicant concludes no LSE are listed in the HRA Screening Matrices [REP5-011]. The Applicant concluded no LSE for 66 European sites within the NSN.

2.3.3 In its RR, NE (H20 [RR-081]) advised that all designated sites with harbour porpoise as a feature within the North Sea MU should be screened into the HRA, rather than designated sites within 26km from the Proposed Development, as proposed by the Applicant. The ExA understands this to refer to the transboundary sites presented in Screening Matrix 21 [APP-043]. As these are transboundary sites this issue is not discussed further in the RIES.

2.3.4 Other than this, the Applicant's conclusion of no LSE with respect to the sites above were not disputed by ANCB during the Examination.

Sites for which the Applicant concluded LSE on some or all qualifying features

2.3.5 The European sites and qualifying features for which the Applicant concluded LSE are listed in Table 9.1 of the RIAA [REP1-016] and in Annex 1, Table 1 of this RIES. HRA Site Integrity Matrices [REP2-004] were also provided for each of the European sites and qualifying features carried forward to consideration of AEoI (see section 3 of this RIES).

LBBG HRA Report

Sites for which the Applicant concluded no LSE on all qualifying features

2.3.6 For the LBBG compensation works, the Applicant [APP-045] concluded that there would be no LSE either alone or in combination on all qualifying features of the following Europeans sites:

- Minsmere-Walberswick Heaths and Marshes SAC
- OTE SPA
- Sandlings SPA
- SNS SAC
- Staverton Park and the Thicks Wantisden SAC

2.3.7 The Applicant's conclusions of no LSE with respect to the sites above were not disputed by NE during the Examination, with the exception of OTE SPA (see Table 2.1 below).

Sites for which the Applicant concluded LSE on some or all qualifying features

2.3.8 For the LBBG compensation works, the Applicant [APP-045] concluded that the Proposed Development would be likely to give rise to LSE, either alone or in combination with other projects or plans, on one or more of the qualifying features of:

- AOE Ramsar site
- AOE Estuary SPA
- Alde-Ore and Butley Estuaries SAC
- Minsmere-Walberswick Ramsar site
- Minsmere-Walberswick SPA
- Orfordness – Shingle Street SAC

2.3.9 The qualifying features and LSE pathways screened in by the Applicant for the LBBG compensation works are detailed in Table 3.1 of the LBBG HRA Report [APP-045] and Annex 1, Table 2 of this RIES.

2.3.10 The Applicant's decision to exclude certain LSE impact pathways were disputed by IPs. See Table 2.1 of this RIES for further details.

2.4 Examination matters relating to screening

2.4.1 Matters raised in the Examination to date, or for which the ExA seeks clarity, in relation to LSEs screened out or not considered by the Applicant are summarised in Table 2.1 below.

Table 2.1: Issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's screening of LSEs (alone and in-combination)

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
2.1.1	Impacts from operational port activity Stour and Orwell SPA (disturbance from vessel movements and loss of supporting habitat) OTE SPA (disturbance from vessel movements)	NE (J5 and J14 of [PD2-012]) advised that impacts from operational port activities should be included as an impact pathway in the screening (section 3.6 of [APP-042]). NE considered that given the Proposed Development is an extension to the Galloper Offshore Wind Farm (OWF), there is a higher likelihood of the same operational and maintenance port facility to be used (located adjacent to Harwich port, within the Stour and Orwell SPA). NE noted that impacts to bird qualifying features were greater than predicted for the Galloper OWF operational and maintenance facility. There is a risk that if the same operational port location is proposed, an AEoI may not be excluded. The Applicant [REP1-051] and [REP5-074] argued that the operational port for the Proposed Development has not yet been determined and any additional works or traffic within harbour limits would be subject to separate harbour authority licences and/or consents.	
2.1.2	Impacts from climate change Coastal lagoons Perennial vegetation of stony banks	NE (J8 [PD2-012]) advised that the LBBG HRA should include an assessment of climate change impacts noting that the shingle habitats at Orford Ness are likely to be highly sensitive to potential climate change impacts (including sea level rise, and increased storminess, wave heights,	

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
	Orfordness - Shingle Street SAC	temperatures and drought). NE considered that the Applicant should assess historical and contemporary geomorphological trends to inform future processes. The Applicant [REP1-051] provided additional information about the history of the site, concluding that the area is stable, that the shingle habitat on the site has been highly modified and is not considered to be highly sensitive, and that the proposed works will not impact the habitat's resilience to climate change and therefore an assessment of the pathway is not required. NE [REP4-061] welcomed these additions but considered there is still a need to commit prior to construction to checking the National Coastal Erosion Risk Mapping 2 (NCERM2) data, which will provide the 50 year erosion line (future coastal change), to ensure that the information remains fit for purpose and, if not, the Applicant should commit to making the necessary design changes. The Applicant [REP5-074] confirmed that it would check NCERM2 data when it becomes available, but for the reasons provided in [REP1-051] effects on the proposed compensation site (PCS) arising from climate change are assessed as unlikely during the lifetime of the wind farm.	
2.1.3	Collision risk to marsh harrier AOE SPA	NE (J16 [PD2-012]) advised that the Applicant has not provided sufficient evidence in support of the migratory behaviour of marsh harrier to support screening it out of the HRA. The Applicant provided	**QT2.1.3 [To NE] The Applicant argues that marsh harrier and nightjar migrate to**

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
	Minsmere to Walberswick SPA and Ramsar site	additional citations [REP1-051] however NE considered these references to be too old and maintained its position that LSE cannot be excluded.	**southern Europe and sub-Saharan Africa (in a southerly direction) and therefore considers it highly unlikely that migrating marsh harrier and nightjar from the AOE and Minsmere-Walberswick SPAs have connectivity with the Proposed Development's array located to the east. On what basis does NE consider there is a risk that these species would migrate east and encounter the array?**
2.1.4	Collision risk to nightjar Minsmere to Walberswick SPA	As above (see NE J17 [PD2-012]).	See above.
2.1.5	Impacts to benthic habitats supporting SPA and SAC qualifying features (prey availability) Red throated diver	NE (E2 and E18, [PD2-007]) queried the Applicant's assessment of pressures and impacts to SPA supporting benthic habitats. It highlighted the red-throated diver feature of the OTE SPA, present in the order limits and vessel transit route. NE (B3,	The ExA notes that [REP5-011] screens out LSE for red-throated diver of OTE SPA for prey availability. It therefore understands NE's

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
	OTE SPA	[PD2-004]) advised that the impacts to SPA and SAC supporting habitat, protected habitats and significant bedforms in the arrays were not sufficiently considered. NE [B19, [PD2-004]) stated that further detail was required to inform the impact assessment for potential changes to suspended sediment concentrations (SSC), bed levels and sediment arising from construction in the array area given the presence of sensitive species such as spawning herring. The Applicant [REP1-051] committed to a seasonal piling restriction to mitigate underwater noise impacts in the array area (for spawning herring) to provide reassurance on potential impacts to fish as prey items. It stated that designated features of the OTE SPA are generally fish feeders, with low to medium impact on benthic habitats, no secondary impacts on fish prey availability should occur. Detailed assessments of potential impacts were undertaken in [APP-071] and impacts on prey availability are considered in ES chapters for offshore ornithology [APP-073], benthic and intertidal [APP-074], fish and shellfish [APP-075] and marine mammals [APP-076]. The Applicant submitted sediment plume modelling [REP1-057]. NE [REP3-031] considered this addressed some concerns but the thickness of sediment deposition remains a concern for benthic habitats and fish spawning areas. It advised that	comments to relate to the Applicant's screening of LSE but would welcome clarification if this is not the case. **QT2.1.5 [To NE] Confirm if these matters are resolved. If not, confirm for which European sites and qualifying features you are not content and identify what further assessment you consider is required from the Applicant.**

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
		the WCS due to multiple adjacent or simultaneous construction activities should be clarified. NE [REP4-061] and [REP5-096] reported that B3 had not progressed so did not update its advice for E2 and E18. For B19, NE confirmed that additional sediment plume modelling [REP1-057] resolved its concerns about the MDS for sediment plume extent but overall change in seabed level from construction activities remains unclear. NE (P5, [REP5-096]) stated that a WCS or MDS for construction related sediment transport in the array areas was needed to inform assessment for fish and for operational impacts to seabed morphology. The Applicant [REP5-074] reiterated that an assessment of benthic supporting habitats for bird features was included in (sections 5.10 and 5.11, [APP-074]). OTE SPA is assessed in section 11.4 of the RIAA [REP1-016]. The MDS or WCS for construction-related sediment deposition thickness in the array areas is in (paragraph 2.10.8 and Figures 2.3 and 2.4 of [APP-071]).	
2.1.6	Unexploded ordinance	National Trust [RR-080] raised the risk that the proposed LBBG compensation site has the potential for unexploded ordinance (UXO) present. This is not considered as an impact pathway in the LBBG HRA.	**QT2.1.6 [to the Applicant] What risk is posed to the designated sites from the potential presence of UXO at the LBBG compensation**

ID	Site, feature and impact pathway	Details of issue	ExA observation/ question
			site? Address this in the LBBG HRA if required.

2.5 Summary of Examination outcomes in relation to screening

2.5.1 The ExA's understanding of the Applicant's and NE's current positions in relation to LSEs is set out above. The Applicant's position is also summarised in Annex 1, Tables 1 and 2 of this RIES.

2.5.2 To date in the Examination, the matters identified in Table 2.1 of this RIES in respect of disputed LSEs remain unresolved. The ExA seeks responses from the Applicant and NE, where indicated, to provide clarity on the outstanding matters.

3 ADVERSE EFFECTS ON INTEGRITY

3.1 Conservation objectives

3.1.1 The conservation objectives for the European sites for which an LSE was identified by the Applicant at the point of the Application's submission were included within the Summary of Designated Sites [APP-044] for the Proposed Development and in the LBBG HRA Report [APP-045] (Table 3.1) for the LBBG compensation works.

3.1.2 The Summary of Designated Sites [APP-044] states for Foulness (Mid Essex Coast Phase 5) Ramsar (paragraph 7.1.3) and Humber Estuary Ramsar (paragraph 30.1.5) that conservation advice packages are not produced, therefore the Applicant has applied the conservation advice for overlapping European designations where qualifying features align. Within [APP-044] the following Ramsar sites do not have identified conservation objectives and there is no reference as to whether the conservation advice packages from overlapping designations have been applied (though all have SPA overlapping designations):

- AOE Ramsar site
- Abberton Reservoir Ramsar site
- Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site
- Deben Estuary Ramsar site
- Colne Estuary (Mid-Essex Coast Phase 2) Ramsar site
- Hamford Water Ramsar site
- Dengie Estuary Ramsar site
- Minsmere-Walberswick Ramsar
- Stour And Orwell Estuaries Ramsar site

Q3.1.3 [To the Applicant] Confirm if in the absence of conservation advice packages for the Ramsar sites listed above, whether conservation objectives from overlapping designations have been applied. Update the Summary of Designated Sites [APP-044] to clarify this.

3.1.3 The conservation status (favourable or unfavourable) of the following sites for which NE advises that AEoI cannot be excluded is not specified in the Summary of Designated Sites [APP-044] or RIAA [REP1-016]:

- AOE SPA
- FFC SPA
- Farne Islands SPA
- OTE SPA
- Minsmere-Walberswick SPA

Q3.1.4 [To the Applicant] Confirm the conservation status of the European sites listed above.

3.1.4 For other European sites for which NE advises AEoI cannot be excluded, the RIAA [REP1-016] states that Stour and Orwell Estuaries SPA is in favourable condition for Brent goose and knot bird qualifying features but unfavourable condition for several others (black tailed godwit, redshank, dunlin, pintail, waterfowl assemblage, curlew, lapwing and grey plover). It confirms that the SNS SAC is in favourable condition and suggests that MLS SAC is in unfavourable condition as the conservation objective is to achieve favourable conservation status (FCS) (see Table 3.1 of this RIES for further discussion of the conservation advice package for MLS SAC).

3.1.5 The LBBG HRA (Table 3.1 [REP4-007]) suggests that Orfordness – Shingle Street SAC is in unfavourable condition as the conservation objective is to achieve FCS.

3.2 The Applicant's assessment

3.2.1 The European sites and qualifying features for which LSE were identified were further assessed by the Applicant to determine if they could be subject to AEoI from the Proposed Development, either alone or in combination. The outcomes of the Applicant's assessment of effects on integrity are summarised in Table 14.1 of the RIAA [APP-040] and section 4.5 of the LBBG HRA Report [APP-045].

3.2.2 The Applicant's HRA Report identified mitigation measures in section 8 of the RIAA [APP-040] and section 4.4 of the LBBG HRA Report [APP-045]. These were considered in the Applicant's assessments of effects on integrity.

Main HRA Report

3.2.3 The Applicant's conclusions on AEoI were summarised in sections 11 (Proposed Development alone) and 12 (Proposed Development in-combination) of the RIAA [APP-040] by receptor group. The conclusions were also presented in the HRA Integrity Matrices [APP-041].

Sites for which the Applicant concluded no AEoI

3.2.4 The RIAA [APP-040] concluded that AEoI on European sites could be excluded, both from the Proposed Development alone and in-combination, for all European sites and qualifying features assessed except for the LBBG qualifying feature of the AOE Ramsar site and SPA.

3.2.5 Despite this conclusion, the Application includes a "without prejudice" derogation case and information on proposed CM for the European site and features listed below [APP-040]:

- MLS SAC – sandbanks which are slightly covered by sea water all the time.
- FFC SPA – kittiwake, guillemot and razorbill.

3.2.6 This RIES provides an overview of the derogations and CM in section 4.

3.2.7 The Applicant's conclusions in respect of 9 European sites were disputed by IPs and questioned by the ExA during the Examination. See section 3.3 of this RIES for further details.

Sites for which the Applicant identified the potential for AEoI

3.2.8 The Applicant concluded that the Proposed Development would result in AEoI to the following European site and features, in combination with other projects or plans:

- LBBG qualifying feature of the AOE Ramsar site and SPA – from collision risk during operation.

3.2.9 The above sites and feature were therefore the subject of a derogation case produced by the Applicant. This RIES does not include a detailed discussion of matters relating to the derogations or to CM but provides an overview in section 4 for context.

LBBG HRA Report

3.2.10 The Applicant's LBBG HRA Report [APP-045] concludes that the Proposed Development would not adversely affect the integrity of any of the European sites and features assessed, either alone or in combination with other projects or plans.

3.2.11 For the Minsmere-Walberswick Ramsar site (marsh harrier and avocet) and SPA (marsh harrier, little tern and avocet), paragraph 3.5.4 of the LBBG HRA [APP-045] states that these would only be subject to detailed assessment if it was concluded that AEoI could not be excluded following mitigation to the equivalent bird qualifying features of the AOE Ramsar site and SPA. [APP-045] concludes no AEoI in this regard subject to the implementation of mitigation (section 4.5) so no detailed assessment of the Minsmere-Walberswick was presented.

Q3.2.1 [To the Applicant] It is concluded in the LBBG HRA that there would be the potential for an LSE at Minsmere-Walberswick Ramsar and SPA. Can the Applicant signpost the ExA to its assessment of AEoI for these sites. An update to [APP-045] is requested to clarify the conclusions in this regard.

3.2.12 The Applicant has presented screening and integrity matrices to accompany the RIAA (see [REP5-011] and [REP2-004] respectively) but has not provided equivalent matrices for the LBBG HRA.

Q3.2.2 [To the Applicant] The Applicant is requested to provide screening and integrity matrices for the designated sites assessed in the LBBG HRA. Given that some sites are included within the scope of both HRA reports, the Applicant is requested to provide a single matrix to holistically capture the impacts from the Proposed Development in its entirety.

3.3 Examination matters

3.3.1 Matters raised in the Examination to date, or for which the ExA seeks clarity, in relation to AEoIs are summarised in the section below. The

following section is structured by receptor group, mirroring the structure of the RIAA and the representations from NE. The following receptor groups were identified by the ExA for inclusion, where matters relevant to HRA were raised by IPs:

- benthic and intertidal ecology, and supporting marine processes
- marine mammals
- offshore ornithology
- onshore ecology

3.3.2 In its RR, NE [PD2-002] listed sites for which it could not advise that AEoI could be excluded beyond reasonable scientific doubt. The ExA (ME.1.14, [PD-011]) asked NE to clarify if its advice was that for the sites not listed, it was content with the Applicant's conclusions in the RIAA [REP1-016].

3.3.3 NE (ME.1.14 [REP3-034]) advised it was content that sufficient information is presented in the RIAA [REP1-016] to support a conclusion of no AEoI to the European sites screened in, which are not listed in Table 5.1 of [PD2-002]. This is all of the European sites considered for AEoI in [REP1-016] **other than the following**:

- AOE Ramsar and SPA
- FFC SPA
- Farne Islands SPA
- MLS SAC
- Orfordness – Shingle Street SAC
- OTE SPA
- SNS SAC
- Stour and Orwell Estuaries SPA

Benthic and intertidal ecology and supporting marine processes

MDS or WCS for impacts to MLS SAC

3.3.4 NE (B references in [PD2-004] and E references in [PD2-007]) raised concerns about whether the MDS or WCS used for assessing impacts to the SAC from installation, maintenance and decommissioning of the offshore cable and associated cable protection were realistic. It requested further detail about:

- Length and volume of cable protection, the requirement for replacement or repair (including scour protection) over the lifetime of the Proposed Development and the implications of this for seabed disturbance and disruption to sediment transport (B1, B13, E1, E3, E6, E7, E24, E27 and E31).
- If cable protection is required at the horizontal directional drilling (HDD) exit pits (E8 and E31).

- Whether seabed impacts included consideration of:
  - unexploded ordnance (UXO) clearance (B10, E8 and E31)
  - boulder clearance and depositing of boulders in areas with similar boulders (B10 and E8)
  - pre-lay grapnel run activities (B10).
- If cable trial trenching is proposed (E8) and a request to use an assumed rate of 100% fluidised and displaced material from cable trenching not 50% (B4 and B9).
- Parameters for dredge disposal (other than within the same sediment type), differentiation between disposal inside and outside of the SAC, and potential for disruption of sediment transport (E9, E11 and E12).
- Potential for sediment deposition from sandwave levelling (E33).
- Detail of operation and maintenance activities, noting the absence of an outline plan describing these (E25).

3.3.5 These matters are considered in detail in Table 3.1 of this RIES.

Cable burial depth

3.3.6 The outline Cable Burial Risk Assessment [APP-239] shows that the ECC crosses important shipping areas, including the Trinity Deep Water Route (DWR) and the Sunk DWR.

3.3.7 Harwich Haven Authority (HHA) and the Port of London Authority (PLA) (including [AS-069] and [REP5-107]) stated that a maximum cable burial depth below Chart Datum (CD) of 22m is required throughout the DWRs. This is to allow for unfettered navigation of larger vessels with 20m draughts and to ensure cables are not disturbed by dredging activities.

3.3.8 The Applicant explained in the SoCG between itself and HHA [REP5-057], that it cannot commit to a burial depth of 22m below CD within the MLS SAC.

3.3.9 This matter was discussed at ISH6 and ISH7 [EV10-005] and [ENV12-003]. It has now been confirmed that the DWRs would be entirely outside of the MLS SAC. Accordingly, the maximum cable burial depth of 22m below CD sought by HHA and PLA would not be applicable within the MLS SAC. The burial level would remain at 19m below CD within the SAC, as assessed within the HRA Report [REP1-016].

AEoI to MLS SAC

3.3.10 NE (E4 and E20 [PD2-007], [REP4-061] and [REP5-096]) disputed the Applicant's conclusion [REP4-016] of no AEoI to MLS SAC. NE notes that the SoS decisions for Hornsea Project 3, Norfolk Boreas, Norfolk Vanguard and Dudgeon and Sheringham Shoal OWFs determined that placement of cable protection would have a lasting impact over the lifetime of the Proposed Development. The overall condition of the designated feature of

the MLS SAC is similar to the SACs considered in the earlier OWF decisions and placement of cable protection is likely to hinder its conservation objectives. NE could not exclude an AEoI beyond reasonable scientific doubt for the Proposed Development alone or in-combination with other projects and plans.

3.3.11 NE (B1 and B27 [PD2-004]) raised concerns that presence of cable protection measures could impact sediment transport processes to the detriment of Annex I features of the SAC. It stated (E12 [PD2-007]) that dredge or sediment disposal should not interrupt sediment transport.

3.3.12 NE provided advice on how the scale of habitat loss (E34 and E35 [PD2-007]) and change to physical process (E36 [PD2-007]) from cable protection should be considered. It did not agree with the Applicant's conclusion of no AEoI based on small scale change.

3.3.13 Based on [PD2-004] and [PD2-007], the ExA understands that NE's advice is that AEoI to the MLS SAC cannot be excluded for the following pathways assessed in the RIAA [REP1-016] because of installation, maintenance and decommissioning of cable and associated cable protection:

- physical habitat loss or disturbance (construction (C), operation (O) and decommissioning (D))
- suspended sediment or deposition (C, O and D)
- changes to physical processes (O)

Q3.3.1 [To NE] Confirm if the ExA's understanding is correct or, if not, clarify which other activities are of concern and which pathways it considers cannot be excluded from AEoI and provide an explanation for each.

Table 3.1: Annex I habitats - key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's assessment of effects on integrity (alone and in-combination)

ID	Issue	Details	ExA observation/ question
MARGATE AND LONG SANDS SAC			
3.1.1	MDS and WCS for cable protection and additional scour	NE (E1, E3, E6, E7, E24 and E27 [PD-007]) sought further detail and quantification of design parameters for cable protection (if needed) and additional scour. It requested further justification for the quantification of benthic impacts. In response to ExQ2 [PD-014], NE (ME.2.02 [REP4-063]) queried if 900m was the total protection per cable or the total required. It advised there was insufficient detail about potential replacement of scour prevention and cable protection over the lifetime of the Proposed Development and noted inconsistencies in figures used across the DCO documentation including in relation to the definition of WCS. It queried (B10 [PD2-004]) if the assumed number of cable replacements or repairs were realistic and suggested consideration be given to evidence from similar activities at Galloper OWF. NE (E8 and E31 [PD2-007]) asked if cable protection was needed at HDD exit pits and, if so, an assessment of impacts. The Applicant provided clarification on the definition of the MDS/WCS and the parameters associated with the cables [REP1-051]. It confirmed 5,400m^2 was the maximum volume inclusive of repair and removed the word "additional" from the RIAA [REP1-016] to avoid confusion. It updated the MLS SAC Benthic Mitigation Plan [REP2-020] to specify any cable repair would not	The ExA notes that a further update of the technical note to address NE's outstanding comments on the MDS and WCS will be submitted by the Applicant at DL6.

ID	Issue	Details	ExA observation/ question
		result in an exceedance of 5,400m^2 of protection and committed that beyond construction any additional cable protection would be subject to a separate marine licence. The Applicant [REP1-051] stated that cable protection in the intertidal area would be buried and not consist of loose rock or gravel. Works at the HDD landfall would be well outside of the SAC and have no potential to affect its conservation objectives. The Applicant provided a technical note explaining its method for determining the offshore MDS [REP2-027]. It commits to the cable taking the shortest route through the SAC in [REP2-020] and based on preliminary work notes that this results in indicative routes between 0.4km and 1.5km within the SAC. An assumption of 50% of the cable requiring protection was applied to an assumed routeing of 900m per cable in the SAC, with an assumed mattress width of 6m to result in the maximum volume of 5,400m^2. The Applicant has committed to remove cable protection from the SAC at the point of decommissioning and states this was assessed, noting there would be a degree of temporary disturbance. NE (ME.2.02 [REP4-063]) was not content with [REP2-027] and was still unclear [REP4-061] if potential for the addition of further rock protection due to secondary scour was included in the MDS. The Applicant (ME.2.02 [REP4-039]) confirmed it had submitted an updated technical note [REP4-034], responding to NE's comments in (E6 and E7 [PD2-007]). The note provides the rationale for the values of	

ID	Issue	Details	ExA observation/ question
		cable repairs and likely failure rate which are considered to be conservative. It stated that Rampion 2 OWF used an assumed value of 6 repairs for 250km cable. The Applicant considers it would not be appropriate to use operational data from Galloper OWF, as methods have matured and industry experience has led to improvements. NE (P14, E1 and E7 [REP5-097]) welcomed [REP4-034] but advised that the MDS or WCS for cable protection within the SAC should be clarified, and relevant documents updated. It stated that [REP4-034] did not confirm the total area or volume of protection needed in the SAC for both cables and it is unclear how the regulator would be certain the WCS had not been exceeded. It stated that [REP4-034] deals with cable installation only and does not cover operation, as such its concerns in (A15 [PD2-003] [REP5-096]) remain and any cable protection during operation should be subject to further licensing. NE (E3, E6, E7, E24 and E27 [REP5-096]) was still unclear if potential for additional rock protection due to secondary scour was included in the MDS or WCS for scour protection in the SAC (and considered in the RIAA). NE [REP5-096] continues to identify these matters as not agreed. The Applicant [REP5-074] confirmed that the maximum volume of 5,400m^2 (or 900m length) of cable protection included any requirement for cable repair or replacement or cable exposure during operation. It agreed to update the technical note to make this clearer at DL6.	

ID	Issue	Details	ExA observation/ question
3.1.2	Deployment of cable protection	NE's (A15 [PD2-003]) standard position is that due to the complex and changeable nature of the marine benthic environment it is not appropriate to issue licences to deploy cable protection over a long period. It requested Condition 26 of the deemed marine licence (DML) (Schedules 10 and 11 of the dDCO [AS-031]) be amended to ensure cable protection in the SAC would only be deployed during construction. The Applicant states that Condition 26 restricts use of cable protection to within 10 years from grant of DCO, not start of construction or operation, therefore deployment is already significantly time limited. It considers this restriction appropriate to allow reasonable flexibility in construction timing, whilst restricting deployment during operation. The condition wording (re-numbered as Condition 28) remains unchanged in [REP5-007]. NE [REP5-096] provided further advice to the Applicant at a meeting on 9 December 2025 and awaits an update from the Applicant before providing further advice.	**QT3.1.2 [To the Applicant] The ExA understands that this matter remains under discussion and based on NE's comments at DL5 expects a submission from the Applicant providing an update at DL6. If this matter remains not agreed at DL6, the Applicant is requested to submit revised wording for Condition 28 that would secure the restriction sought by NE on a without prejudice basis.**
3.1.3	Sediment disturbance from cable trenching	NE (B4 and B9 [PD2-004]) highlighted uncertainty about the WCS for sediment disturbed by cable trenching. It requested further evidence and advised the Applicant to use an assumption of 100% of material being fluidised and displaced. NE (E8 [PD2-007]) sought confirmation of the location, size and timing of trial trenching proposed. The Applicant updated the MLS SAC Benthic Mitigation Plan [REP2-020] and Outline Cable Specification and	**QT3.1.3 [To NE and the Applicant] Advise if this matter is resolved, based on the Applicant's confirmation modelling of cable trenching assumed up to 100% of material being fluidised.**

ID	Issue	Details	ExA observation/ question
		Installation Plan (CSIP) [REP4-019] to include a commitment to no trial trenching in the SAC. The Applicant [REP1-051] adopted an assumption of 100% of material being fluidised and displaced, as set out in [APP-071], and stated this assumption was applied in sediment plume modelling in [REP1-057]. Table 2.8 in [APP-071] states that the MDS is 50% of material fluidised with a sensitivity check of 100% in localised areas. The Applicant's technical note [REP2-027] however stated that trenching values were estimated with a 50% assumption. NE [REP3-033] recorded this matter as resolved based on [REP1-051] but then [REP4-061] sought clarification given contradictory information in [REP2-027]. The Applicant [REP4-034] clarified its approach. It stated that sensitivity checks using a 100% assumption showed cable installation would not result in greater sediment disturbance than assessed in the MDS, as confirmed in [REP1-057] based on sediment plume modelling using a 100% assumption. NE [REP5-096] stated that further clarification is needed as to whether the MDS assumes 50% or 100% of the material being ejected during trenching. The Applicant [REP5-074] stated that modelling of trenching assumed up to 100% of material may be fluidised, which is used in the assessment as recommended by NE.	
3.1.4	Boulder and UXO clearance, and	NE (E8 [PD-007]) sought further detail to determine if the WCS used in the assessment was realistic. It stated	**QT3.1.4 [To NE and the Applicant] Confirm if this**

ID	Issue	Details	ExA observation/ question
	pre-lay grapnel run	(B10 [PD2-004]) that the WCS for potential morphological impacts during construction should consider boulder clearance, UXO clearance and pre-lay grapnel run (in addition to sandwave clearance via dredging, which has been assessed). NE (E31 [PD2-007] advised the RIAA should be updated to consider impacts from UXO clearance along the ECC. The Applicant [REP1-051] stated that impacts associated with these construction activities were considered in the envelope of cable installation assessed in ES Chapter Marine Geology, Oceanography and Physical Processes [APP-071]. No activities have the potential to cause greater impacts (morphological change or increase in SSC) than activities already assessed (sandwave clearance and cable trenching). Where boulders need to be cleared in the SAC, they would be deposited within areas of similar seabed. Details of UXO removal would be provided in a separate marine licence application but an Outline UXO Marine Mammal Mitigation Protocol (MMMP) [APP-245] was submitted for information. NE noted [REP5-097] that [REP4-034] sets out clarification on boulder clearance and pre-lay grapnel run but [REP4-061] and [REP5-096] continue to show these as not agreed.	**matter is resolved based on information provided by the Applicant including in [REP4-034]. If the matter has not been resolved, explain why that continues to be the case.**
3.1.5	Deposition from dredge disposal and sandwave levelling	NE (E9, E11 and E12 [PD2-007]) advised that parameters used to determine dredge disposal criteria other than within the same sediment type may not be realistic. It requested commitments to avoid priority	The ExA understands that NE will provide updated advice at DL6 and this matter remains under discussion.

ID	Issue	Details	ExA observation/ question
		areas and key areas of supporting habitats for mobile interest features of the designated sites. NE advised that mitigation in designated sites should include deposition in areas with the same sediment size and characterisation, and use of a fall pipe rather than surface release. Any disposal should not interrupt sediment transport and mitigation and monitoring should be considered from a HRA perspective to assess if residual impacts are as predicted. The Applicant [REP1-051] stated that the MDS is a robust characterisation and as specified in the Dredge Disposal Site Characterisation Report [REP4-017], disposal of soil in situ is the most environmentally robust approach. Disposal of drilled and dredged materials is expected to occur close to the area of disturbance and consequently no or slight change is expected concerning sediment size and characterisation. This corresponds to a mitigation measure to minimise change of sediment size and characterisation along the ECC, which the Applicant specified in an Outline Sediment Disposal Management Plan (SDMP) [REP4-041]. The Applicant stated that [REP4-017] demonstrates that levelling due to disposal is not likely to create a barrier to sediment transport and monitoring is unlikely to be required but would be confirmed in the final Offshore In Principle Monitoring Plan (OIPMP). The Applicant stated that berms associated with trenching are present for no more than a few weeks and would not affect hydrodynamics and sediment transport in the long term. Mitigation measures are proposed in the	

ID	Issue	Details	ExA observation/ question
		intertidal area to minimise impact on waves and associated sediment transport [REP4-017]. Outline SDMP [REP4-041], section 3.7 set out dredge disposal commitments in the SAC, to ensure that sediment remains in the same cell and is not removed from the sediment transport system. The Applicant has committed to using a discharge pipe to deposit material back to the seabed where possible and measures to minimise smothering impacts. NE (E33 [PD2-007]) stated that the RIAA does not fully consider sediment deposition from sandwave levelling to ensure it is deposited in the same sediment type and any mitigation proposed should be taken through to the RIAA. The Applicant [REP1-051] confirmed that the Schedule of Mitigation (measure 53 [REP5-041]) includes a commitment that all sediment removed from the SAC would be deposited in the SAC or same sediment cell. This information would be incorporated into Table 8.1 of the RIAA at a future deadline but this was not actioned by DL5. In response to the ExA's [PD-023] request for confirmation as to how NE's concerns will be addressed, the Applicant [REP5-091] reiterated its commitments in [REP5-041]. NE [REP4-061] stated that as further mitigation has been committed to it would update its advice.	
3.1.6	Indirect effects to the SAC	NE (E32 [PD2-007]) advised that the sandbank feature of the SAC extends beyond the SAC boundary and there was potential for indirect effects from impacts to sandbank outside of the SAC.	**QT3.1.6 [To NE] Noting the Applicant's response in [REP1-051], confirm if this matter is resolved. If**

ID	Issue	Details	ExA observation/ question
		The Applicant [REP1-051] states that evidence suggests the sandbank feature does not extend beyond the SAC boundary other than to the east. The distance between the Proposed Development and sandbank to the east is such that there would be no indirect effects. NE [REP4-061] and [REP5-096] reported no change in its advice.	**not, provide any evidence you hold that the Proposed Development could result in indirect effects for the SAC.**
3.1.7	High Voltage Direct Current (HVDC)	NE (E19 [PD2-007]) noted that the option to adopt HVDC within the ECC was ruled out and advises the Applicant to consider further mitigation to reduce impacts. The Applicant [REP1-051] states that the reasonable worst-case with non-HVDC cables was assessed in the RIAA [REP1-016]. Use of HVDC is not financially viable given the distance to shore and project capacity. It would require additional cables for redundancy and a larger onshore substation than proposed so would not represent a reduction in impact. Further mitigation measures were set out in [REP5-027]. NE [REP4-061] and [REP5-096] reported no change in its advice.	**QT3.1.7 [To NE] Noting the Applicant's response in [REP1-051], confirm if this matter is resolved. If not, provide any evidence you hold that use of HVDC cable would further mitigate impacts.**
3.1.8	Operational and maintenance activities	NE (E25 [PD2-007]) was concerned that an operation and maintenance plan that clearly set out activities during this phase was not provided. It required more detail about the activities (as described elsewhere in PD2-007] before advising on the sufficiency of the RIAA [REP1-016]. The Applicant [REP1-051] stated that an Outline Offshore Operations and Maintenance Plan (OOMP) was	**QT3.1.8 [To NE] Confirm what additional information about operational activities you consider is required in the Outline OOMP [APP-248]**

ID	Issue	Details	ExA observation/ question
		submitted as [APP-248]. It committed to updating the Outline OOMP at a future date but had not done so by DL5. NE [REP4-061] and [REP5-096] reported no change in this matter and did not comment on information in [APP-248].	**and why that is necessary at this stage.**
3.1.9	Disruption of sediment transport due to cable protection	NE (B1 and B27 [PD2-004]) stated the Applicant needed to demonstrate that presence of cable protection within and outside of the SAC would not affect sediment transport processes at the placement location to the detriment of the sandbank feature. NE was concerned existing anthropogenic pressures may have reduced the SAC's capacity to withstand further impacts and disputed the adequacy of the evidence supporting the Applicant's conclusions on the impacts to the SAC (E36 [PD2-007]). NE considers any change associated with placement of cable protection could have a lasting impact. NE requested further consideration of potential change from parallel lengths of cable protection. The Applicant [REP1-051] stated that the MLS SAC Benthic Mitigation Plan [APP-243] commits to cable protection as a last resort, with use of mattresses rather than rock berms so impacts to sediment transport would be low; the small amount of sediment accumulation possible would be limited by the low height of the cable protection (if needed). It considers that it has provided a robust assessment using a reasonable worst-case for cable protection.	**QT3.1.9 [To NE] Provide any evidence you hold to suggest the Applicant's conclusions on sediment transport are not realistic. Identify any alternative benchmarks to MarESA that would be appropriate for use. Submit any relevant evidence you hold from London Array monitoring.**

ID	Issue	Details	ExA observation/ question
		The Applicant [REP1-051] clarified that benchmarks used in its assessment were taken from NE's Advice on Operations document dated 18 March 2024. It amended the RIAA [REP1-016] to include this reference. The Applicant acknowledges that the presence of cable protection could lead to a very small volume of sediment being trapped in rock voids with a similarly small volume accumulating on the updrift side of the berms but states that thereafter the sediment can reasonably be expected to transport at the same rate and direction as under baseline. Any indirect changes to sediment transport from modification of tidal currents and waves would be highly spatially restricted. The Applicant states [REP5-074] that the basis of the assessment is consistent with sediment transport theory and empirical evidence. NE [REP4-061] maintained its position that the evidence supporting the Applicant's conclusions on the effects on the sediment transport regime needed to be further evidenced. It noted that MarESA benchmarks used in the Applicant's assessment are for single discrete events not events over the lifetime of a project. It advised the Applicant to clarify if impacts assessed are for a single discrete event or to otherwise justify its position. In response to ExQ2 [PD-014], the Applicant (ME.2.05 [REP4-034]) provided an estimate of maximum sediment volume that may be trapped in rock voids or accumulated on berms of the cable protection for different size rock berms (Table 2). It contextualises this against the size and proximity of the Annex I	

ID	Issue	Details	ExA observation/ question
		sandbank at Figure 7. The Applicant presented information about historic movement of the sandbank in Figure 8 and stated its scale and the wider sediment transport regime are many orders of magnitude larger than potential cable protection. NE (B1 and B27 [REP5-096]) welcomed the Applicant's consideration in [REP4-034] but stated further evidence is needed that only very minor changes would occur; it was concerned about impact on complex patterns of sediment circulation around the SAC's northern tip, and in turn seabed morphology and sediment composition (P4 [REP5-096]). NE (E36 [REP5-096]) records no change in its advice on the use of MarESA benchmarks. NE [REP5-097] did not comment further on updates to [REP4-034] relating to the MDS for trapped sediment but states that should not be taken as meaning it agrees with the Applicant, especially given evidence of exposed cable or scour protection at London Array OWF. The Applicant [REP5-074] disputed NE's position that all MarESA benchmarks refer to a single discrete event. It provided further justification for the MDS for temporary increase in suspended sediment and sediment deposition and the approach used to assessing impacts. The Applicant [REP5-074] stated that potential impacts of cable protection on sediment transport were assessed in (paragraph 2.11.61 onwards in [APP-071]). The height of cable protection is small relative to total water depth (typically 30m) and would not present any meaningful obstruction to currents. For far field effects,	

ID	Issue	Details	ExA observation/ question
		the assessment used a reasonable assumption that if currents (the main driver for rates and patterns of sediment transport) are not changed then neither is the natural sediment transport regime. The Applicant [REP5-074] stated that explicit modelling of cable protection on sediment transport would require a 3-dimensional hydrodynamic model. It considers that such detailed modelling could only be used to simulate a small seabed area for a short period or to account for differences in sediment type, water depth and other hydrodynamic variables in the study area. The Applicant stated there is no reason to suggest that modelling based on sediment dynamics theory would be inconsistent with the conceptual assessment.	
3.1.10	Impacts to seabed morphology from tidal change due to array area infrastructure	NE (B17 and B18 [PD2-004]) stated that impacts to seabed morphology related to tidal regime change from the presence of WTG and offshore substation platform (OSP) foundations during operation were not assessed. It requested consideration of the likely extent and significance of impacts upon SAC supporting habitats. The Applicant [REP1-051] stated that impacts were assessed and no measurable change in residual sand transport rate or direction is predicted. This was verified through sand transport modelling in [APP-101]. Changes to seabed morphology are similarly limited on the basis that changes to sediment transport are negligible. NE [REP4-061] [REP5-096] maintained its position and stated that pre- and post-construction monitoring of	**QT3.1.10a [To NE] Provide any evidence you hold that the Applicant's modelling is not a reliable basis from which to assess impacts from tidal change. Clarify if your advice is that tidal change from presence of array infrastructure could result in AEoI of the MLS SAC.** **QT3.1.10b [To the Applicant] Clarify if the monitoring proposed in the Outline OIPMP [REP5-**

ID	Issue	Details	ExA observation/ question
		seabed morphology should be carried out to ensure no unexpected changes occur. The Applicant's Outline OIPMP [REP5-043] commits to pre-construction surveys of the final array area and refined ECC to provide full sea floor coverage swath-bathymetric and side-scan data where construction works are proposed and single survey post-construction to assess any changes in seabed topography. The Applicant states that the pre-construction survey scope and method would be submitted to the Marine Management Organisation (MMO) at least 6 months before commencement in line with the relevant DML in the dDCO [REP5-007].	**043] would include seabed morphology change, noting that DML Conditions 18 and 20 [REP5-007] do not refer to seabed change.**
3.1.11	Scale of impact within the SAC	NE (E34 and E35 [PD2-007]) provided advice on small scale losses, noting that the RIAA [REP1-016] argued that impacts are small. It referred to the SoS decision for Sheringham and Dudgeon Extension Projects (SADEP). NE advised in those cases measures of equivalent environmental benefit (MEEB) were required to compensate for a volume of cable protection proposed at the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ) that is less than the Applicant is proposing at the MLS SAC. NE considers placement of any cable protection or scour prevention would constitute a lasting impact over the lifetime of the Proposed Development that is potentially irreversible and the scale of impact could hinder the 'maintain' conservation objective for the habitat whilst in situ. The impact could extend beyond the operational life due to limitations in the ability to remove cable protection. NE	The ExA understands that the Applicant and NE are unlikely to reach agreement on the scale of impact within the SAC from the placement of cable protection or scour prevention.

ID	Issue	Details	ExA observation/ question
		referred to the SoS decisions for Hornsea Three, Norfolk Boreas and Vanguard, and Sheringham and Dudgeon OWFs to support this position. The Applicant [REP1-051] stated that the predicted scale of loss within the SAC would be low (0.0008% of its area) and robust mitigation would be applied by only using cable protection after exhausting all options for cable burial as set out in [REP4-021]. The Applicant [REP1-051] provided information about the scale of cable protection delivered or proposed in the other OWFs (Hornsea Three identifying potential for 41.8 hectares and Norfolk Boreas and Vanguard potential for 40 hectares) and reiterated that by comparison, the Proposed Development's extent would be small (0.5 hectares). In response to ExQ2 [PD-014], the Applicant (ME.2.06 [REP4-039]) provided examples of where a conclusion of no AEoI had been accepted on the basis of a small scale loss or disturbance. The Applicant stated that the most analogous example is Triton Knoll Electrical System DCO, for which the ECC is in part routed through the Inner Dowsing, Race Bank and North Ridge (IDRBNR) SAC sandbank feature (noting that the SAC was an SCI at the time of the DCO's making). Triton Knoll included an ECC that extended into the SAC and over 0.01% of the sandbank feature with potential use of cable protection within the designated site. The recommendation was that adverse effects on the IDRBNR SCI could be excluded from the project alone and in-combination, having regard to the mitigation and	

ID	Issue	Details	ExA observation/ question
		monitoring measures secured. The Applicant noted that, whilst NE's approach to what it considers constitutes an AEoI changed over time, this is not due to legislative change and it is still possible to conclude a direct effect on a qualifying site feature does not automatically equate to an AEoI. NE (E34 and E5 [REP5-096]) records no change and stated (P12 [REP5-096]) it was unlikely to agree with the Applicant on scale and significance of impact. The Applicant [REP5-074] confirmed that the OIPMP [REP5-043] includes a commitment to monitoring all areas within the SAC where cable protection is placed, and this would be reported to the MMO for approval at least 6 months prior to commencement. Condition 14 of the DML (Schedules 10 and 11 of the dDCO [REP5-007]) secures reporting of matters required in Condition 13, including proposals for monitoring of cable protection and management of unburied or shallow buried cable to be set out in the final CSIP. The Applicant [REP5-074] maintains that the amount of cable protection within the SAC would not constitute an AEoI.	
3.1.12	In-combination assessment – scoping of developments	NE (E29 [PD2-007]) requested the Applicant use its best practice guidance for scoping projects into in-combination assessments - Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. The Applicant's [REP1-051] approach for determining project tiers is based on relevant Planning Inspectorate	The ExA understands that NE will provide updated advice at DL6 and that this matter remains under discussion. **QT3.1.12 [To the Applicant] Explain, with supporting evidence, for**

ID	Issue	Details	ExA observation/ question
		guidance, which it considers is robust and valid. In response to ExQ1 [PD-011], the Applicant explained (ME.1.11 [REP2-039]) that tiers were adapted from this guidance but included operational projects not part of the baseline. It stated NE's guidance includes seven tiers, which are all represented in Table 9.2 of the RIAA [REP1-016]. No additional projects would be screened into the assessment based on NE's guidance and as such there would be no change to the conclusions. There were no operational OWFs within the benthic zone of influence (ZoI) that were not part of the baseline. Greater Gabbard and Galloper OWFs are well into their operational phases and any construction activities would exist in the baseline survey for the Proposed Development. NE [REP4-061] noted that tier descriptions had been updated in [REP1-016] but projects considered had not changed. NE [REP5-096] advised it would update its advice at DL6.	**those OWFs described in (ME.1.11 [REP2-039]) as being well into their operational phases and considered in the baseline, what level of confidence there is that the full operational effects are understood and accounted for in the baseline.**
3.1.13	In-combination assessment – cable crossings and marine process change	NE (B2, B11, B20 and B25 [PD-004]) advised that cumulative impacts required further consideration. It considers that the Applicant should consider potential impacts from construction activities in combination with other plans, projects or activities and in the context of existing anthropogenic activities that are hindering the conservation objectives for the SAC. Potential indirect effects to the SAC from adjacent cable crossings of other developments should be considered, noting that	The ExA understands these matters may be resolved based on information provided by the Applicant, save for NE's comment that proximity of the cable crossings to the SAC and Annex I sandbank remains unclear.

ID	Issue	Details	ExA observation/ question
		there is insufficient information to assess cumulative impacts of sediment disruption. The Applicant [REP1-051] confirmed its assessment was carried out from a robust baseline as presented in [APP-099]. Its assessment in [APP-071] includes the WCS for construction activities in combination with the WCS for other projects and plans that might realistically occur at the same time and considers suspended sediment plume and sediment deposition. It concluded that redistribution or displacement of sediment volume would be kept largely in the local sedimentary system. No measurable effects to the SAC were identified from the Proposed Development alone and as such the cumulative assessment did not explicitly consider impacts on regional scale sediment volume or distribution. The Applicant [REP1-051] confirmed that impacts from cable crossings were assessed in [APP-071] and no measurable effects were predicted to extend to the SAC. The Applicant undertook sediment plume modelling as reported in [REP1-057] to supplement its analysis. NE [REP3-031] stated that modelling shows construction related elevated SSCs along the ECC, including at the SAC, dissipate quickly but that coarser sand and gravel fractions deposited by construction activities result in average thickness between 50mm to 800mm albeit within a small footprint (of up to 200m). The WCS due to multiple adjacent or simultaneous construction activities should be clarified.	**QT3.1.13 [To the Applicant] Provide any additional information available at this stage about the proximity of cable crossings to the Annex I sandbank feature.**

ID	Issue	Details	ExA observation/ question
		The Applicant [REP4-040] stated that sediment deposition thickness due to multiple construction activities is not specifically prescribed or limited so cannot be clarified. Results would be dependent on several variables. In each activity assessment, measurable thickness of deposition is only expected in relatively small distances (10s of metres) from the activity site with a low likelihood of large total area of overlapping measurable local thicknesses of deposition. For activities in the cable corridor, there are only a limited number of type and occurrences in an area. NE [REP4-061] sought further detail about the likely location and MDS parameters of any proposed cable crossings, which the Applicant provided in [REP4-034] (anticipated number (Table 1), location (Figure 1) and type of crossings, together with a table showing the maximum design envelope for cable crossings). NE [REP5-097] noted that [REP4-034] set out clarification on cable crossings. In [REP5-096], NE also noted further information in [REP4-020] but stated that proximity of the cable crossings to the SAC and Annex I sandbank remains unclear.	
3.1.14	Conservation objectives	NE [PD2-007 E26] queried why there was limited linkage to the conservation objectives in the assessment and advised that the conservation advice package was under review. NE (F43 [PD2-008]) stated that updates would set out relevant context on existing impacts to the MLS SAC to help inform in-combination	**QT3.1.14 [To NE] Submit an extract of the information uploaded to the designated sites system or summary of the condition assessment to enable the Applicant to**

ID	Issue	Details	ExA observation/ question
		assessments. It requested an update to the RIAA to take account of the information. The Applicant [REP1-051] stated that each assessment contains reference to the conservation objectives. It committed to updating the RIAA if needed once the updated conservation advice package was published. The ExA (ME.2.04 [PD-014]) sought confirmation from NE on the timescales for publication and requested submission of any relevant interim advice. NE [REP4-063] advised that it would provide an updated condition assessment but the updated conservation advice package would not be available during the Examination. NE [REP5-097] advised that it aims to update the condition assessment and have it publicly available on its designated sites system by the end of January 2025.	**review and update its RIAA [REP1-016] before the Examination's close.**
3.1.15	Invasive non-native species (INNS) (C, O and D)	The Applicant [APP-040] concluded no AEoI from INNS based on the lack of evidence of adverse effects from INNS and OWF and project commitments to mitigate risk, which would be managed through a project environmental management plan (PEMP) and biosecurity plan. The conclusion was supported by the small area in which hard substrate would be introduced to the SAC and the distance between the Proposed Development's array and the SAC's boundary, where most vessel movements would take place. An Outline PEMP [APP-249] was submitted, which includes principles for the construction and operational phases. Submission and approval of a detailed PEMP (including a	The ExA understands this matter to be agreed but seeks confirmation from NE. **QT3.1.15 [To NE] Can NE confirm that this matter is agreed.**

ID	Issue	Details	ExA observation/ question
		marine biosecurity plan) in accordance with the Outline PEMP is secured through Condition 12(d) of the DML in the dDCO [REP5-007]. NE [RR-081], [PD2-007], [REP4-061] and [REP5-096] did not dispute the Applicant's conclusion for this effect pathway.	
3.1.16	Accidental pollution (C, O and D)	The Applicant [APP-040] concluded no AEoI from accidental pollution based on implementation of measures in the PEMP. NE [RR-081], [PD2-007], [REP4-061] and [REP5-096] did not dispute the Applicant's conclusion for this effect pathway.	The ExA understands this matter to be agreed but seeks confirmation from NE. **QT3.1.16 [To NE] Can NE confirm that this matter is agreed.**
3.1.17	Electro-magnetic fields (EMF) (O)	The Applicant [APP-040] concluded no AEoI from EMF due to the lack of conclusive evidence of adverse effects from EMF upon benthic communities and project commitments to mitigate risk through cable burial or use of cable protection. The MLS SAC Benthic Mitigation Plan [REP5-027] sets out the Applicant's commitments to cable burial through a burial hierarchy or use of cable protection if needed. It forms an appendix to the Outline CSIP [REP4-019]. Submission and approval of a detailed CSIP in accordance with the outline CSIP is secured through Condition 13(g) of Schedule 11 of the DML in the dDCO [REP5-007]. NE [RR-081] [PD2-007] [REP4-061] [REP5-096] did not dispute the Applicant's conclusion for this effect pathway.	The ExA understands this matter to be agreed but seeks confirmation from NE. **QT3.1.17 [To NE] Can NE confirm that this matter is agreed.**

ID	Issue	Details	ExA observation/ question
3.1.18	Effectiveness of mitigation	NE (E13 and E30 [PD2-007]) queried mitigation proposed to avoid AEoI to the SAC. It stated that further measures should be explored noting that the MLS SAC Benthic Mitigation Plan [APP-243] repeated information from the derogations case. It (F48 [REP2-008]) stated that a Cable Burial Risk Assessment (CBRA) would be key to determining mitigation. It requested further information about why use of jack-up barges in the SAC could not be excluded. NE asked for consideration of low ordnance detonation. NE (E30 [PD2-007] and F10 and F45 [PD2-008]) considered there is insufficient detail to have certainty that cables could be buried and remain buried without protection and advised that geotechnical data is required prior to determination to inform burial likelihood, consistent with the approach on Hornsea Project Three, Norfolk Vanguard, Boreas and SADEP. It advises that the shortest route through the SAC would not necessarily reduce impacts and consideration should be given to avoiding the most sensitive habitats to enable recovery. NE advised that mitigation should be adopted to differentiate areas inside and outside of the SAC unless a precautionary approach is taken to assessing all installation and operational activities. Impacts from all cable protection types should be addressed to allow for a realistic WCS. In response to ExQ1 [PD-011], NE (ME.1.12 [REP2-059]) explained that the most impactful environmental mitigation would be to move the cable corridor out of the SAC. If this is not possible, there should be effort to	The ExA notes that the Applicant explained why the ECC had to be routed through the northern periphery of the MLS SAC, and could not be moved outside of the SAC, in its derogation case [AS-003]. This matter is discussed in section 4 of this RIES. **QT3.1.18a [To the Applicant] Confirm when an updated version of [REP5-027] that includes a commitment not to use jack-up barges in the SAC as noted in [REP1-051] will be submitted.** **QT3.1.18b [To NE] The Applicant confirmed that compliance with the MLS SAC Benthic Mitigation Plan [REP5-027] would be secured via the DML in Schedule 11 of the dDCO [REP5-007]. Is NE content with that approach. If not, explain your remaining concerns.**

ID	Issue	Details	ExA observation/ question
		reduce, avoid and mitigate impacts as much as possible. This would include limiting the length of cable route through the SAC and identifying a route that avoids features and reducing lasting impacts. NE stated that the Applicant has considered its advice in selecting the cable route and it does not believe there would be merit in assessing alternative routes through the SAC as the environmental impacts would be equal to or greater than the Proposed Development. The Applicant [REP1-051] has high confidence that cable could be buried. A burial hierarchy is set out in the MLS SAC Benthic Mitigation Plan [APP-243], with the required depth being typically determined through a CBRA and set out in a CSIP. The burial hierarchy confirms primary, secondary and tertiary burial methods. The Applicant (ME.1.08 [REP2-039]) provided further detail to support its position. It states that available ground conditions data and outline CBRA [APP-239] work illustrates that the cable would be buried into sand or London clay, which sits below surficial sediments. It was not possible to rule out cable protection if burial fails for example due to unexpected boulders or cobbles in the London clay but obtaining geotechnical data (at discrete point sources typically 1km to 2 km apart) would not assist in determining the likelihood of encountering equipment breakdown and unexpected boulders. Soils information was sufficient to confirm that the cable can be buried. The Applicant noted that detailed design undertaken post-DCO would determine the final route and burial method, informed	

ID	Issue	Details	ExA observation/ question
		by geotechnical survey. The Applicant (ME2.0.8 [REP4-039]) cited Awel y Mor as a project that received a recommendation of approval but did not have geotechnical data along the ECC. The Applicant noted that Galloper and Greater Gabbard OWFs had the same ground conditions and were able to install cables in London clay. The Applicant [REP1-051] stated that the assessment demonstrates as far as reasonably possible that there would be no significant effect on sediment transport process to the Annex I sandbank feature of the SAC and use of cable protection would be controlled in the MLS SAC Benthic Mitigation Plan. The final approach to cable installation would be set out in the CSIP for approval. The Applicant [REP1-051] confirmed that jack-up barges would not be used in the SAC and committed to incorporating this in a future iteration of [APP-243]. The latest MLS SAC Benthic Mitigation Plan [REP5-027] states that avoidance of jack-up barges is desirable but does not include a commitment not to use them. The primary method for UXO clearance would be low-order detonation (deflagration) as specified in [APP-245]. NE [REP4-059] provided detailed comments on the MLS SAC Benthic Mitigation Plan. NE noted that no commitments are made to reduce potential impacts from dredge disposal and cable exposure. NE considers mitigation should be informed by specific pre-construction surveys. NE advised that cable routing should consider impact duration and maximising recoverability of the Annex I sandbank. NE further	

ID	Issue	Details	ExA observation/ question
		commented that the RIAA should be updated to reflect that loose rock or gravel would not be used for cable protection in the SAC. NE advised that there should be a commitment to using cable protection that would be readily removable and to removing it during decommissioning. The Applicant further updated the MLS SAC Benthic Mitigation Plan [REP5-027] to include a commitment to consider potential to reduce recoverability time during routing. It committed to using cable protection that is readily removable and to removing cable protection in the SAC at the end of the cable's life. The Applicant [REP5-074] reiterates that works would be informed by pre-construction surveys and that the Outline SDMP [REP4-041] includes several mitigation measures for sediment disposal. Sections 7 and 8 of the MLS SAC Benthic Mitigation Plan [REP5-027] present commitments addressing duration and recoverability, including impact minimisation, that function cohesively to explain the Applicant's position about cable protection in the SAC. Duration would be determined by the cable installation programme and it is not clear what realistic commitments to minimise impacts could be made, noting it was the preference of NE and the Applicant to bury the cable. The Applicant stated that the RIAA [REP1-016] does not need updating as the commitment not to use loose rock as cable protection is proposed as mitigation for potential effects. NE maintained its position (E13, E30, F10, F45 and F48 in [REP4-061] and [REP5-096]). It requests (P2, A2 and	

ID	Issue	Details	ExA observation/ question
		A14 [REP5-096]) the MLS SAC Benthic Mitigation Plan [REP5-027] be secured through a DML condition in the dDCO. The Applicant [REP5-074] stated that compliance with [REP5-027] would be secured through the DML in the dDCO [REP5-007]. Schedule 11 paragraph 13(1)(g)(iv) requires the CSIP to comply with the MLS SAC Benthic Mitigation Plan, which the Applicant states is a final plan.	
3.1.19	OWFs with benthic compensation	NE (E28 [PD2-007]) requested that section 2 of the RIAA be updated to include reference to SADEP. It considers this would provide necessary context for the competent authority. The Applicant [REP1-051] clarified that the requirement for SADEP was for MEEB in relation to Cromer Shoal MCZ and therefore did not include it in the updated RIAA [REP1-016]. NE [REP4-061] and [REP5-096] continues to show this matter as not agreed. NE (F49 [PD2-008]) stated that information in [APP-047] about compensation agreed on other projects does not align with final positions and advised the ExA to refer to recent SoS decisions, which set out the final requirement.	**QT3.1.19a [To NE] Clarify your view on the implications for decision-making if the final benthic compensation levels on other OWFs are not recorded.** **QT3.1.19b [To the Applicant] Submit a table with the benthic compensation levels as set out in the SoS decisions identified by NE.**

Marine mammals

3.3.14 The following section of the RIES details the issues raised during the Examination relating to marine mammal related matters.

Table 3.2: Marine mammals - key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's assessment of effects on integrity (alone and in-combination)

ID	Issue	Details of issue	ExA observation/ question
Southern North Sea (SNS) SAC			
3.2.1	Population modelling	NE (H1, H4 and H6 [PD2-010]) requested that iPCoD modelling should be undertaken because NE did not agree with the conclusions of the HRA (and the EIA), which is underpinned by the conclusions in the ES Chapter Marine Mammal Ecology [APP-076]. The Applicant [REP1-056] conducted iPCoD for the project alone, but not in-combination as the detailed piling schedule for each project could not be obtained. NE [REP4-062] provided comments and accepted the approach to iPCoD modelling for the project alone but remained concerned about the approach to the assessment of in-combination effects. The Applicant [REP5-071] updated the iPCoD modelling conclusions based on NE's comments.	**QT3.2.1 [To NE] Confirm if the updated iPCoD modelling in [REP5-071] addresses your concerns. If not, confirm what further evidence you consider is needed.**
3.2.2	Inclusion of seismic surveys in the in-combination assessment	NE (H21 [PD2-010]) queried if seismic surveys had been included in the in-combination assessment and which tier they were assigned to. The Applicant provided a response [REP1-051] and updated the RIAA [REP1-016] to confirm seismic surveys were included and assigned as tier 7. NE has not provided a response to this amendment.	**QT3.2.2 [To NE] Confirm if this matter is resolved based on the information provided in [REP1-051] and the RIAA [REP1-016]?**
3.2.3	Disturbance to the harbour porpoise feature of the SNS SAC – noise	NE (H2, H3, H22 and H23 [PD2-010]) advised it could not agree with the Applicant's conclusion of no AEoI for in-combination impacts without a commitment to include a noise abatement system (NAS) within the Outline SNS	**QT3.2.3 [To the Applicant] Review and comment on the implications of the**

		SAC Site Integrity Plan (SIP) [APP-246]. The Applicant [REP1-051] justified why it had chosen not to commit to NAS in [APP-246]. NE [REP3-033] highlighted that Defra was due to publish a marine noise policy paper to include NAS for piling in English waters. The ExA [PD-014] requested an update from NE regarding the marine noise policy paper. NE responded [REP4-063] in early December 2024 to confirm its previous position and advised that the paper was due to be published in the next few weeks and be applicable from January 2025. The Applicant [REP5-074] confirmed it was aware of the imminent policy paper, stating it would review and consider any implications when it is published. The ExA notes that the Reducing Marine Noise policy paper was published on 21 January 2025, stating that, *"… from January 2025… all offshore wind pile driving activity across all English waters will be required to demonstrate that they have utilised best endeavours to deliver noise reductions through the use of primary and/or secondary noise reduction methods in the first instance."*	**Reducing Marine Noise policy paper for the Outline SNS SAC SIP [APP-246].**
Wash and North Norfolk Coast SAC			
3.2.4	Population modelling	The Wash and North Norfolk Coast SAC site was included in a response from NE [REP4-062] relating to the comments raised above in ID 3.2.1.	The ExA notes NE raised this SAC in its response on population modelling for the SNS SAC. **QT3.2.4 [To NE] Comment on any outstanding concerns for population modelling of**

			the harbour seal feature of the Wash and North Norfolk Coast SAC in your response to QT3.2.1.

Offshore and intertidal ornithology

3.3.15 The following section of the RIES details the issues raised during the Examination relating to offshore and intertidal ornithological matters. Overarching issues are addressed first and site-specific issues are covered in Table 3.3 below.

Population viability analysis (PVA)

3.3.16 NE raised several issues concerning the PVA analysis [APP-118], namely:

- The Applicant's approach to the apportioning of adult age class LBBG to the breeding population at AOE SPA.
- The application of a sabbatical rate to discount the proportion of adults not nesting each year.
- The omission of a *"burn in"* period for the PVA.
- Displacement and disturbance rates for guillemot and razorbill at FFC.

Apportioning of adult age class LBBG to the breeding population at AOE SPA

3.3.17 NE (C11 [PD2-005]) welcomed that the Applicant has presented NE's preferred scenario alongside its own preferred approach in the RIAA [APP-040]. However, NE [PD2-005] [REP3-034] considered that apportioning according to the approach derived from Furness (2015) risks significantly underestimating impacts on adult breeding birds. It considered that the ratio of adults to immature birds over the North Sea and Channel area is likely to be highly spatially variable, and therefore the ratio is unlikely to be applicable at a small project study area. NE [REP3-034] set out various other criticisms of the Furness (2015) model results.

3.3.18 The Applicant [REP1-051] maintained its position that the data analysed in Furness (2015) to be more appropriate for LBBG as it draws from many studies across many years rather than a snapshot of one day per month over two years [REP4-040]. In addition, the Applicant argued that aging from digital aerial survey data is not accurate and overestimates the numbers of adults when assuming all "adult-like" birds are indeed adults [REP4-040] and [REP5-074].

Application of a sabbatical rate to discount the proportion of adults not nesting each year

3.3.19 NE (C11 and C29 [PD2-005] and [REP3-034]) acknowledged that a proportion of the LBBG breeding population do not nest every year and that there is evidence from gulls that a proportion of breeding adults take "sabbaticals" where they skip a nesting attempt but continue to breed at the same colony in subsequent years. However, NE considered there is insufficient evidence available about how these birds behave, with some indications that these birds may return to their nesting colonies or breeding range during sabbatical years and show similar foraging patterns, in which case they would remain at risk. NE therefore considered it is precautionary to include these birds in the assessment.

3.3.20 The Applicant [REP1-051] argued that even if sabbatical birds were to attend the colony during the breeding season they would not be constrained by the need to incubate or provide for chicks. They are therefore highly unlikely to attend the colony to the same extent or behave in a similar way to breeding birds, so should not be assessed as breeding birds [REP4-040].

3.3.21 Similarly, for FFC (kittiwake, guillemot, razorbill and gannet) and the Farne Islands SPA (guillemot), NE (C28 [PD2-005]) disagreed with the Applicant's approach to apportioning. It explained that it does not consider there is sufficient evidence to support using sabbatical rates of >0 for any seabird species and argued that integrity conclusions should be based on assessments that do not remove sabbatical birds at apportioning.

3.3.22 The Applicant [REP1-051] considered that not including sabbatical rates would lead to an overestimate of impacts to breeding birds. However, the Applicant presented both the NE approach alongside its own in the updated RIAA at DL1 [REP1-016] and Apportioning Note [REP1-021]. Both NE and the Applicant provide further information to support their favoured approaches in [REP3-034] and [REP4-040].

Omission of a "burn in" period for the PVA

3.3.23 NE (C13 [PD2-005]) noted that the PVA modelling was run excluding a burn in period for all species and sites. NE best practice advocates that PVA models are run with a burn in period of five years to allow the model to reach stability prior to the projection period beginning. NE also requested that the log files be supplied as part of the Application to facilitate review and ensure transparency. NE noted that impacts predicted by PVAs run with a burn in period can be greater than those run without [REP3-034].

3.3.24 The Applicant re-ran the PVA with a burn in period of five years for the in-combination impacts to all relevant species in the assessment. For kittiwake (FFC SPA), gannet (FFC SPA), guillemot (FFC SPA and Farne Islands SPA) and razorbill (FFC SPA) ([REP1-022] and [REP1-016]) the interpretation of the model outputs and assessment conclusions did not change based on the re-analysis after PVA was re-run.

3.3.25 However, the Applicant stated that no burn in period could be included for LBBG at AOE because the model failed to run over the required timeframe, stating that this is a common issue with the model where the SPA population sizes are relatively small [REP4-040]. As the Applicant could not rule out AEOI for the LBBG feature of AOE and has provided a full derogation case, the Applicant considered the absence of burn in for this species has not altered the conclusions or interpretation of the model outputs. The Applicant also clarified that as the compensation quantum is calculated directly from the impact estimates of the Proposed Development, which does not require PVA, running the PVA without burn in does not affect this [REP5-091].

Displacement and disturbance rates for guillemot and razorbill at FFC

3.3.26 In the PVA for guillemot and razorbill, NE (C31 [PD2-005]) advised that the Applicant run the model using losses estimated from 70%

displacement and 2% mortality. NE (C37 [PD2-005]) critiqued the Applicant's justification for its preferred approach in the RIAA [paragraph 11.4.34 in REP1-016].

3.3.27 The Applicant amended the PVA report [REP1-022] to present the analysis for guillemot and razorbill using both its preferred approach (50% displacement and 1% mortality) and NE's preferred approach (70% displacement and 2% mortality), for both the project alone and in combination. This issue was considered resolved by NE at DL3 [REP4-061].

Consideration of impacts compounded by Highly Pathogenic Avian Influenza

3.3.28 The Royal Society for Protection of Birds (RSPB) [RR-094] and [REP2-068] noted the impacts of Highly Pathogenic Avian Influenza (HPAI) on UK wild bird populations and highlighted that a further outbreak in 2023 means that impacts of HPAI on the breeding populations of affected species is likely to be worse than reported. The RSPB considers that this may have implications for the assessment of effects on populations because seabird populations may be more vulnerable to additional mortality from OWF projects and the Favourable Conservation Status of some SPAs may need to be re-assessed. This in turn will have an impact on the extent of compensation required.

3.3.29 The RSPB also noted [REP5-067] that as well as changes to population numbers, HPAI infection is likely to cause variation in birds use of space, which will be reflected in changes in the extent of interactions with wind farms and in the lethal and sub-lethal consequences of those interactions.

3.3.30 The Applicant [REP1-049] argued that adequate consideration for HPAI impacts has been undertaken. It explained that baseline data was collected pre-HPAI and the impacts are calculated based on the larger population and the impacts are assessed based on the most recent available affected population (post/during HPAI) counts, therefore the assessment is precautionary with regards to HPAI impacts on populations.

Digital Aerial Survey (DAS) methodology

3.3.31 The RSPB [RR-094] and [REP2-068] raised concerns with the DAS methodology. The RSPB considered that further methodological detail needed to be provided alongside the Applicant's DAS outputs, to explain and consider any potential biases in the survey and analysis methods. The Applicant [REP1-049] referred the RSPB to the following reports: Digital Video Aerial Surveys of Seabirds and Marine Mammals at VE Annual Report March 2019 to February 2020 [APP-115] and Offshore Ornithology Technical Report [APP-103]. Upon further review of the assessment documentation, the RSPB agreed with the method that the Applicant had used to deal with spatial autocorrelation ([REP2-068] and [REP5-067]). However, the RSPB continued to request further detail on the consideration of potential response of birds to disturbance arising from the survey (from aircraft shadow for example) and the rationale for use of transect rather than grid survey use. The Applicant [REP5-067] considers it has provided appropriate detail on the methodology including potential biases.

Q3.3.2 [to the Applicant and the RSPB] what implications might the potential biases with the digital aerial survey methodology have on the conclusions within the RIAA? Refer to specific sites and features where possible.

In-combination effects

3.3.32 IPs raised issues related to the assessment of in-combination effects on the RIAA, concerning collision and displacement effects to the LBBG feature of AOE SPA/Ramsar and the gannet, kittiwake, guillemot and razorbill features of FFC.

3.3.33 NE (C36 [PD2-005]) disagreed with the Applicant's statement on existing headroom in the RIAA (paragraphs 12.4.117 – 123) and advised that consent decisions should be based on cumulative/in-combination figures based on "as consented" parameters within all relevant assessments and that estimation of impacts from "as built" scenarios are of little value unless legal agreements are put in place to ensure existing projects will not expand further. NE noted also that if the impacts from the Galloper OWF (highlighted by the Applicant specifically) on kittiwake, guillemot and LBBG were revised to take account of headroom, using NE's approach to collision risk modelling, this would still result in AEoI on kittiwake, guillemot and LBBG.

3.3.34 The RSPB [RR-094] and [REP2-068] disagreed with the Applicant's approach of excluding "compensated for" projects from the in-combination assessment (noting however that compensated impacts were also presented as a separate scenario). The RSPB argued, with reference to case law (C-164/17 Grace v Sweetman) that CM should not be considered at the Article 6(3) stage when carrying out an appropriate assessment for a particular project. The RSPB considers CM associated with an earlier scheme (another plan or project) should not be taken into account (by effectively removing the adverse effects of scheme 1 from consideration) where the competent authority is deciding on a later scheme whether it would not have adverse effects on the integrity of the site in combination with other projects.

3.3.35 The Applicant [REP1-051] noted in response that the impacts within the in-combination assessment are from current consented scenarios and include compensated for projects as a scenario [REP1-017]. Additionally, the Applicant in [REP1-051] and [REP1-049] argued that projects that are providing compensation should be excluded from in-combination totals because these projects are obligated to fully compensate for their impacts.

Monitoring of impacts to offshore ornithology

3.3.36 The Applicant submitted an OIPMP, which sets out the basis for delivering offshore monitoring measures [APP-265]. NE (C40 [PD2-005]) notes that the proposed post-consent monitoring is focused on the CM for the potential AEoI for LBBG from the AOE SPA (which is set out separately in the LBBG Implementation and Monitoring Plans [REP2-012]) and it recommends that post-consent monitoring of the OWF could help clarify the key risks, such as those posed to LBBG from collision. NE (C40 [PD2-005]) advised that data acquired through post-consent monitoring

could be used to validate predictions and assumptions made within the Application and help to detect unforeseen effects and address uncertainty and thereby potentially reduce the current level of precaution deemed necessary in the assessment.

3.3.37 The Applicant [REP1-051] stated that it has not identified any obvious monitoring options that would increase the certainty of assessment outcomes. No further progress has been made on this matter.

Assessment conclusions

3.3.38 NE (C5 and C41 [PD2-005]) and the RSPB [RR-094] disputed the estimated effects of the Proposed Development on some species, and sought clarification regarding impacts on:

- the guillemot and razorbill populations breeding at the Farne Islands and FFC SPAs
- the kittiwake population at the FFC SPA
- the gannet population at the FFC SPA
- the LBBG population at the AOE SPA and Ramsar.

3.3.39 These matters are set out in Table 3.3 below.

Table 3.3: Offshore and intertidal ornithology - key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's assessment of effects on integrity (alone and in-combination)

ID	Potential impact pathway	Details of issue	ExA observation/ question
Alde-Ore Estuary SPA and Ramsar			
3.3.1	Collision risk LBBG	NE (C30 [PD2-005]) sought clarification over the total losses per annum of LBBG, noting discrepancies within and between the RIAA and the PVA report. In response, the Applicant amended Table 11.35 in the RIAA [REP1-018] and Table 4.1 in the PVA [REP1-022]. Following this update NE agreed this issue was resolved [REP5-096].	
3.3.2	Collision risk LBBG	NE (C38 [PD2-005]) observed a discrepancy between the RIAA (paragraph 11.4.214 in [APP-040]) and the Apportioning Note [Table 2.5 in APP-117] concerning the percentage of LBBG apportioned to AOE SPA. The Applicant updated the Apportioning Note [REP1-020] at DL1 to align with the RIAA (all analysis based on 40% apportioned to AOE SPA). This issue was recorded as resolved at DL3 [REP4-061].	
3.3.3	Collision risk LBBG	NE [PD2-005] and the RSPB [RR-094] support the Applicant's conclusion that AEoI cannot be excluded for the LBBG feature of the AOE SPA and Ramsar site, due to the impact of collision mortality from the project alone and in-combination. However, NE (C41 [PD2-005]) argued that the numbers of LBBG breeding at the AOE SPA are well below the population size at its classification, that the impact as calculated and	

ID	Potential impact pathway	Details of issue	ExA observation/ question
		apportioned by its advised parameters to be the appropriate one to use and that until this is resolved it is unable to agree the scale of compensation required to off-set the losses predicted. The Applicant [REP1-051] stated that it had updated the PVA and the RIAA to address NE's methodological concerns and has presented its preferred methodology alongside the Applicant's preferred approach. At DL5, NE agreed [REP5-096] that impacts had been presented appropriately but the scale of compensation required needed to be agreed based on its preferred approach. Further discussion of this point is provided in section 4 of the RIES (LBBG compensation).	
Flamborough and Filey Coast SPA			
3.3.4	Direct disturbance and displacement (in combination) to guillemot and razorbill	NE (C5, C32, C41 and C15 [PD2-005]) advised that the in-combination impacts on the FFC SPA populations of guillemot and razorbill are already at a level where it has not been possible to rule out adverse effects and that the Proposed Development will be adding to this impact. The RSPB [RR-094] and [REP2-068] also concluded that in-combination with other projects there will be an AEoI to the FFC SPA owing to the impact of mortality arising from distributional change on the guillemot population and razorbill population. NE therefore considered that the project should add the Proposed Development alone impact (at rates of 70% displacement and 2% mortality – see NE Issue C31) to the total in-combination impact agreed in the SADEP	**QT3.3.4 [to the Applicant] Provide an update to the in-combination assessment including the most recent impact figures from the OWFs listed.**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		examination. In response, the Applicant presented NE's preferred approach in the updated RIAA at DL1 [paragraph 12.4.32 in REP1-016]. NE [REP4-061] advised it is satisfied with this specific adjustment, but wishes the Applicant to maintain and update the in-combination assessment in light of additional information on other projects, namely Outer Dowsing, Dogger Bank South (DBS) West and South East and North Falls, particularly where those values are based on those from preliminary environmental information reports (PEIR).	
3.3.5	Collision risk to kittiwake	As per guillemot and razorbill, NE (C41 [PD2-005]) argued that the SoS has already agreed that in-combination there is AEoI at FFC SPA for kittiwake. The RSPB [RR-094] and [REP2-068] also concluded that in-combination with other projects there will be an AEoI to the FFC SPA owing to the impact of mortality arising from distributional change on the kittiwake population.	
3.3.6	Collision risk to gannet	NE (C41 [PD2-005]) stated it was unable to agree the effects of the project on the northern gannet population at FFC, requiring clarification on the scale of impacts. NE (C27 [PD2-005]) initially disputed the Applicant's approach to apportioning adult gannets to the FFC SPA. The Applicant [REP1-051] and [REP5-091] clarified that it had already presented the NE advised approach (using site specific DAS data) for LBBG and has followed a similar approach for gannet in the Apportioning Note [REP1-020]. This issue is now considered resolved in the NE issue log	**QT3.3.6 [to the NE] NE and the Applicant have stated their agreement over the apportioning of adult gannets to the FFC SPA. In light of this, NE is requested to provide an update on its position regarding AEoI to the gannet feature of**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		[REP4-040] and NE agrees with the apportionment to FFC SPA.	**FFC SPA, alone and in combination.**
3.3.7	Collision risk to gannet	The RSPB [RR-094] and [REP2-068] provided detailed comments on the Applicant's application of additional macro-avoidance to predicted gannet collision mortalities. The RSPB disputed the Applicant's choice of avoidance rate for breeding gannets and the use of a 70% correction factor to baseline densities. The RSPB disagreed with the approach of applying macro-avoidance to baseline densities and using the "all gull" avoidance rate, as evidence for macro-avoidance during the breeding season is limited and gannets have different flight responses and lower manoeuvrability than gulls. The RSPB also highlighted potential habituation by gannets to turbines, which could reduce macro-avoidance and increase collision risk. The Applicant ([REP1-049] and [REP5-067]) responded that its approach follows NE's guidance and is considered robust. The RSPB recognised that the Applicant has followed NE advice and notes that the SNCBs do not have a common position on this correction factor. The RSPB position aligns with that of NatureScot. For this reason, RSPB [REP5-067] does not agree that AEOI can be excluded, alone or in combination.	

ID	Potential impact pathway	Details of issue	ExA observation/ question
Farne Islands SPA			
3.3.8	Guillemot and razorbill	With respect to the Farne Isles SPA, NE (C3 and C24 [PD2-005]) noted that the HRA Screening Report [APP-042] concludes that there is the potential for LSE to razorbill populations from direct disturbance and displacement in the non-breeding season. However, there is no assessment of this feature (alone during the operation and maintenance phase) and in-combination (all phases) in the RIAA. The Applicant explained that razorbill is only an assemblage feature of Farne Islands SPA and because of the small size of the colony and the distance from the Proposed Development, the estimated annual mortality is 0.000 (whether the Applicant or NE's preferred displacement and mortality rates are applied) [REP1-051] and [REP5-091]. At DL5 NE confirmed this issue was resolved agreeing that impacts were too small [REP5-096].	**QT3.3.8a [to the Applicant] Update the RIAA to include this evidence for the SoS.** **QT3.3.8b [to NE] Is NE content that there would be no adverse effects on the site integrity of Farne Isles SPA, alone and in combination, by virtue of effects on the guillemot feature? If not explain why that is the case.**
Farne Islands SPA and Flamborough and Filey Coast SPA			
3.3.9	Displacement of gannet, guillemot and razorbill	NE (C25 [PD2-005]) requested that impacts be presented in displacement matrices (following NE best practice guidelines) for all species screened into the HRA (during the construction and decommissioning phases, guillemot and razorbill at Farne Islands SPA and gannet, guillemot and razorbill at FFC SPA). NE also requested a displacement matrix for razorbill at Farne Islands SPA for the operation and maintenance phase	

ID	Potential impact pathway	Details of issue	ExA observation/ question
		(see issues C3 and C24 above). The Applicant revised the RIAA at DL1 to include full displacement matrices except for razorbill at Farne Islands SPA during the construction, operational, maintenance and decommissioning phases. NE confirmed this was resolved at DL5, agreeing that this was not necessary for razorbill from Farne Islands SPA due to the negligible impacts predicted [REP5-096].	
3.3.10	Operational disturbance and displacement to guillemot and razorbill	NE (C39 [PD2-005]) requested further evidence to support the Applicant's exclusion of operational displacement and disturbance effects for dispersing auks migrating south from the North Sea east coast colonies during the post-breeding season. The Applicant [REP1-051] repeated the justification provided in the RIAA [REP1-016] for guillemots, that the array area is not an important foraging habitat, adding that *"for razorbill the majority of birds were recorded in the migration free winter period, with only small numbers recorded during migration periods"*. This issue remained unresolved at DL5.	**QT3.3.10 [to NE] What further evidence is NE seeking in order to demonstrate that auks are dispersing throughout the affected area? Specify deficiencies in Applicant's own evidence in this regard.**
Outer Thames Estuary SPA			
3.3.11	Disturbance and displacement of red-throated diver	Both NE (C9, C19 and C21 [PD2-005] and [REP4-058]) and the RSPB ([RR-094] and [REP2-068]) advised that additional mitigation should be provided to mitigate risk posed by vessel movements for red-throated diver. Both IPs recommended that all vessel activity within the OTE SPA plus a 2km buffer be undertaken outside of a seasonally restricted period during construction and decommissioning of the export cable and follow NE's best practice guidelines on	**QT3.3.11 [To NE and the RSPB] Other than on the basis of a precautionary approach, can NE and the RSPB explain why the Applicant's proposed mitigation for effects on**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		vessel movements during all other phases of the development (for both export cable and the array). The RSPB considered that the Applicant had not fully considered the SPA conservation objectives and, by reducing the functional size of the SPA, the objectives would be undermined [RR-094]. The Applicant [REP5-074] clarified that the seasonal restriction proposed relates to cable laying only and does not preclude other works. The Applicant in [REP1-051] argued that densities of red-throated diver are low in the shipping lanes, but high immediately outside these, suggesting that a 2km buffer is overly precautionary in this area. The Applicant also argued that any other works in the ECC outside the SPA would be largely indistinguishable from background traffic given the already high density and would not lead to additional impacts on the SPA. The Applicant's justification was expanded upon in HRA Integrity Matrix 9: OTE SPA [REP2-004] and in [REP5-074].	**red throated diver would not be sufficient to mitigate adverse effects?**
3.3.12	Disturbance and displacement of red-throated diver	NE (C34 [PD2-005]) raised concerns with the red-throated diver assessment, as displacement was estimated within the ECC during the migration-free winter bio-season (December to January). NE advised that the impacts on red-throated diver should be assessed according to the seasonality defined in the OTE SPA conservation advice (October to May). The Applicant [REP1-051] argued that the data used represented a worst-case scenario for the non-breeding	

ID	Potential impact pathway	Details of issue	ExA observation/ question
		season due to the absence of any other robust datasets outside the migration free season. NE concluded [REP4-061] that if the seasonal restriction can be secured as advised (see above) then the impacts would be mitigated adequately.	
Various: Deben Estuary SPA, Hamford Water SPA, Stour and Orwell Estuaries SPA, Colne Estuary (Mid-Essex Coast Phase 2), Blackwater Estuary (Mid Essex Coast Phase 4), Dengie (Mid Essex Coast Phase 1)			
3.3.13	Risk of collision during migration to dark-bellied brent goose	NE (C33 [PD-005]) requested further evidence to support the Applicant's assumption that dark-bellied brent goose would fly at rotor height 50% of the time (while other migratory species were assumed to fly at rotor height 100% of the time). The Applicant [REP1-051] pointed to evidence in Woodward at al. (2023) (full citation required) and noted that 50% is the default rate used for this species within the NatureScot collision risk modelling tool.	**QT3.3.13a [to NE] The Applicant has referred to evidence in the identified academic study to support its approach to modelling collision risk to dark bellied brent goose [REP1-051]. However, NE's position has not changed in the issues log [REP4-061]. Provide an updated position or explain why NE's view remains unchanged.** **QT3.3.13b [to the Applicant] Re-run the collision risk model with brent goose at NE's**

ID	Potential impact pathway	Details of issue	ExA observation/ question
			preferred rotor height flight rate (100%). Does this affect the conclusions of the assessment for any of the sites? **QT3.3.13c [To the Applicant] The Applicant is requested to submit the academic study Woodward et al. (2023) into the Examination.**

Onshore ecology

3.3.40 The following section of the RIES details the issues raised during the Examination relating to onshore ecology.

Clarification

3.3.41 NE sought a minor clarification regarding Table 8.1 in the RIAA (J18 [PD2-012]), which referenced mitigation for onshore ecology and biodiversity but provided no reference. The Applicant provided the relevant reference at DL1 (see [REP1-051]), to ES Part 3 Chapter 4 Onshore Biodiversity and Nature Conservation [APP-086], noting that avoidance measures have been achieved primarily through route selection and use of trenchless crossing. NE was content following this clarification [REP4-061].

Table 3.4: Onshore Ecology - key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's assessment of effects on integrity (alone and in-combination)

ID	Potential impact pathway	Details of issue	ExA observation/ question
ORFORDNESS – SHINGLE STREET SAC AND ALDE ORE ESTUARY RAMSAR SITE			
3.4.1	All pathways relevant to qualifying habitats, plants and invertebrates	NE (J4 and J7 [PD2-012]) advised that seasonally appropriate vegetation and invertebrate surveys should be carried out at Orford Ness prior to determination, to inform the Application's determination. Paragraph 4.1.4 [PD4-007] indicates that the Applicant and NE held discussions and reached agreement over the methodology of the recommended surveys. The Applicant undertook botanical surveys in August 2024 and terrestrial invertebrate surveys during August, September and October 2024. Those surveys were undertaken on the land immediately adjacent to the proposed compensation site but not within it due to access restrictions [paragraph 2.3.9 in REP4-007]). The LBBG HRA [REP4-007] was revised to incorporate the results, and proposed mitigation measures were also updated. Due to the geographical and temporal limitations to the surveys, NE [PD4-007], [REP5-094] and [REP5-096] considers that the baseline remains incomplete and advises that it would expect to see a more detailed survey of land included within the compensation site not covered by the current surveys (Cobra Mist land) ahead	**QT3.4.1 [To NE] What potential impacts from the proposed works at the compensation site could lead to an AEoI and which conservation objective(s) could be affected?**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		of any measures being implemented. Those surveys should be secured through the DCO as part of the LBBG CM. The Applicant acknowledged the limitations with the data collected but argued that it nevertheless provides robust evidence of the habitats and species that have or will be found on the proposed compensation site. The Applicant clarified that: • The LBBG HRA concludes that LSE cannot be excluded. • With mitigation, the published conservation objectives for the European sites, and assumed conservation objectives for the Ramsar sites, would not be undermined and therefore there would not be an AEoI of any European or Ramsar site • Additional, pre-installation surveys will be carried out to refine the location of mitigation measures that are described in the assessments.	
3.4.2	All pathways relevant to qualifying habitats, plants and invertebrates	NE (J4 and J24 [PD2-012]) advised that the Applicant needs to establish a more robust baseline in terms of the shingle morphology and habitats and species present at the proposed compensation site. NE [REP4-060] and [REP4-061] argued that impacts to the shingle sediment morphology and structure need to be considered and assessed further and while the site has already been modified and the delicate matrix already impacted, this does not preclude the presence of rare and sensitive	**QT3.4.2 [to the Applicant] Signpost where this mitigation is set out in the outline LIMP.**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		shingle flora and fauna. NE [REP4-060] expressed concern that machinery will have to operate on the shingle habitat. The Applicant [REP1-051] stated the shingle morphology (and therefore sediment structure) has been modified in the past (prior to designation of the SAC) and is now largely flat with no prospect of recovering what may have been its original wave-formed ridge morphology. The Applicant [REP5-074] clarified that the proposed compensation site can be reached using existing tracks until just before the proposed ditch crossing and any vehicles used off the tracks will use an appropriately agreed method to be set out in the final LBBG Implementation and Monitoring Plan (LIMP).	
3.4.3	Damage to qualifying habitats during management of vegetation	NE (J22 and J10 [PD2-012]) stated that it considers the mitigation for vegetation maintenance for the LBBG compensation site to be broadly acceptable but advised that best practice should be employed for maintaining the vegetation community and diversity. Specifically, NE recommended that existing trackways be used for access to the compensation site during construction and maintenance and management, to minimise disturbance and further damage to affected shingle sediment, morphology and vegetation. The Applicant [REP1-051] provided confirmation that existing trackways have been included in the order limits and would be used for access to the compensation site during construction and maintenance and management, to minimise disturbance	**QT3.4.3 [to NE] What does NE mean by "best practice options" specifically? Elaborate on your recommended mitigation measures for maintaining vegetation community and diversity.**

ID	Potential impact pathway	Details of issue	ExA observation/ question
		and further damage to affected shingle sediment and vegetation.	
3.4.4	Increases in nutrients from bird faeces affecting vegetation composition and water quality	NE (J23 [PD2-012]) requested that further details be provided in the outline LIMP regarding mitigation measures to compensate for nutrient increases arising due to the gull colony establishing itself, as the vegetation management measures are described in the LBBG HRA as part of the maintenance phase of the Proposed Development rather than as additional mitigation. The Applicant [REP1-051] added additional detail to describe the vegetation management within the LBBG IMP at DL2 [section 5.4 in REP2-012]. The Applicant [REP5-074] clarified that it described this as "additional mitigation" because it was not included in the original project design, but principally, any increase in nutrients would be no more than that derived from the stated conservation objective to restore the gull breeding colony within the SPA.	**QT3.4.4 [To NE] Following the clarification from the Applicant, is NE satisfied with its approach in this regard?**
3.4.5	Changes to topography leading to overtopping and sediment transfer processes	NE (J25 and J13 [PD2-012]) was unable to agree with the conclusions of no AEOI for coastal lagoons, as the LBBG HRA had not considered whether the presence of the predator exclusion fence could interfere with overtopping and sediment transfer processes, which may in turn alter the flora and fauna in the saline lagoons. The Applicant [REP1-051] explained that the lagoons are seepage lagoons primarily recharged by seawater seeping under the large shingle ridge on the seaward	

ID	Potential impact pathway	Details of issue	ExA observation/ question
		(eastern) side and the fence could not interfere with this process or any other natural process supporting the lagoons. This issue is considered resolved at DL4 [REP4-061].	
Hamford Water SPA and Stour and Orwell Estuaries SPA			
3.4.6	Construction disturbance impacts to avocet	The Applicant proposes the implementation of disturbance-free buffer zones around active nests to mitigate impacts to this feature (paragraph 11.6.98 in the RIAA [APP-040]). NE (J19 [PD2-012]) requested that further detail be provided on the intended methodology if the proposed buffer zones fail. The Applicant [REP1-051] explained that the extent of the buffer zones will be established by the ecological clerk of works (ECoW) based on guidance and experience and the ECoW will increase the buffer zone if construction activity disturbs a breeding avocet. No change was made to NE's issue log at DL5 on this matter.	
Hamford Water SPA and Ramsar site, Stour and Orwell Estuaries SPA and Ramsar site, Colne Estuary SPA and the Blackwater Estuary SPA and Ramsar site			
3.4.7	Operational noise and visual disturbance impacts to	NE (J20 [PD2-012]) advised that mitigation measures be proposed for black tailed godwit if unscheduled maintenance is required due to the potential for noise and visual disturbance. The Applicant [REP1-051] clarified that mitigation is proposed, comprising screening of works, in the same way as that detailed for	**QT3.4.7 [to the Applicant] Signpost to where this proposed mitigation for unscheduled maintenance would be secured.**

ID	Potential impact pathway	Details of issue	ExA observation/ question
	black tailed godwit	construction (paragraph 11.6.128). No change was made to NE's issue log at DL5 on this matter.	
Stour and Orwell Estuaries SPA and Ramsar site, Colne Estuary SPA, Blackwater Estuary SPA and Ramsar site			
3.4.8	Cumulative impacts to dunlin	NE (J21 [PD2-012]) requested clarification on the Applicant's assessment of the cumulative effect for both disturbance and temporary habitat loss for dunlin. The Applicant [REP1-051] clarified that only five observations of dunlin were recorded, with a peak count of four birds, within 400m of the order limits. Given these low numbers, the Applicant considers that there is no possibility for temporary habitat loss and disturbance, from the Proposed Development alone or in-combination, to undermine the conservation objectives for the two SPAs and Ramsar sites, which each support greater than 10,000 dunlin and are located 3km and 14km away, respectively (see 11.5.339 in [APP-040]). No change was made to NE's issue log at DL5 on this matter.	**QT3.4.8 [to NE] in light of the information provided by the Applicant in [REP1-051], NE to confirm whether issues J19, J20 and J21 remain unresolved. If so, what additional evidence is required to address your concern?**

3.4 Summary of Examination outcomes in relation to AEoI

3.4.1 The Applicant concluded in its Application that an AEoI of the following European sites and features cannot be excluded:

- AOE SPA – LBBG – collision risk

3.4.2 This site and feature is therefore the subject of a derogation case submitted by the Applicant [APP-046], as detailed in Sections 4 and 5 of this RIES.

3.4.3 The Applicant considered that AEoI can be excluded for the kittiwake, guillemot and razorbill features of the FFC SPA and the sandbanks which are slightly covered by sea water all the time feature of the MLS SAC but also submitted a "without prejudice" derogation case for those features [AS-003].

3.4.4 To date in the Examination, the matters identified in section 3 of this RIES in respect of disputed AEoIs remain unresolved. The ExA seeks responses from the Applicant and ANCB, where indicated, to provide clarity on the outstanding matters.

3.4.5 The ExA's understanding of the Applicant's and NE's current position in relation to AEoIs is set out in Annex 1 of this RIES.

4 DEROGATIONS FROM THE REGULATIONS

4.1 Overview

4.1.1 The Applicant submitted a derogation case with the Application [APP-046] which related to the LBBG feature of AOE SPA and Ramsar site. The Applicant updated the derogation case in response to s51 advice to correct minor emissions and drafting errors [AS-003] and that version will be referred to for the remainder of this RIES. NE [PD2-005] and RSPB [RR-094] both agreed with the Applicant's conclusion that adverse effects on the LBBG feature of the AOE SPA cannot be excluded.

4.1.2 The Applicant considered that AEoI can be excluded for the kittiwake, guillemot and razorbill features of the FFC SPA and the sandbanks which are slightly covered by sea water all the time feature of the MLS SAC but also provided a "without prejudice" derogations case for those features [AS-003].

4.1.3 As noted in Table 3.1 of this RIES, NE [PD2-008] requested an update of [AS-003] once its new conservation advice package for the MLS SAC was published. NE (ME.2.03 [REP4-063]) confirmed that would not be available during the Examination. However, NE stated [REP5-097] that an updated condition assessment would be available at the end of January 2025.

4.2 Alternative solutions

4.2.1 The Applicant provided its "no alternative solutions" case in section 4 of [AS-003]. It details the need for the Proposed Development in section 4.1 (Step 1). The objectives of the Proposed Development are summarised in paragraph 4.1.8.

Alternative solutions for the offshore export cable

Offshore connection solution

4.2.2 The ExA (GC.1.07 [PD-008]) sought clarification from the Applicant as to why it had discounted an alternative offshore connection solution via the proposed Sea Link project. The application for Sea Link's consent has been identified as being submitted during the first quarter of 2025 [RR-078]. That project together with the Proposed Development and North Falls received grant funding as a consortium as part of the Offshore Coordination Support Scheme (OCSS) [APP-066]. The ExA noted that National Policy Statement for Electricity Networks (NPS EN-5) states that "Coordinated transmission proposals… are expected to reduce the overall environmental… impacts associated with bringing offshore transmission onshore compared to an uncoordinated radial approach… for example… fewer cable corridors and reduced impacts from these."

4.2.3 The Applicant in [PD4-006] explained that the consortium's high level feasibility study concluded that coordination is technically feasible but that it would result in an increase in capital costs, constraints costs associated with any outage on Sea Link of more than £500 million and a programme delay for the Proposed Development and North Falls of up to five years. The Applicant states that, having reviewed the feasibility study, the SoS for Energy Security and Net Zero (ESNZ) confirmed on 3 September 2024 that further funding would not be granted.

4.2.4 Essex County Council [AS-011] submitted a copy of a letter it received from the DESNZ, confirming that based on the results of the completed feasibility study grant funding for the OCSS would not be continued.

4.2.5 The Applicant [PD4-006] states that based on the need for the Proposed Development, impact on the delivery date and cost of the assessed OCSS options, it had progressed the Application with the assumption of a deliverable radial onshore connection.

Cable routeing and coordination

4.2.6 The Applicant [AS-003] states that the ECC routeing had sought to avoid all designated sites but consultation with shipping and navigational stakeholders had identified that routing the ECC north of the MLS SAC boundary risked compromising navigational safety. The ECC therefore overlaps with the northern periphery of the SAC to maintain a buffer distance from a pilotage area to the north.

4.2.7 The Applicant [AS-003] states that alternative routes were considered as set out in ES Chapter 4 Site Selection and Alternatives [APP-066]. It is explained that the final options selected avoided crossing the high-density area for pilot boarding and historic munitions, reducing navigational safety risks. The area of ECC overlapping the MLS SAC avoids the fisheries' byelaw area of the MLS SAC, which the Applicant understands to be the most ecologically sensitive location, where fishing activity is prohibited.

4.2.8 The Benthic Compensation Strategy Roadmap [APP-047] provides more detail about the buffer proposed between the ECC and the pilotage area, stating that HHA indicated the export cable should be installed at least 1km south to avoid creating additional risks.

4.2.9 In its comments on benthic compensation, NE (F41 [PD2-008]) advised that a more substantive consideration of alternatives is required to ensure the alternatives test could be met. NE (F48) also queried why a combined or coordinated approach was not taken forward and if routing could avoid the Annex I sandbank features of the MLS SAC.

4.2.10 The Applicant [REP1-051] considered that [AS-003] set out all information to meet the alternatives test if the SoS determined that compensation was required, including an analysis of alternative cable routeing and design options. The Applicant considers that any further design refinement would be likely to reduce the benefit of the Proposed Development and design changes are not a feasible alternative solution.

4.2.11 The Applicant [REP1-051] stated it would continue to consider potential coordination but that to progress the Application it had made a reasonable worst-case assessment, but if coordination was agreed in future, impacts would be less than those identified in the assessment.

4.2.12 In response to a request from the ExA [PD-023], the Applicant [REP5-091] confirmed that it was unable to coordinate further with North Falls whilst satisfying concerns of shipping stakeholders. It stated that the separation distance between the offshore export cables for the Proposed Development and North Falls would in general be at least 300m, governed by the need to be able to repair cables and lay an "omega" loop.

4.2.13 The Applicant [REP5-091] explained that once past the MLS SAC and Sunk pilot boarding station constraints, the ECC is south of the cable corridor for North Falls to avoid the Sunk DWR and Harwich DWR that run parallel to the cable routes. Having separate cable corridors allows both projects greatest flexibility to minimise disruption to the ports during construction, as it reduces the amount of time construction vessels would be in the area because of the ability to avoid rather than remove obstructions.

Q4.2.2 [To NE] Confirm what further information you consider is needed to achieve a substantive consideration of alternatives.

Number of cables and width of ECC

4.2.14 The Applicant [AS-003] confirmed it achieved a reduction in the number of export cables between PEIR and the Application's submission from four to two, which reduces the footprint of works by 50% from that assessed in the PEIR. Further reduction in cable numbers would result in the project objectives not being met so that is not a feasible alternative.

Q4.2.3 [To the Applicant] Explain, with supporting evidence, why: a) further reduction in the number of offshore cables would result in the project objectives not being met, and b) it is not possible to further reduce the cable corridor width as it routes through the MLS SAC?

4.3 IROPI case

4.3.1 Section 5 of [AS-003] presented the Applicant's IROPI case.

4.3.2 The ExA (GC.1.04 [PD-011]) sought clarification from the Applicant about the contribution the Proposed Development might make to achieving the Government's objective for delivering 50 gigawatts (GW) of offshore wind generation by 2030. The ExA noted that the Applicant's position that without the Proposed Development at least 100MW of generating capacity would be lost appeared inconsistent with the claim that it was a substantial infrastructure asset.

4.3.3 The Applicant [REP2-039] stated that reference to an estimated generating capacity of at least 100MW was used to recognise that the Proposed Development is an NSIP and that the final generating capacity has not been defined. It provided (GC.1.03 [REP2-039]) a description of

the proposed generating capacity, noting it had agreement for connection capacity of up to 1,080MW and the figure is expected to be close to 1GW but would depend on final WTG selection. It stated that the Proposed Development would contribute approximately 2% to the Government's 2030 target. The Applicant referred to Overarching NPS for Energy (NPS EN-1), which states that the SoS *"is not required to consider separately the specific contribution of any individual project to satisfying the need established in this NPS."*

4.3.4 The ExA (GC.1.06 [PD-011]) also requested comments on the compatibility of a 7 year time limit for commencement in the dDCO [REP5-007] relative to the Government policy ambition for delivery of 50GW by 2030 and the Applicant's claim that the Proposed Development could be deployed in this time frame.

4.3.5 The Applicant [REP2-039] submitted it is seeking to deliver the Proposed Development as soon as possible and within a timeframe that meets the 2030 target but explains that it must allow for the reasonable worst-case when drafting the dDCO, including delays that are unforeseen or outside of its control. It refers to several possible causes of delay such as the supply chain or global events like closures of the Suez canal to shipping or another Covid outbreak. The Applicant states that NPS EN-1 sets out the urgent need and strong support for critical national priority infrastructure including offshore wind, with the weight to be attached not being time limited to developments that can deliver by 2030. It refers to SADEP as an example of a DCO granted with the same 7 year period for commencement and to which the SoS ascribed substantial positive weight.

4.3.6 No comments relevant to the Applicant's HRA have been received from any IP on this matter.

4.4 Compensatory measures

4.4.1 Details of the CM proposed by the Applicant for the LBBG feature of AOE SPA and Ramsar site were provided in appendices to [AS-003]:

- LBBG Compensation – Evidence, Site Selection and Roadmap [APP-049], updated to [REP2-006] and [REP5-015]
- LBBG IMP [APP-052], updated to [REP2-012] and [REP5-021]
- LBBG Compensation Site Suitability Report [APP-055]

4.4.2 The Applicant also proposed CM on a "without prejudice" basis, which were detailed in appendices to [AS-003]:

- Benthic Compensation Strategy Roadmap [APP-047]
- Outline BIMP [APP-048], updated to [REP5-013]
- Kittiwake - Evidence, Site Selection and Roadmap [APP-050], updated to [REP2-008] and [REP5-017]

- Guillemot and Razorbill - Evidence, Site Selection and Roadmap [APP-051], updated to [REP2-010] and [REP5-019]
- Kittiwake IMP [APP-053], updated to [REP2-014] and [REP5-023]
- Guillemot and Razorbill IMP [APP-054], updated to [REP2-016] and [REP5-025]

4.4.3 The Compensation Longlist and Shortlist [APP-057] combines documents produced at the PEIR stage and before (paragraph 1.1.1) which detailed the evolution of the proposed CM.

4.4.4 The Applicant submitted a Compensation Measures Funding Statement [APP-056], which provided estimated costs for the CM (including those provided on a "without prejudice" basis) and sought to demonstrate that the Applicant has sufficient funds to meet the costs. Paragraph 4.1.3 states that funding required would be provided by the Applicant and no third-party funding would be needed.

4.4.5 Section 6 of [AS-003] describes recent updates in the progress of establishing a Marine Recovery Fund (MRF) as a mechanism for delivering effective strategic CM. Paragraph 6.1.4 states that the MRF and related guidance is relatively new and undeveloped but notwithstanding this, the Applicant would consider fulfilling its compensation requirements through the MRF, if available and appropriate.

4.4.6 The CM for LBBG form Work No. 18B of the dDCO [REP5-007] and would be secured through Schedule 13 of the dDCO.

4.4.7 The CM provided on a "without prejudice" basis were not secured within the originally submitted dDCO [APP-024]. NE (Annex A1 [PD2-003]) provided its suggested wording for a benthic compensation schedule but the Applicant did not comment. The Applicant subsequently submitted "without prejudice" wording for new parts for inclusion within Schedule 13 to secure compensation for kittiwake, guillemot and razorbill, and benthic compensation in [REP5-090]. The submitted wording provides for compensation through project-led proposals or contributions to the MRF or other form of strategic compensation funding.

Q4.4.1 [To NE] Provide any comments you wish to make on the draft "without prejudice" wording for securing compensation measures included in [REP5-090].

Compensatory measures for Annex I sandbank (benthic)

4.4.8 The Applicant identified the strategic and project-led CM in the Benthic Compensation Strategy Roadmap [APP-047], as described below.

Strategic compensation delivered by Defra

New site designation or extension for Annex I sandbanks

4.4.9 The Applicant identified that extensions to the IDRBNR SAC to encompass the sandbank system (shown on Figure 6.1 in [APP-047]) or a westerly extension of Haisborough, Hammond and Winterton (HHW) SAC (shown

on Figure 6.3 of [APP-047]) have ecological merit but as a strategic measure it must be delivered by Defra in conjunction with NE and JNCC. The Applicant held discussions with other developers that may have to deliver compensation for the same Annex I sandbank feature to support the strategic approach and was progressing a memorandum of understanding (MoU) with ODOW.

4.4.10 The Applicant provided information about the value, function and scale of the proposed strategic CM, including an overview of the likely delivery process and timescales. It indicatively estimated that a pSAC status for site extensions could be achieved by the second quarter of 2027 with management and monitoring thereafter, compared to the proposed commencement of export cable installation in 2030.

4.4.11 NE [PD2-008] advised that strategic compensation has the greatest likelihood of maintaining the coherence of the NSN and that sufficient capacity could be built into design of the measure to compensate for the impacts of the Proposed Development as a sole measure. The Applicant [REP1-051] and [REP2-039] agreed with NE.

4.4.12 NE (F1, F3 and F4 [PD2-008]) noted that the designation of a new site or existing site extension would be led on by a team in Defra in collaboration with interested parties and therefore raised several concerns about the timing, deliverability, location and success criteria of the measure. NE stated that discussion outside of individual project examinations is required to determine project contributions and compensatory ratios. NE advised that the delivery mechanisms, costs and timeframes presented by the Applicant in [APP-047] should not be relied on given this option would be led by Defra in consultation with others.

4.4.13 The ExA (ME.1.10 [PD-011]) requested an update on timeframes and if there was a Defra contact from which direct updates might be sought. NE [REP2-059] and the Applicant [REP2-039] provided a named contact. The Applicant stated that through engagement with Defra it understood that guidance and a written ministerial statement (WMS) were due and could be submitted to the Examination, which would provide the necessary confidence in the measure for the ExA and SoS. NE noted similarly.

4.4.14 NE (F5 [PD2-008]) noted potential for a time lag between the impact occurring and strategic compensation achieving the desired outcomes. NE considers that the contribution should be at a level to ensure an overall environmental net positive outcome for the feature over the lifetime of the Proposed Development. The Applicant [REP2-039] noted that any compensation would be to compensate for the potential impact and whilst it should aim to provide a net positive outcome this is not a requirement.

4.4.15 The ExA (ME.1.10 [PD-011]) asked NE to clarify when in the project lifecycle the strategic compensation would need to be implemented. NE [REP2-059] did not specifically respond to this question but in [REP4-061] stated that once Defra assurance guidance is given, the Applicant should make every effort to update the Examination on its commitments.

4.4.16 The ExA is aware that a WMS was published on 31 January 2025, which included confirmation that Defra would commit to designating new marine protected area (MPA) and/or extending existing MPA to deliver sufficient compensation for OWFs with no ecologically effective options to compensate for unavoidable impacts to seabed habitats in SAC and MCZ. DESNZ published supporting guidance on the same date, which explained how developers could refer to strategic compensation measures in DCO applications in advance of the MRF becoming operational.

Q4.4.2 [To NE and the Applicant] Comment on any implications the WMS and DESNZ guidance published on 31 January 2025 have for the Applicant's proposed benthic strategic compensation option.

Project-led compensation

Removal of anthropogenic pressure through removal of redundant infrastructure

4.4.17 The Applicant focused on removal of disused telecommunications' (telecoms) cables as there were no known surface laid decommissioned oil and gas pipelines in SACs in the southern North Sea. Table 6.3 of [APP-047] summarised disused telecoms' cables in SACs with protected sandbank features. None were identified in the MLS SAC but some were recorded in HHW SAC (3,999.6m^2 of cable intersecting with sandbank) and North Norfolk Sandbanks and Saturn Reef SAC (9,147m^2 of cable intersecting with sandbank). The Applicant indicated that it was not known if these telecoms' cables were surface laid.

4.4.18 The Applicant provided information about the value, function and scale of the proposed CM, including an overview of the likely delivery process and timescales. It stated that only initial engagement had taken place with infrastructure owners and relevant stakeholders but it was considered less complicated to agree mechanisms for liability and transfer than for example for oil and gas infrastructure. The Applicant indicatively estimates that infrastructure removal could be achieved by 2028 with management and monitoring from 2029.

Removal of anthropogenic pressure through removal of aggregate industry pressures

4.4.19 The Applicant described several licensed aggregate extraction areas that are in and adjacent to the MLS SAC, many of which were awarded up to 15 years ago or longer for the initial licence. It stated that the conservation status of the SAC had subsequently been reassessed to be in unfavourable status. As such, early removal of aggregates pressure could be considered as compensation. Figure 6.8 in [APP-047] shows the current aggregate licence areas. The Applicant stated that adverse effects from aggregate extraction is being managed by conditions imposed by the relevant marine licences and provided an extract of the condition wording covering the sandbank feature.

4.4.20 The Applicant did not provide any information about the value, function and scale of the proposed compensatory measure but indicatively

estimated that formal agreement to remove the pressure could be reached with the licence holder in 2026 or 2027.

Seagrass habitat creation or restoration

4.4.21 The Applicant stated that if like-for-like compensation cannot be provided, provision of non-like-for-like could be considered, with consideration of habitat restoration or creation for a habitat with similar or identical ecological function to the sandbank habitat. The Applicant stated that seagrass beds are a sub-type of Annex I sandbank habitat.

4.4.22 The Applicant stated that creation of subtidal bed is not deemed suitable for the MLS SAC as there is no evidence of seagrass beds occurring historically. However, alternative subtidal sites to the west along the Lincolnshire coast could be investigated or intertidal sites within the wider region of the southern North Sea. The Applicant identified several sites with existing seagrass restoration projects.

4.4.23 The Applicant indicatively estimated that the seagrass seed or shoot deployment could be achieved in the second or third quarter of 2027, with monitoring from 2028 to 2033.

4.4.24 The Applicant proposed that details of the project-led measures and associated monitoring would be provided in a BIMP. The BIMP would be produced post-consent if required and the information it would contain is outlined in [APP-048], updated to [REP5-013].

Examination matters

4.4.25 NE [PD2-008] supports the removal of redundant surface laid or exposed infrastructure or buyout of aggregate licences but raised concerns about feasibility, timing, location and success criteria of the measures that it advises need to be addressed. These are discussed in Table 4.1 of this RIES. NE (F15) did agree that the removal of redundant infrastructure could be delivered before the impact occurs.

4.4.26 NE (F42 [PD2-008]) also requested more transparency over the lifetime impacts of the Proposed Development and advised there is a lot to secure on the checklist. It clarified [REP4-061] that this comment was not relevant to the strategic CM option. NE's advice remains unchanged [REP5-096]. The Applicant [REP1-051] states that it would provide more information where project-led options were supported by the SNCB (see Table 4.1 of this RIES).

4.4.27 NE (F39 [PD2-008], [REP4-061] and[REP5-096]) advised that seagrass habitat creation or restoration could only be considered as part of a package providing less than 10% of the required compensation or potential adaptive management for part delivered compensation. NE stated that the requirement would need to be for subtidal seagrass, not intertidal seagrass. NE's detailed concerns are discussed in Table 4.1 of this RIES.

4.4.28 The ExA (ME.1.10 [PD-011]) sought further explanation from the Applicant about the weight that it considered could be given to the project-based CM based on information submitted by DL1.

4.4.29 The Applicant [REP2-039] responded:

- Strategic compensation should be given the highest weighting, as it is most likely to be successful and provide long term benefits to a like-for-like feature in the same regional sea area.
- Removal of redundant infrastructure should be given second highest weighting, as it would remove pressures for the same feature in the same SAC. Due to the small level of compensation required and successful implementation of similar measures on other OWF projects, the Applicant was confident it would be deliverable.
- Removal of aggregate pressure should be given third highest weighting, as it would remove pressures for the same feature in the same SAC but could move pressure due to the demand for aggregates. The Applicant considered the overall success of this option was less certain.
- Seagrass restoration should be given the lowest weighting, as it is non-like-for-like and intended to supplement other options with approximately 10% of the compensation required, consistent with Defra guidance (Consultation on policies to inform updated guidance for MPAs (Defra, 2024)). The Applicant was confident the option was deliverable.

4.4.30 NE (ME.1.10 [REP2-059]) advised that progression of strategic compensation is needed due to extreme difficulties in delivering project-led benthic compensation. It stated that at this stage it did not believe there was merit in progressing or placing reliance on project-led measures, a position it maintained in (P15 and Appendix F [REP4-061] and [REP5-096]).

4.4.31 The Applicant [REP5-074] wished to retain project-led measures as a precaution due to delay in the issuing of the WMS concerning strategic measures.

4.4.32 NE [REP5-097] highlighted limitations of the project-led measures to inform decision-making and advised the preferred measure remained strategic compensation.

Level of compensation

4.4.33 NE (F3, F4, F13, F23, F33 and F46 [PD2-008]) advised that as it is not in agreement with the Applicant on the MDS or WCS of lasting habitat loss or change to the Annex I sandbank feature of MLS SAC, the compensation level required is not agreed. NE maintained its position in [REP4-061] and for F4, F10, F45 and F46 in [REP5-096]. References to F3, F13, F23 and

F33 were missing from Appendix F of [REP5-096] but the ExA understands that these matters are not resolved based on NE indicating that the WCS or MDS for cable protection are not agreed (P14 [REP5-096]).

4.4.34 NE (F44 [PD2-008]) was unsure how the Applicant determined that sandbank recovery would be within a few months following levelling and requested that statements are adequately referenced or where this is not possible a more precautionary approach is taken to recovery and the derogation case updated accordingly. The Applicant [REP1-051] considers that the presence of cable or cable protection would not result in any significant effects on the sediment transport regimes on sandbank features in or outside the SAC (see Table 3.1 of this RIES). NE maintains its position in [REP4-061] and [REP5-096].

Q4.4.3 [To NE] Confirm your advice on what ratio of compensation would be required in respect of potential AEoI to the Annex I sandbank of the MLS SAC if project-led measures were used. Explain why, if 5,400m^2 was to be secured as the maximum volume of cable protection over the lifetime of the Proposed Development, that would not represent a sufficient MDS to determine the level of compensation.

Determining when compensation is required

4.4.35 NE (F47 [PD2-008]) did not agree with the Applicant that compensation would only be needed post-installation of the export cable, if adverse effects were identified. NE noted that similar arguments were raised by the applicants for the Norfolk Vanguard and Boreas OWFs and the SoS decision letters required compensation to be agreed prior to impacts occurring and could not be deferred post-installation.

4.4.36 The Applicant [REP1-051] considered it inappropriate to implement compensation where impacts are not likely to occur. It has a high level of confidence that cable protection would not be required and that the level of potential impact from the Proposed Development is orders of magnitude lower than the Norfolk projects.

4.4.37 NE [REP4-061] and [REP5-096] records no change in its advice.

Compensatory measure monitoring

4.4.38 NE [REP4-064] stated that compensation monitoring should be undertaken to observe successes of CM for benthic ecology. The Applicant [REP5-074] states that post-construction monitoring in the MLS SAC is proposed for monitoring potential impacts, but not as compensation monitoring, as it is not considered a CM.

Table 4.1 Annex I sandbank of MLS SAC – key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's proposed compensatory measures

ID	Issue	Details	ExA observation/ question
NON-STRATEGIC COMPENSATORY MEASURES – REMOVAL OF REDUNDANT INFRASTRUCTURE (TELECOMS' CABLES)			
4.1.1	Technical feasibility, location and success criteria - evidence of existing pressure and cable owner agreement	NE [PD2-008] requested more evidence from the Applicant: • that redundant telecoms cables are causing a significant impact on the Annex I sandbank feature of the SAC (F11) • to demonstrate that cables are present (spatially and temporally) to be hindering the conservation objectives (F12) • that commitments with cable owners could be secured (F12) • the location of the measure (F16), including the amount and location of surface laid or exposed cables (F20) NE (F18) stated that it would be hard to determine success criteria and prove additionality in the absence of evidence in respect of F12. NE (F19) considers the measure could be progressed as a sole measure if its concerns are addressed but otherwise advises that it would only be supportive of the measure as part of a package. The Applicant [REP1-051] commented it may remove this option but only if sufficient security was achieved in	**QT4.1.1 [To the Applicant] Provide evidence to support your assertion that the telecoms cables identified in [APP-047] are likely to be exposed at different times (if they are not surface laid).**

ID	Issue	Details	ExA observation/ question
		strategic compensation. The Applicant considered that the survey required to provide further confidence in location was disproportionate at this stage given strategic compensation is preferred. NE [REP4-061] and [REP5-096] recorded no change. It [REP5-097] considered it unlikely the Applicant would be able to provide sufficient evidence or security during the Examination that removal of telecoms cables alone would sufficiently offset the impacts for the Annex I sandbank feature. In response to the ExA's request [PD-023], the Applicant stated [REP5-091] that it wished to retain this CM and provided evidence in [APP-047] that such infrastructure is in SACs with Annex I sandbank features. The Applicant considered that, given the very limited potential of the works leading to AEoI (with the effect being not significant in EIA terms), the telecoms cables would not need to be having a significant impact on the qualifying feature for them to be having a similar adverse effect and therefore removal would be of benefit. The Applicant has engaged with BT and BT has raised no objection to the concept, but discussions remain high level and would take longer than the Examination to conclude. The Applicant noted NE's preference that telecoms cables would need to be surface laid or exposed but considers that in mobile and dynamic environments such as sandbanks, assets are likely to be exposed and reburied at different times and removal where	

ID	Issue	Details	ExA observation/ question
		present in sandbank features would prevent any future re-exposure. Whilst some of the telecoms cables are outside the MLS SAC, removal would maintain the ecological coherence of the sandbank network in the region and reinstated habitat would be of high environmental value to other species of conservation importance.	
NON-STRATEGIC COMPENSATORY MEASURES – BUYOUT OF AGGREGATE LICENCES			
4.1.2	Theoretical merit, technical feasibility, deliverability and success criteria – detail of the measure and how it would be secured	NE [PD2-008] requested more detail from the Applicant on: • any agreements with the aggregates industry, where the measure has potential (F21) • how the measure would be secured (F22) • the scale and extent of the measure (F24) • the timing of the measure and if it can be delivered prior to impacts occurring (F25) • the location of the measure (F26) and • information on the amount and location of available active licence locations open to being bought (F30) NE (F28) stated that success criteria and ability to prove additionality were not considered in detail or agreed with the SNCBs. NE (F29) considers the measure could be progressed but remains unclear if there are any options available to the Applicant as either a sole measure or part of	**QT4.1.2 [To the Applicant] Provide an update on any discussions held with aggregate licence holders, including potential locations for this proposed measure.**

ID	Issue	Details	ExA observation/ question
		a package. NE [REP4-061] and [REP5-096] records no change.	
NON-STRATEGIC COMPENSATORY MEASURES – SEAGRASS HABITAT CREATION OR RESTORATION			
4.1.3	Theoretical merit and technical feasibility	NE (F31 and F32 [PD2-008]) referred to the Offshore Wind Leasing Round 4 Dogger Bank Strategic Compensation Plan (2024). This report states that suitability of seagrass restoration as compensation for sandbank is supported by the listing of seagrass as a flora associated with sandbank in NSN guidance but it is a lower preference compared to measures supporting the same ecological function of the habitat being compensated. Significant concerns were raised by the steering group about the deliverability of seagrass restoration, even on a small scale, with no long-term successes in the UK. It was considered as an additional option to supplement other measures or potentially as an adaptive management response. The ExA [PD-014] sought an update from NE on the further advice on technical feasibility it had committed to providing at DL1. NE (ME.2.04 [REP3-031]) stated that no further evidence or information has become available in support of the measure and its advice remains unchanged. NE does not believe there was merit in progressing the measure or providing further advice during the Examination. Its position remained unchanged in [REP4-061] and [REP5-096].	**QT4.1.3 [To the Applicant] Submit any evidence for the success in seagrass habitat creation or restoration in the UK.**
4.1.4	Scale and extent, deliverability,	NE [PD2-008] requested more detail from the Applicant about this measure, including:	The ExA notes that the Applicant had not provided

ID	Issue	Details	ExA observation/ question
	location and other details	• scale and extent (F34) • if it could be delivered before impact (F35) • the location (F36) • seagrass restoration projects to be supported (F40) • how it is proposed to be secured (F40) • how it would be demonstrated to be additional to what the seagrass restoration project has already entrained (F40) and • how success would be demonstrated (F38 and F40) The Applicant [REP1-051] stated that if evidence can be obtained during the Examination of how and when this measure could be secured, it would be provided. NE [REP4-061] and [REP5-096] record no change.	any further evidence in response to NE's comments by DL5 of the Examination.
NON-STRATEGIC COMPENSATORY MEASURES – IMPLEMENTATION AND MONITORING			
4.1.5	Outline BIMP	NE (F50 [PD2-008]) stated that the Outline BIMP [APP-048] is a skeleton document and it was unable to comment on its content. It queried if this would be the most appropriate approach if strategic compensation were taken forward. The Applicant [REP1-051] noted NE's comments but did not provide any other response. NE (F17, 27 and F37 [PD2-008]) stated that [APP-048] would need more detail about monitoring and adaptive management to provide comfort to the SoS if the project-	**QT4.1.5 [To the Applicant] In the absence of detail sought by NE, explain how it is proposed that success criteria would be established and how there can be confidence that project-led measures would be**

ID	Issue	Details	ExA observation/ question
		led options were taken forward. The Applicant [REP1-051] responded that more detail could be provided if these were shown to be viable CM. The Applicant updated the Outline BIMP [REP5-013] to confirm that a project steering group would not be required if the strategic CM were taken forward. In response to the ExA's request [PD-023], the Applicant stated that outside of any information Defra or NE provide about strategic compensation it does not intend to make major updates to the Outline BIMP during the Examination. Further information would be provided in a final BIMP post-consent, if required. NE [REP4-061] and [REP5-096] recorded no change in its advice.	**capable of being monitored and provide adaptive management if needed.**

Ornithology compensatory measures

Guillemot and razorbill

4.4.40 The Applicant initially identified the following potential CM in the Guillemot and Razorbill Compensation – Evidence, Site Selection and Roadmap ('the Auk Roadmap') [APP-051]:

- Project-led compensation comprising small scale management measures at colonies in south-west England.
- Strategic compensation delivered by Defra in the form of contribution to the MRF comprising predator control.

4.4.41 The details of the project-led measures and associated monitoring would be provided in a Guillemot and Razorbill Implementation and Monitoring Plan (GRIMP). The GRIMP would be produced post-consent if required and the information it would contain is outlined in [APP-054].

4.4.42 NE expressed broad support for the proposal to provide compensation for impacts on guillemot and razorbill through reduction of disturbance at small colonies in south-west England in its RR (D2 [PD2-006]). Furthermore, NE [PD2-006] noted that connectivity to the FFC SPA and the wider UK network of SPAs classified for guillemot is likely limited, however populations of both species from the south-west colonies may mix with birds from other SPAs in the non-breeding season, resulting in some potential for exchange. NE considered this would be of greater concern for a project with greater impacts on FFC SPA auks than the Proposed Development but given the scale of contribution made by the Proposed Development to the in-combination impacts, NE concluded that the likelihood of low connectivity does not mean a proportionate contribution of auks to the network cannot be made in this specific instance.

4.4.43 Despite being broadly supportive of the proposals, NE raised a number of concerns that have been discussed during the Examination. These are detailed in Table 4.2 below.

Kittiwake

4.4.44 The Applicant initially identified the following potential CM in the Kittiwake Compensation – Evidence, Site Selection and Roadmap [APP-050]:

- Project-led compensation comprising use of an existing artificial nesting structure (ANS) constructed by RWE (DBS) in Gateshead.
- Strategic compensation delivered by Defra in the form of contribution to the MRF.

4.4.45 The details of the project-led measures and associated monitoring would be provided in a Kittiwake Implementation and Monitoring Plan (KIMP). The KIMP would be produced post-consent if required and the information it would contain is outlined in [APP-053]. Appended to the Kittiwake Roadmap is an In Principle Letter of Agreement from DBS (East and West)

to the Roadmap (Appendix B of [REP5-017]) confirming that it would be willing to allocate nesting platforms to the Applicant in the event that the SoS decides that CM are required.

4.4.46 Similarly to the proposed compensation for guillemot and razorbill, NE [PD2-006] also agreed with the Gateshead ANS measure in principle but raised a number of concerns for discussion during the Examination (see Table 4.2). In NE's view, it is appropriate for the Applicant to continue with both compensation options (Gateshead ANS and a contribution to the MRF), to safeguard delivery of the compensation.

LBBG

4.4.47 The Applicant's proposed CM for LBBG in the LBBG Compensation – Evidence, Site Selection and Roadmap [APP-049] are as follows:

- Installation of predator fencing and restoration of habitat within the fenced off area at a site within the Alde Ore SPA
- Predator control and habitat management at the Outer Trial Bank.

4.4.48 The details of the measures and associated monitoring would be provided in a LIMP. The LIMP would be produced post-consent and the information it would contain is outlined in [APP-052].

4.4.49 NE agreed with the proposed measures in principle (D24 [PD2-006]). Furthermore, NE considered (D24, D28 [PD2-006]) that having two distinct measures provides significant resilience, recommending both options are progressed. The Applicant [REP1-051] has carried both proposals forward during the Examination, however it considers the proposed measures to be mutually exclusive, not complementary, and that each option on its own has the potential to compensate many times more than the required compensation quantum.

4.4.50 IPs raised a number of additional concerns (see Table 4.2).

Q4.4.4 [To NE and the Applicant] Comment on the implications of the WMS and DESNZ guidance published on 31 January 2025 for the Applicant's proposed use of the strategic compensation through the MRF.

Table 4.2 Ornithology – key issues raised in the Examination to date by the ExA and IPs in relation to the Applicant's proposed compensatory measures

ID	Issue	Details	ExA observation/ question
GUILLEMOT AND RAZORBILL			
4.2.1	Baseline and evidence base	NE considered (D1, D2 and D3 [PD2-006]) that the Applicant needs to monitor for an appropriate period of time the proposed compensation sites to establish the current reasons for and level of disturbance and identify the measures needed to effectively mitigate it. NE recommended that the Applicant investigate the most suitable set-back distances for watercraft to ensure local signage and codes of conduct convey the most appropriate evidence-based information to help bring about a behavioural change in the community. The RSPB shared these concerns [RR-094], considering that the Applicant had failed to provide sufficient evidence to demonstrate: a) that recreational use is responsible for population declines; and b) that there is reduced breeding productivity at the ten locations identified. NE (C42 PD2-005]) also disputed the Applicant's characterisation of the current status and population trends for guillemot and razorbill presented in the Roadmap. A Guillemot and Razorbill – Survey Report [REP1-054] was submitted at DL1, which presents a summary of the key findings from site visits to guillemot and razorbill colonies in north Cornwall and north Devon in May and June 2024. These visits aimed to determine the suitability of potential	

ID	Issue	Details	ExA observation/ question
		CM for breeding common guillemot and razorbill at the initial proposed ten sites and concluded that of the ten surveyed five have low potential, two have moderate potential and three have high potential for CM to work. The Auk Roadmap [REP2-010] and GRIMP [REP2-016] were updated at DL2 to incorporate survey results and conclusions. The Applicant [REP2-010] concluded that the key pressures at the three best sites were from water-based activities and considers that the most relevant compensation measures for each site are wardens, education and engagement and signage. Section 5 of the GRIMP [REP5-025] establishes that monitoring and reporting will be done annually for all stages of the management programme. NE [REP3-034] welcomed these updates but considered further research (two years of surveying) is required to determine disturbance distance thresholds and the safe "set back" distances to advocate and the proposed timetable should be agreed so that management can be in place three to four years in advance of operation. NE explained in [REP5-099] why the 2024 surveys did not address its request to the Applicant to establish a baseline at the compensation sites and what it seeks from the Applicant to alleviate its concerns. The Applicant confirmed [REP5-091] that if compensation is required for guillemot and razorbill, a more detailed on-site monitoring programme would be implemented which would	

ID	Issue	Details	ExA observation/ question
		focus on measuring productivity and disturbance events and ensure that at least two years of baseline data are collected.	
4.2.2	Detail of measures	The RSPB [RR-094] raised concerns that the Auk Roadmap and GRIMP did not propose specific measures for any colony, tackle the legal and social behaviour challenges in regulating recreational use on land versus in the marine environment or consider the practical ability of the Applicant to influence, control or regulate any such use. Furthermore, the RSPB considered that no evidence is presented on the efficacy of the proposed range of measures and consider that employment of staff (wardens) to encourage, monitor and reinforce behavioural change is required. As noted above, the Applicant undertook further survey work during the Examination and revised the Roadmap [REP2-010] and [REP5-019] and GRIMP [REP2-016] and [REP5-025].	
4.2.3	Compensation level	NE disagreed with the Applicant's compensation quantum (D4 and D5 [PD2-006]). NE advised the use of 70% displacement and 2% mortality and the HOW3 method to account for natal philopatry (as opposed to 50% displacement and 1% mortality and the HOW4 approach favoured by the Applicant) and advocated that NE's approach is used for scaling compensation. NE explained its reasoning in [REP4-058], [REP5-094] and [REP5-095]. The RSPB [REP5-067] also presented its favoured approach to displacement and mortality rates (preferring a single displacement rate of 60% and a range of mortality rates,	**QT4.2.3a [To the Applicant] Submit the "Outer Dowsing Offshore Wind: 19.8 Levels of precaution in the assessment and compensation calculations for offshore ornithology ([REP2-057] in the Outer Dowsing Examination Library"**

ID	Issue	Details	ExA observation/ question
		3% to 5% during the breeding season and 1% to 3% in the non-breeding season). The Applicant [REP1-051] revised the RIAA at DL1 [REP1-016] to present NE's displacement and mortality values, and these are reflected in the Auk Roadmap [REP5-019]. Nevertheless, at DL5 the Applicant only presented the HOW4 approach. The Applicant [REP5-074] explained that it stands by its approach and argues that taking into account natal philopatry is not appropriate for this CM because any additional fledglings will support the NSN regardless of if they relocate to other colonies within the region or remain at their natal colony. The Applicant presented an example of the NE approach applied to the razorbill calculations in [REP5-074] concluding the required quantum would be 1,364 pairs, which it argues is "*inconceivably disproportionate to the estimated impact of 0.22 birds*".	**referred to in section NE15 [REP5-074].** **QT4.2.3b [To NE] Comment on the Applicant's arguments relating to the compounding effect of adding precaution to calculations and the relevance of natal philopatry in relation to auks.**
4.2.4	Timing and mortality debt	NE (D5 and D6 [PD2-006]) noted that the Applicant plans to have the CM in place four years prior to operation and raised concerns that in doing so it would be likely to accrue "mortality debt" on the impacted guillemot and razorbill populations because both species do not reach adulthood until around six years old and therefore operations would commence before young produced by the compensation will reach maturity and enter the breeding population. NE [REP3-034] and [REP4-058] considered that the Applicant should either adjust the implementation schedule or	

ID	Issue	Details	ExA observation/ question
		increase the scale of requirements to address the risk of mortality debt accruing in the early years of the Proposed Development. The Applicant [REP5-074] disagreed that the requirements should be increased to deal with any mortality debt accruing, because the measures would be carried out at existing colonies and would benefit the productivity of the colony from the first year of implementation. The Applicant also considered that as the impact from the Proposed Development is small, any debt would also remain extremely small (<1 bird), if it were accrued. The GRIMP was revised at DL5 to state that the measures would be in place 3 breeding seasons before the operational phase of the Proposed Development (paragraph 5.2.1 [REP5-025].	
4.2.5	Landowner consent and stakeholder engagement	NE (D7, D10 and D11 [PD2-006]) raised concerns that proposed sites had not been secured with relevant landowners and stakeholder participation had not been formalised. The Applicant [REP1-051] argued that the majority of proposed measures would not require landowner consent or the securing of land. At DL5, the Applicant confirmed that it was continuing discussions with stakeholders in the south-west and other offshore wind farm projects to determine the best solution to achieve a strategic measure. NE [REP4-061] requested the Applicant to provide reassurance from stakeholders and landowners of their participation in the measure.	

ID	Issue	Details	ExA observation/ question
4.2.6	Monitoring	NE (D8 [PD2-006]) recommended as much time as possible is spent observing the colonies to record the number of disturbance events the colonies are subject to and their consequences, which is needed to identify suitable set-back distances and also to gather as much data as possible on the direct causes of nest failure. That would require the seasonal employment of a suitably skilled observer(s) for the project's duration. NE [REP4-061] considered that broad descriptions of monitoring methods had been provided but further approaches to gathering data on populations and productivity needed investigating. The Applicant provided an updated GRIMP at DL5 [REP-025] providing further information on collaborative delivery.	**QT4.2.6 [to NE] NE to comment on the latest Auk Roadmap and GRIMP and explain specifically what details it seeks from the Applicant in terms of monitoring methods.**
4.2.7	Success criteria	NE (D9 [PD2-006] and [REP4-058]) disagreed with the Applicant's proposal to measure success through the reduction of anthropogenic disturbance and suggests extending the monitoring program to include control sites in the region to better understand population trends. The RSPB [RR-094] also considered there is the need for wider regional colony monitoring to place the monitoring of any selected sites in a wider context. The Applicant [REP5-074] continues to believe that assessing the success of the measures should be based on the visitor statistics and disturbance rates due to the difficulties attributing population and productivity changes to the measures, especially as several colonies are difficult to monitor and in addition guillemot and razorbill	

ID	Issue	Details	ExA observation/ question
		populations are prone to large natural fluctuations. The Applicant [REP5-074] also states that annual colony counts and productivity studies will be carried out where possible at the selected colonies and several colonies will be monitored as control sites, however, that is not stated explicitly within the GRIMP itself.	
KITTIWAKE			
4.2.8	Delivery mechanism and sharing arrangements with DBS OWF	NE (D12, D13 and D17 [PD2-006]) and the RSPB [RR-094] considered there was uncertainty regarding collaboration and agreement between the Applicant and DBS OWF with regards to sharing the ANS, how the Applicant's contribution would be secured and how the number of any kittiwake pairs occupying the ANS would be divided and shared between the participating projects. The Applicant updated the Roadmap [paragraph 3.4.2 in REP2-009] to provide further detail on the arrangements, namely: • The Applicant will secure an equal share of the DBS tower with four other projects (20%). • This will secure approximately 48 nesting spaces out of the approximately 240 available spaces on the tower. • Nesting spaces will be nominal, without any fixed locations on the tower. • Accordingly, apportioning of occupied nesting spaces will be split equally between the projects.	

ID	Issue	Details	ExA observation/ question
		• Monitoring and reporting will be agreed between the parties and will be undertaken by DBS on behalf of all parties or as otherwise agreed. Following these updates, NE considered this matter resolved at DL4 [REP4-061]. The RSPB [REP5-067] continues to expect further detail on the manner of apportionment between developers using the Gateshead ANS for their projects and further information on the use of existing ANS in the area to determine the likely take up/demand for the identified Gateshead ANS.	
4.2.9	Compensation level	NE (D15 [PD2-006]) commented that the approach to calculating the compensation quantum has been based on the mean number of mortalities predicted by the collision risk analyses. However, NE advised that the compensation requirement should not be based on the mean collision estimate (1.1 birds) and should be scaled up to the upper (95%) confidence interval (UCI) of 2.3 birds. The Applicant revised the Kittiwake Compensation Roadmap in [REP2-008] to present both the NE (HOW3 Stage 2, using 95% UCI) and Applicant's (HOW4, using mean values) preferred approaches. Justification for the Applicant's approach is provided in [REP1-051], the Roadmap [paragraph 1.2.5 in REP2-008] and [REP5-074]. NE provides further evidence in favour of its preferred approach in [REP4-058], [REP5-094] and [REP5-095]. Further to this, NE [Table 6 in REP4-058] considered there were discrepancies between the KIMP's [REP2-014] and the	

ID	Issue	Details	ExA observation/ question
		RIAA's [REP1-016] use of collision estimates to calculate the compensation quantum. The Applicant clarified this in [NE20 in REP5-074]. At the time of publishing the RIES, the Applicant maintains that the appropriate compensation quantum is seven pairs (using mean impact, HOW4 method and a 3:1 ratio). However, the Applicant has also presented a worst case scenario of UCI, HOW3 stage 2 and a 3:1 ratio [Table 1.3 in REP2-009]. That produces an estimate of 46 pairs which the CM proposed by the Applicant on a without prejudice basis would accommodate.	
4.2.10	Confidence in the project specific measure	NE (D21 and D22 [PD2-006]) raised concerns over whether adequate numbers of birds would occupy the DBS ANS in a timely manner and raised the possibility that the Gateshead Tower would be too sparsely populated to compensate for losses attributed to any of the contributing projects. NE advises that to safeguard delivery of the compensation, the alternative option to support Defra's MRF for an offshore ANS should be retained in the meantime. The RSPB also queried this in its RR [RR-094], requesting further information on current occupancy rates of other ANS in Gateshead and the wider Tyne area, given the success of the DBS ANS depends on there being a shortage of nesting spaces for the local population. The Applicant confirmed in [REP1-049] and [REP1-051] that it would be carrying forward the MRF as a backup option to the Gateshead ANS and this dual optionality reflects its	

ID	Issue	Details	ExA observation/ question
		preferred approach. NE considered this matter resolved [REP4-061]. The RSPB [REP5-067] continues to expect further information on the use of existing ANS in the area to understand the likely take up and demand for the Gateshead ANS.	
4.2.11	Monitoring	The RSPB [RR-094] considered that the proposed monitoring set out in the KIMP [section 5.7 in APP-053] should be developed in greater detail and draw on experience gained in respect of other extant kittiwake compensation ANS. The RSPB made recommendations that productivity monitoring of the Gateshead structure should commence as soon as first breeding is detected, rather than at the date of offshore wind farm installation as stated by the Applicant [paragraph 5.7.5 in APP-053]. The RSPB [RR-094] highlights the challenges associated with monitoring natal dispersal and colony interchange with the FFC SPA and expects this to be reflected in the KIMP. The Applicant [REP1-049] updated section 5.7 of the KIMP [REP2-014] and [REP5-023] to specify that a monitoring programme would be discussed and developed with NE and other stakeholders, agreed between the parties and would be undertaken by DBS on behalf of all parties or as otherwise agreed.	
LBBG			
4.2.12	Impacts of the predator fence on	NE (D25, D29 and Appendix J Onshore Ecology [PD2-006]) raised concerns that the impacts for the Orfordness –	

ID	Issue	Details	ExA observation/ question
	Orfordness – Shingle Street SAC and Alde-Ore Estuary Ramsar site	Shingle Street SAC and AOE Ramsar site are not sufficiently understood and therefore impacts might not be adequately mitigated. NE (D30 [PD2-006]) raised specific concerns about fence maintenance and remediation of potential breaches. The issue of inadequate baseline information has been discussed in Table 3.4 and is not repeated here. The Applicant noted that it provided an outline for the fence maintenance schedule in the LIMP [APP-052].	
4.2.13	Access to OTB Impacts to The Wash SPA, Ramsar and the Wash and North Norfolk Coast SAC and mitigation	NE (D25.5 [PD2-006]) and the RSPB [RR-094] noted that OTB is a challenging site to access and sits in an area of high environmental sensitivity (The Wash SPA, Ramsar site and the Wash and North Norfolk Coast SAC). NE argued that an appropriate access methodology and schedule for management has not been presented and requested that an outline statement should be submitted. Additionally, NE (D30 [PD2-006]) considers that workable plans for monitoring and biosecurity will need to be in place. The RSPB [RR-094] also considered that the rat eradication proposal has the potential to impact the SAC, SPA and Ramsar features of the Wash SPA/Ramsar and the Wash and North Norfolk Coast SAC and would require a HRA in its own right. The Applicant stated that access and use of OTB was at an advanced stage [REP1-051]. At DL5, no further progress has been made on this matter.	**QT4.2.13 [to the Applicant] The compensatory measures proposed at OTB have the potential to impact European designated sites. No HRA Report has been provided for these measures. Provide justification for this approach or a HRA for the measures, if required.**

ID	Issue	Details	ExA observation/ question
4.2.14	Success of the measures at OTB	NE (D33 [PD2-006]) and the RSPB [RR-094] questioned the evidence supporting rat predation as the primary factor limiting breeding success at OTB. The RSPB notes that there is no information on breeding productivity of the LBBG at the OTB. The Applicant stated [REP1-051] that presence of rats and signs of predation were noted in the RSPB 2023 survey. Therefore, according to the Applicant there can be a high likelihood that the breeding success of the LBBG population is being affected and that predator eradication would lead to an increase in LBBG numbers.	
4.2.15	Success of the measures at Orford Ness	The RSPB [RR-094] noted that the reasons for population and productivity decline are not clear and therefore predation may not be the limiting factor. It also disputed the Applicant's estimated breeding density and potential breeding capacity of the fenced area, as the local nesting densities at Havergate Island are significantly lower, and the RSPB argues this needs to be borne in mind when assessing the likely effectiveness of the proposed measure. The Applicant [REP2-006] presented the compensation quantum required using both the Applicant's preferred approach using national productivity rates and nesting densities alongside the RSPB's preferred approach using Havergate Island densities and productivity rates. The Applicant considered that further work into the densities found at Havergate Island is required as it appears that a large proportion of the habitat is unsuitable for nesting	

ID	Issue	Details	ExA observation/ question
		LBBGs (e.g. under water) perhaps resulting in the low densities.	
4.2.16	Compensation level	NE disagreed with the proposed compensation level (D26, D27 [PD2-006]). As explained in section 3 above, NE raised various issues with the Applicant's approach to calculating collision mortality. The Applicant presented mortality estimates according to its own and NE's preferred approaches. NE [REP4-058] advocated a compensation quantum based on the predicted mortalities derived using its recommended approach (11.09 birds per annum rather than 5.7). In addition, NE [REP4-058], [REP5-094] and [REP5-095] recommended the Hornsea 3 approach to calculating the compensation quantum, but recognised that this relies on detailed demographic data not available for LBBG. NE therefore recommended the Applicant include an adjustment for natal philopatry to account for birds migrating away from a breeding site that will not recruit back into their natal colony when they reach the breeding age. The Applicant argued [REP4-060] and [REP5-074] it is unnecessary to adjust the compensation quantum to account for natal dispersal in this scenario because the proposed compensation measure is delivering compensation at the impacted SPA (AOE). Also, using NE's preferred approach would lead to a compensation quantum of 1,270 pairs which the Applicant believes is disproportionate for an estimated impact of 5.7 birds.	

ID	Issue	Details	ExA observation/ question
		The RSPB also considers the Applicant's predicted productivity rates are out of date.	
4.2.17	Compensation ratio	NE (D27 [PD2-006]) advocated that compensation is delivered at a ratio of 3:1. The Applicant [REP1-051] presented a range of ratios from 1:1 to 3:1, but considered that since the compensation is being applied at the impact SPA, a 1:1 ratio is more appropriate, however the size of the site (6 ha) has the potential to compensate for 2,400 pairs (a 12:1 ratio) and would therefore vastly overcompensate for the impacts.	**QT4.2.17a [to the Applicant] The Applicant states that a 1:1 ratio would be appropriate at Orford Ness as it is within the AOE SPA. What ratio is appropriate for the OTB and why?** **QT4.2.17b [to NE] NE recommends a 3:1 compensation ratio for LBBG. Is this also NE's recommended ratio for the auk species and kittiwake? Provide justification for the recommended ratio.**
4.2.18	Timing and mortality debt	NE highlighted (D32 [PD2-006]) the potential for the gulls to delay using the Orford Ness site and there would be a risk of mortality debt accruing (noting the lack of breeding gulls in the Norfolk/ East Anglia projects compensation compound in the 2023 breeding season). NE advised (D28.5 [PD2-006]) that the fence at AOE be erected four years in advance of the operational phase to extend the lead in time as much as possible, nothing that this schedule was	

ID	Issue	Details	ExA observation/ question
		required and achieved by the Norfolk OWF projects. National Trust [RR-080] also highlighted that the Norfolk/East Anglia project's CMs directly adjacent were not yet showing signs of success. The Applicant [REP5-074] acknowledged that it may potentially accrue a mortality debt by committing to the fence being erected three years prior to operation, but argued that either measure has the potential to over-compensate and mortality debt would be easily recovered over the lifetime of the project. The Applicant [REP5-074] also argued that acquiring a small mortality debt would be appropriate given the critical national priority status of the project. It also stated that the Norfolk Projects and East Anglia projects compensation site is still in its infancy and adaptive management measures are in place to help with the future success of the site [PD4-006].	
4.2.19	Landowner agreement	NE (D29 and D33 [PD2-006]) raised concerns that as negotiations with landowners at both sites were ongoing, there was uncertainty whether or not either site can be secured for the lifetime of the project. NE referred to the representation from Cobra Mist Limited [REP3-041] which indicated that the Cobra Mist land was no longer available. See also Cobra Mist Ltd representations [RR-014], [REP2-076], [REP5-103] and [REP5-104]. The Applicant [REP1-051] and [REP5-074] explained that while it is looking to progress voluntary agreement with Cobra Mist Limited, it has included the AOE site within the	

ID	Issue	Details	ExA observation/ question
		Order Limits to provide security of delivery through the use of compulsory acquisition powers if necessary. The Applicant also explained that the OTB site is owned by The Crown Estate, which cannot be the subject of compulsory powers, and is not in the Order Limits [REP1-051]. National Trust [RR-080] also noted in its RR that no discussions had taken place with the Applicant in terms of compulsory acquisition, but the Applicant confirmed that the land owned by National Trust was no longer being considered for the delivery of the measures, following the submission of the change request [REP3-024].	
4.2.20	Alternative site	National Trust [RR-080] and NE (Table 5 in [REP4-058]) proposed Lantern Marshes as an alternative to the Orford Ness site, encouraging the Applicant to collaborate with North Falls OWF who are already in discussion with National Trust over use of Lantern Marshes. The Applicant argued that the Lantern Marshes site holds no additional advantages over the Orford Ness site and would need to be secured by other means as it is outside the Order Limits and has not been assessed (unlike the Orford Ness site). The Applicant confirmed it would not be pursuing Lantern Marshes further [EV3-003].	

5 CONCLUDING REMARKS

5.0.1 This RIES is based on information submitted throughout the Examination by the Applicant and IPs, up to DL5 (10 January 2025), in relation to potential effects on European sites. It should be read in conjunction with the Examination documents referred to throughout.

5.0.2 The RIES has identified gaps in the ExA's understanding of IPs' positions on Habitats Regulations and comments on the RIES will assist the ExA in order to support a robust and thorough recommendation to the Secretary of State. In particular, the ExA seeks:

- Responses to the questions identified in Sections 1 to 4 of this RIES
- Confirmation whether the ExA's understanding of screening and adverse effects conclusions at the point of the RIES's publication (in Annex 1) is correct.

5.0.3 Any comments on the RIES must be submitted by DL7 (3 March 2025).

ANNEX 1 EUROPEAN SITES (UK ONLY) CARRIED FORWARD TO THE INTEGRITY TEST STAGE BY THE APPLICANT

5.0.4 The tables in this annex summarise the ExA's understanding of the Applicant's screening and assessment of adverse effects at the time of the RIES's publication.

Key to tables:

Black text = European site screened for LSE in Main HRA Report only

Green text = European site screened for LSE in Main HRA Report and LBBG HRA Report

Blue text = European site screened for LSE in LBBG HRA Report only

Table A.1 European sites and features for which the Applicant concluded LSE could not be excluded (alone or in combination with other plans or projects) in the Main HRA Report (based on [REP5-011])

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
Abberton Reservoir Ramsar site	Gadwall Shoveler Wigeon Waterbird assemblage	Disturbance of birds outside of the Ramsar Decrease in air quality Decrease in water quality Loss of foraging and roosting habitat outside of the Ramsar In-combination effects	Disturbance of birds outside the Ramsar In-combination effects	Disturbance of birds outside of the Ramsar Decrease in air quality Decrease in water quality In-combination effects	No AEoI	No AEoI	No AEoI	Yes
Abberton Reservoir SPA	Cormorant	Disturbance of birds outside of the SPA	Disturbance of birds outside of the SPA	Disturbance of birds outside of the SPA Decrease in air quality	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		Decrease in air quality Decrease in water quality Loss of foraging and roosting habitat outside of the SPA In-combination effects	In-combination effects	Decrease in water quality In-combination effects				
Alde-Ore Estuary Ramsar site	Avocet Redshank	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes
	Lesser black-backed gull	No LSE	Collision risk	No LSE	N/A	AEoI	N/A	Yes
Alde-Ore Estuary SPA	Avocet Redshank Ruff	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Lesser black-backed gull	No LSE	Collision risk	No LSE	N/A	AEoI	N/A	Yes
Berwickshire and North Northumberland Coast SAC	Grey seal	Underwater noise, including barrier effects Collision risk Disturbance at haul out Changes to prey Habitat loss	Collision risk Changes to prey Disturbance at haul out	Underwater noise, including barrier effects Collision risk Disturbance at haul out Changes to prey Habitat loss	No AEoI	No AEoI	No AEoI	Yes
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site	Black-tailed godwit Dark-bellied Brent goose Dunlin Grey plover Waterbird assemblage	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds	Collision risk Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		outside of the SPA	of birds outside of the SPA					
	Hen harrier Pochard Ringed plover	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	No AEoI	No AEoI	No AEoI	Yes
	Ramsar criterion 1: extent and diversity of saltmarsh Ramsar criterion 2: nationally scarce plants and British Red Data Book invertebrate species	Impacts on supporting populations of plants and invertebrates outside of the Ramsar	Impacts on supporting populations of plants and invertebrates outside of the Ramsar	Impacts on supporting populations of plants and invertebrates outside of the Ramsar	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Ramsar criterion 3: saltmarsh communities							
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	Black-tailed godwit Dark-bellied brent goose Dunlin Grey plover	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	Collision risk Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds outside of the SPA	No AEoI	No AEoI	No AEoI	Yes
	Hen harrier Pochard Ringed plover Waterbird assemblage	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds	Loss of foraging and roosting habitat outside of the SPA Disturbance or displacement of birds	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		outside of the SPA	outside of the SPA	outside of the SPA				
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar site The ExA notes that [APP-043] and [REP5-011] do not include matrices for onshore impacts to the SPA but [REP2-004] shows onshore impact pathways being considered for AEoI.	Dark-bellied Brent goose Redshank Waterbird assemblage	Loss of foraging and roosting habitat outside the SPA Disturbance/ displacement of birds outside of the Ramsar Pollution (air quality) INNS Pollution from site run-off affecting prey availability	Collision risk Disturbance of birds outside Ramsar INNS Pollution from site run-off affecting prey availability	Loss of foraging and roosting habitat outside the SPA Disturbance/ displacement of birds outside of the Ramsar Pollution (air quality) INNS Pollution from site run-off affecting prey availability	No AEoI	No AEoI	No AEoI	Yes
	Wetland invertebrate assemblage	INNS	INNS	INNS	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Wetland plant assemblage Saltmarsh							
Colne Estuary (Mid-Essex Coast Phase 2) SPA The ExA notes that [APP-043] and [REP5-011] do not include matrices for onshore impacts to the SPA but [REP2-004] shows onshore impact pathways being considered for AEoI.	Dark-bellied Brent goose Pochard Redshank Ringed plover Waterbird assemblage	Habitat loss Direct disturbance or displacement Pollution (air quality) Decreases in water quantity Pollution from site run-off affecting prey availability	Collision risk Direct disturbance or displacement Decreases in water quantity Pollution from site run-off affecting prey availability	Habitat loss Direct disturbance or displacement Pollution (air quality) Decreases in water quantity Pollution from site run-off affecting prey availability	No AEoI	No AEoI	No AEoI	Yes
	Breeding little tern Hen harrier	Habitat loss Direct disturbance or displacement	Direct disturbance or displacement	Habitat loss Direct disturbance or displacement	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		Pollution (air quality) Decreases in water quantity Pollution from site run-off affecting prey availability	Decreases in water quantity Pollution from site run-off affecting prey availability	Pollution (air quality) Decreases in water quantity Pollution from site run-off affecting prey availability				
Deben Estuary Ramsar site	Dark-bellied Brent goose	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes
Deben Estuary SPA	Avocet Dark-bellied Brent goose	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes
Dengie (Mid-Essex Coast Phase 1) Ramsar site	Dark-bellied Brent goose Grey plover Knot	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes
Dengie (Mid-Essex Coast Phase 1) SPA	Dark-bellied Brent goose	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Grey plover Knot							
Essex Estuaries SAC	Estuaries Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonizing mud and sand Spartina swards Atlantic salt meadows Mediterranean and thermo-Atlantic halophilous scrubs Sandbanks which are slightly covered	Physical habitat loss/ disturbance Suspended sediment/ deposition INNS Accidental pollution	Physical habitat loss/ disturbance Suspended sediment/ deposition INNS EMF Changes to physical processes Accidental pollution	Physical habitat loss/ disturbance Suspended sediment/ deposition INNS Accidental pollution	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	by sea water all the time							
Farne Islands SPA	Guillemot	Disturbance and displacement	Disturbance and displacement	Disturbance and displacement	No AEoI	No AEoI	No AEoI	?
	Razorbill	Disturbance and displacement	Disturbance and displacement	Disturbance and displacement	No AEoI	No AEoI	No AEoI	Yes
Flamborough and Filey Coast SPA	Kittiwake	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	No
	Gannet	Changes in prey availability and behaviour Disturbance and displacement In-combination effects	Changes in prey availability and behaviour Collision risk Disturbance and displacement In-combination effects	Changes in prey availability and behaviour Disturbance and displacement In-combination effects	No AEoI	No AEoI	No AEoI	?
	Guillemot Razorbill	Disturbance and displacement	Disturbance and displacement	Disturbance and displacement	No AEoI	No AEoI	No AEoI	No

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
Hamford Water Ramsar site	Black-tailed godwit Dark-bellied Brent goose Redshank Ringed plover	Habitat loss Disturbance of birds outside of the SPA Decreases in water quantity and quality	Collision risk Disturbance of birds outside of the SPA	Disturbance of birds outside of the SPA Decreases in water quality	No AEoI	No AEoI	No AEoI	Yes
Hamford Water SAC	Fisher's estuarine moth	Impacts on supporting populations, food plant and potential habitat outside the SAC Changes in water quantity and quality Changes in air quality	No LSE	Impacts on supporting populations, food plant and potential habitat outside the SAC Changes in water quantity and quality Changes in air quality In-combination effects	No AEoI	N/A	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		In-combination effects						
Hamford Water SPA The ExA notes that [APP-043] and [REP5-011] do not include matrices for onshore impacts to the SPA but [REP2-004] shows onshore impact pathways being considered for AEoI.	Avocet Black-tailed godwit Dark-bellied Brent goose Grey plover Redshank Ringed plover Shelduck Teal	Direct disturbance and displacement Pollution (air quality) Decreases in water quantity and quality Loss of foraging and roosting habitat outside the SPA Habitat loss	Direct disturbance and displacement	Direct disturbance and displacement Pollution (air quality) Decreases in water quality Habitat loss	No AEoI	No AEoI	No AEoI	Yes
	Little tern	Habitat loss Disturbance of birds	Disturbance of birds outside of the SPA	Habitat loss Disturbance of birds outside of the SPA	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		outside of the SPA Pollution (air quality) Water quality – pollution from site run-off affecting habitat quality		Pollution (air quality) Water quality – pollution from site run-off affecting habitat quality				
Humber Estuary SAC Humber Estuary Ramsar site	Grey seal	Underwater noise, including barrier effects Collision risk Disturbance at haul out Changes to prey Habitat loss	Collision risk Changes to prey Disturbance at haul out	Underwater noise, including barrier effects Collision risk Disturbance at haul out Changes to prey Habitat loss	No AEoI	No AEoI	No AEoI	Yes
Margate and Long Sands SAC	Sandbanks which are slightly covered	Physical habitat loss/ disturbance	Physical habitat loss/ disturbance	Physical habitat loss/ disturbance	No AEoI	No AEoI	No AEoI	No

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	by sea water all the time	Suspended sediment/ deposition INNS Accidental pollution	Suspended sediment/ deposition INNS EMF Changes to physical processes Accidental pollution	Suspended sediment/ deposition INNS Accidental pollution				
Minsmere-Walberswick Ramsar site	Avocet Bittern Gadwall Marsh harrier Shoveler Teal Bearded tit	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes
Minsmere-Walberswick SPA	Avocet Bittern Gadwall	No LSE	Collision risk	No LSE	N/A	No AEoI	N/A	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Greater white-fronted goose Hen harrier Shoveler Teal							
Outer Thames Estuary SPA	Red-throated diver	Disturbance or displacement (within ECC)	Disturbance or displacement (within ECC)	Disturbance or displacement (within ECC)	No AEoI	No AEoI	No AEoI	No
Southern North Sea SAC	Harbour porpoise	Underwater noise, including barrier effects Collision risk Physical habitat loss/ disturbance Changes to prey Accidental pollution and	Underwater noise, including barrier effects Collision risk Physical habitat loss/ disturbance Changes to prey	Underwater noise, including barrier effects Collision risk Physical habitat loss/ disturbance Changes to prey Accidental pollution and changes in water quality	No AEoI	No AEoI	No AEoI	No

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
		changes in water quality						
Stour and Orwell Estuaries Ramsar site	Black-tailed godwit Dark-bellied Brent goose Dunlin Grey plover Knot Pintail Redshank Waterbird assemblage	Disturbance of birds outside SPA Decreases in water quantity and quality Decrease in air quality Loss of foraging and roosting habitat outside of the Ramsar In-combination effects	Collision risk Disturbance of birds outside the SPA In-combination effects	Disturbance of birds outside SPA Decreases in water quantity and quality Decrease in air quality Loss of foraging and roosting habitat outside of the SPA In-combination effects	No AEoI	No AEoI	No AEoI	Yes
	Ramsar criterion 2: 7 nationally scarce plants and 5 British	Impacts on supporting populations of plants and	Impacts on supporting populations of plants and	Impacts on supporting populations of plants and	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
	Red Data Book invertebrates	invertebrates outside the Ramsar In-combination effects	invertebrates outside the Ramsar In-combination effects	invertebrates outside the Ramsar In-combination effects				
Stour and Orwell Estuaries SPA	Avocet Black-tailed godwit Dark-bellied Brent goose Dunlin Grey plover Knot Pintail Redshank Waterbird assemblage	Disturbance of birds outside of the SPA Decreases in water quantity and quality Decrease in air quality Loss of foraging and roosting habitat outside of the SPA In-combination effects	Collision risk Disturbance of birds outside the SPA In-combination effects	Disturbance of birds outside of the SPA Decreases in water quality Decrease in air quality In-combination effects	No AEoI	No AEoI	No AEoI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect			Applicant's conclusion (alone or in combination) on AEoI			Agreement with NE
		C	O&M	D	C	O&M	D	
Wash and North Norfolk Coast SAC	Harbour seal	Underwater noise, including barrier effects Collision risk Changes to prey Habitat loss/ disturbance Disturbance at haul out	Collision risk Changes to prey Disturbance at haul out	Underwater noise, including barrier effects Collision risk Changes to prey Habitat loss/ disturbance Disturbance at haul out	No AEoI	No AEoI	No AEoI	Yes

Table A.2 – European sites and features for which the Applicant concluded LSE could not be excluded (alone or in combination with other plans or projects) in the LBBG HRA Report (based on [REP4-007])

Designated site	Feature(s) screened in	Potential for likely significant effect (alone or in combination)			Applicant's conclusion (alone or in combination) Adverse effects on integrity		Agreement with NE?
		C	O&M	D	C	O&M	
Alde-Ore and Butley Estuaries SAC	Estuaries Mudflats and sandflats not covered by seawater at low tide	Release of suspended solids into surface water which drains into the estuary Introduction of INNS	Release of suspended solids into surface water which drains into the estuary Introduction of INNS	No LSE	No AEOI	No AEOI	Yes
	Atlantic salt meadows	Introduction of INNS	Introduction of INNS	No LSE	No AEOI	No AEOI	Yes
Alde-Ore Estuary Ramsar site	Bur Meddick Curved hard-grass Perennial glasswort Suffocated clover Yellow vetch Shingle yellow-face bee	Habitat damage Mortality	Habitat damage Mortality Removal of grazing Increase in nutrients from nesting gulls Changes in hydrology	No LSE	No AEOI	No AEOI	No

Designated site	Feature(s) screened in	Potential for likely significant effect (alone or in combination)			Applicant's conclusion (alone or in combination) Adverse effects on integrity		Agreement with NE?
		C	O&M	D	C	O&M	
	Haplodrassus minor (spider) Trichoncus affinis (spider)		causing habitat damage				
	Little tern Avocet Redshank Spotted redshank	Disturbance Aquatic pollution	Disturbance Aquatic pollution	No LSE	No AEOI	No AEOI	Yes
	Marsh harrier Black-tailed godwit Shelduck Shoveler Teal	Disturbance	Disturbance	No LSE	No AEOI	No AEOI	Yes
	Common greenshank	Aquatic pollution	Aquatic pollution	No LSE	No AEOI	No AEOI	Yes
	Starlet sea anemone	Aquatic pollution	Aquatic pollution	No LSE	No AEOI	No AEOI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect (alone or in combination)			Applicant's conclusion (alone or in combination) Adverse effects on integrity		Agreement with NE?
		C	O&M	D	C	O&M	
	Lagoon sand shrimp		Increase in nutrients from nesting gulls				
	All qualifying features	Introduction of INNS	Introduction of INNS	No LSE	No AEOI	No AEOI	Yes
Alde-Ore Estuary SPA	Little tern Marsh harrier Avocet Redshank Common greenshank Spotted redshank	Disturbance	Disturbance Changes in water quality Changes in vegetation	No LSE	No AEOI	No AEOI	Yes
Minsmere-Walberswick Ramsar site	Avocet Hen harrier	Disturbance	Disturbance	No LSE	No AEOI	No AEOI	Yes
Minsmere-Walberswick SPA	Little tern	Disturbance	Disturbance	No LSE	No AEOI	No AEOI	Yes
	Coastal lagoons	Habitat damage	Habitat damage	No LSE	No AEOI	No AEOI	Yes

Designated site	Feature(s) screened in	Potential for likely significant effect (alone or in combination)			Applicant's conclusion (alone or in combination) Adverse effects on integrity		Agreement with NE?
		C	O&M	D	C	O&M	
Orfordness - Shingle Street SAC		Changes in water quality Introduction of INNS	Changes in water quality Introduction of INNS Removal of grazing causing changes in vegetation Increase in nutrients causing changes in vegetation and water quality Changes in hydrology				
	Perennial vegetation of stony banks	Habitat damage Introduction of INNS	Habitat damage Introduction of INNS Removal of grazing causing changes in vegetation	No LSE	No AEOI	No AEOI	No

Designated site	Feature(s) screened in	Potential for likely significant effect (alone or in combination)			Applicant's conclusion (alone or in combination) Adverse effects on integrity		Agreement with NE?
		C	O&M	D	C	O&M	
			Increase in nutrients causing changes in vegetation and water quality Changes in hydrology				
	Annual vegetation of draft lines	Introduction of INNS	Introduction of INNS	No LSE	No AEOI	No AEOI	No