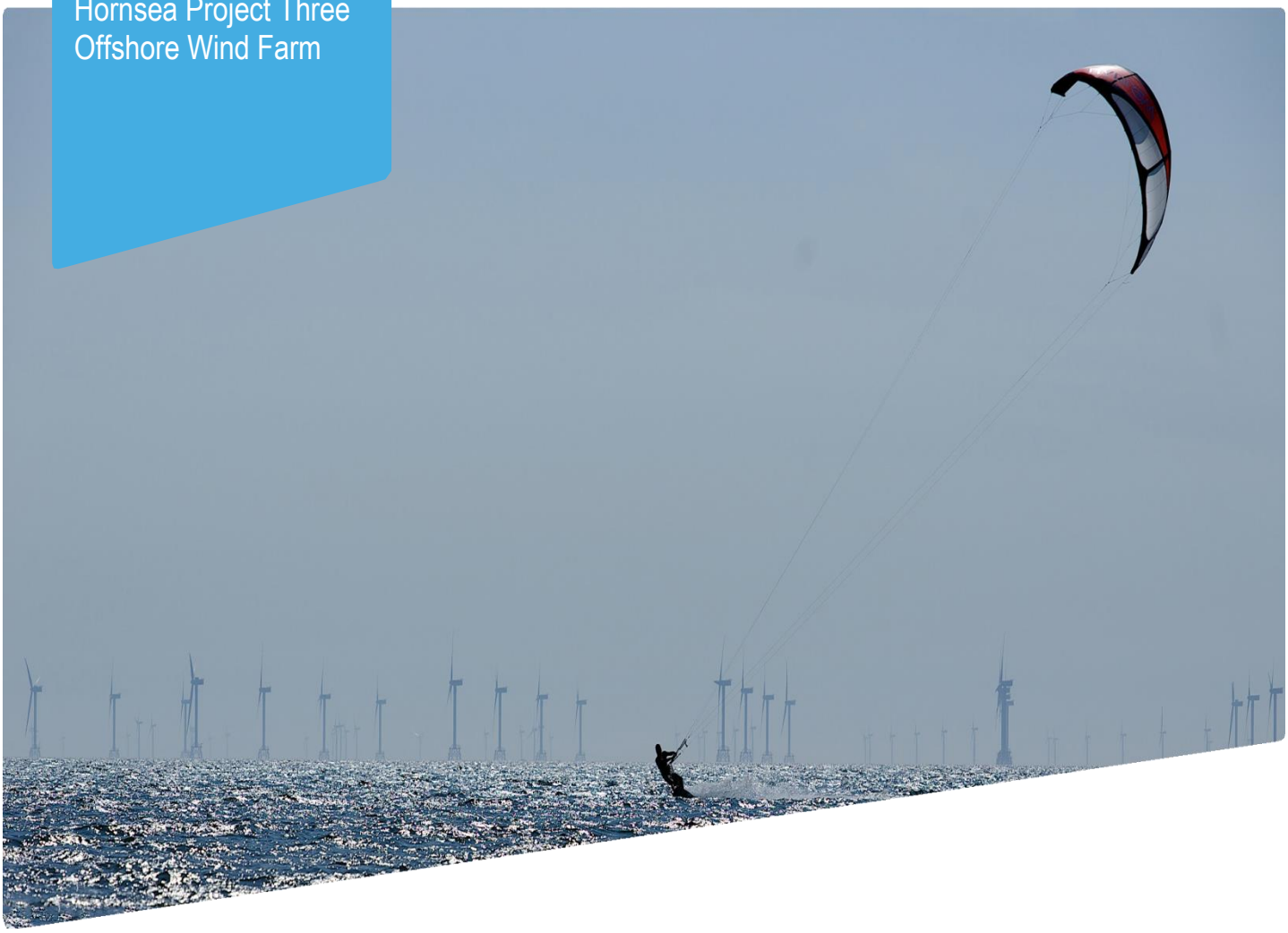
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Applicant's Comments on the Report on the Implications for European Sites (RIES)

Date: 14th March 2019

Hornsea 3
Offshore Wind Farm

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2019.

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1. Introduction

On 21st February 2019 the Examining Authority, with support from the Planning Inspectorate Environmental Services Team, prepared a Report on the Implications for European Sites (RIES) in relation to the proposed Hornsea Three Offshore Wind Farm Project (Planning Inspectorate reference: EN010080).

The Applicant has reviewed this report and wishes to make a series of detailed observations on its contents. This document sets out these detailed observations in a series of topic-based tables in sections 2 – 5 of this document. The topics, in order, are: benthic ecology; marine mammals; offshore ornithology and; onshore ornithology. Where suggested modifications or additional text are provided, these are highlighted with underlining.

To provide important context, the Applicant wishes to record that it has taken a highly precautionary approach to the assessment of impacts on European sites. Consequently, the scope of the assessment is broad and considerable analysis has been provided (and has been incorporated into the RIES). The Applicant's view is that even adopting a highly precautionary approach, the Secretary of State can clearly be satisfied on the basis of the information supplied that there will be no adverse effect on the integrity of any European site.

As the RIES notes, in a number of instances Natural England has not given any definitive view either on questions relating to screening for likely significant effects (LSE) or on the question of adverse effects on integrity (AEOI) or simply disagree with the Applicant without deducing any evidence in support of its position. This is regrettable. For example the Applicant does not consider that it can reasonably be concluded that any issues raised around LSE screening are matters of concern or there would be any risk of AEOI but Natural England's silence on the issue might risk creating the contrary impression.

Notwithstanding the RIES records a number of areas of disagreement with NE, it is important to consider the extent to which Natural England has produced substantive evidence to provide a basis for such disagreement. The Applicant does not believe any evidence capable of undermining the Applicant's conclusions has been produced, therefore the only proper conclusion is that the Applicant has discharged the burden of proof in demonstrating that there is no risk of AEOI.

2. Benthic ecology

Table 2.1: Applicant's Comments on the RIES

Paragraph	Applicant Comment
Stage 1, Matrix 7	
Note e	While the RIES note e states (last sentence) "Minor overlaps with the array area" but the Applicant would note that, as shown by Table 6.1 and Figure 6.1 of the Habitats Regulations Assessment: Screening Report (APP-052), there is no overlap between the Wash and the North Norfolk Coast SAC and the array area for changes in physical processes.
Note f	Natural England noted in their Deadline 6 response (REP6-051) that the conservation objectives for The Wash and North Norfolk Coast SAC do not specifically refer to The Wash as the only area of Large Shallow Inlets and Bays within this SAC. As shown in Figure 2.1 below (from Magic.defra.gov.uk), this Annex I feature also incorporates inlets around Brancaster and Blakeney on the North Norfolk coast (i.e. to the west of Hornsea Three). According to Magic.defra.gov.uk, this feature does not extend to the part of the North Norfolk Coast which coincides with Hornsea Three. The part of the North Norfolk coast coinciding with the Hornsea Three offshore cable corridor is open coastline and could not be described as an inlet or bay according to the JNCC and EUNIS definitions, i.e. "Large shallow inlets and bays are large indentations of the coast, generally more sheltered from wave action than the open coast." As noted in the RIES, it was agreed that the Large Shallow Inlets and Bays Annex I feature of The Wash and North Norfolk Coast SAC could be screened out of the RIAA during a meeting with the Marine Processes, Benthic Ecology and Fish and Shellfish Ecology Expert Working Group (meeting 4 December 2017; see Appendix C.6 of Annex 1 Evidence Plan; APP-035). There is no new evidence to support any change to that conclusion and Natural England has provided no substantive justification to now disagree with that conclusion.
Stage 2. Matrix 1	
Note a, paragraph 1	First sentence should read "temporary habitat loss/disturbance".
Note a, paragraph 2	In relation to the statement "The Applicant maintains that the data used is from situations which are comparable to those at the SAC", the Applicant would note that while this is correct, the value of these datasets is not limited to the comparability of the case studies with the two SACs coinciding with the Hornsea Three offshore cable corridor. The sandwave clearance monitoring data presented within these clarification notes (REP1-183 and REP2-020) also provide validation of the process and theory-based assessments for recovery of sandwaves following clearance operations, as presented within Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061); see paragraphs 2.46 to 2.51 of REP1-183 (supported by additional evidence in REP2-020).

Paragraph	Applicant Comment
Note a, paragraph 3	With regard to the note that NE and TWT question the exclusion of temporary disturbance of the seabed during the operation and maintenance, the Applicant would note that these comments are in relation to the in-combination assessment and screening of impacts in the cumulative impact assessment/in-combination assessment. The effects of operation and maintenance activities for Hornsea Three on Annex I features of the North Norfolk Sandbanks and Saturn Reef SAC are assessed in paragraph 5.6.2.40 *et seq*. of the RIAA. As set out in the Applicant's response to the NE and TWT comments (see Q1.2.32 of REP2-005), the Applicant's understanding is that the comments related primarily to The Wash and North Norfolk Coast SAC and the effects of operation and maintenance activities associated with the other offshore wind farm export cables within this SAC, in-combination with those of Hornsea Three. As such, the Applicant has undertaken a revised in-combination assessment for The Wash and North Norfolk Coast SAC considering these operation and maintenance activities on the Annex I habitat features of that SAC (REP3-024). A similar approach is not required for the North Norfolk Sandbanks and Saturn Reef SAC, because no other offshore wind farm cables coincide with this SAC.
Note b	With regard to the note that NE/JNCC do not consider that routing the cable through areas of lower quality reef is acceptable as these areas still form part of the feature which is managed as the reef feature, the Applicant would note that the mitigation outlined in Table 4.5 of the RIAA (APP-051), i.e. that Annex I reefs, as identified by pre-construction surveys, would be avoided, would also include areas classified as "low" reef according to the best practice guidelines for Annex I reef classification (i.e. Gubbay, 2007; Irving, 2009). This would be agreed with the MMO and SNCBs prior to the commencement of construction (including pre-construction site clearance). With regard to the note that NE/JNCC query whether it would be possible to avoid the reef feature through micro-siting of the cable, the Applicant would also note that, as outlined in the Applicant's Deadline 6 submission (REP6-038), temporary working areas to the north and south of the part of the Hornsea Three offshore cable corridor, where it passes through the North Norfolk Sandbanks and Saturn Reef SAC, could be used to install cables. This would maximise the width of the offshore cable corridor at these locations within the SAC to ensure the greatest potential for micrositing to avoid direct impacts on Annex I reef features. This widening of the offshore cable corridor in this part of the SAC further reduces the risk of any direct impacts on Annex I S. spinulosa reefs from that concluded within the RIAA (see paragraph 5.6.1.13 of the RIAA).
Note e, paragraph 2	In relation to the evidence presented within the Cable Protection Clarification Note (REP1-138), the Applicant would note that this evidence was accepted by the MMO (see REP1-095 and REP3-092), as advised by relevant marine ecology and marine processes specialists from Cefas. In response to the comments from the MMO regarding the length of cable protection required on the Thanet offshore wind farm (REP1-095 and REP3-092) the Applicant has reviewed marine licence applications for the Thanet offshore wind farm array cables and export cables to verify the statements made by the MMO (i.e. that >200 km of rock armouring was laid for this offshore wind farm). Thanet offshore wind farm has approximately 100 km of array cables and two export cable circuits, each of 26.5 km length; total offshore cables of approximately 153 km for the project as a whole. Since the consent was awarded, there have been the following marine licence applications for cable protection:

Paragraph	Applicant Comment
	• Array cables: Marine Licences L/2011/00218/3, L/2011/00218/4 and L/2012/00423/1 related to inter array cables, with a total of 11.6 km of array cables requiring cable protection across these licences; • Export cables: The Thanet offshore wind farm export cable operation and maintenance Marine Licence Supporting Information Document (in support of L/2017/00033/1) indicated that cable protection has been laid on a total of <2 km of cables spread across the two export cable circuits. This includes cable crossings. The Applicant can find no evidence to substantiate the claim that >200 km of cables required protection at the Thanet offshore wind farm and assumes that this is an error; the summary above indicates that approximately <4% of export cables have required cable protection (including crossings), which is well within the maximum design scenario for export cables assumed in the Hornsea Three DCO application. While the Applicant acknowledged the possibility in REP2-004 that cable protection may act as a barrier to reef establishment, there is no clear evidence that cable protection will preclude formation of *S. spinulosa* reef and it is equally possible that there could be colonisation by *Sabellaria (*examples of similar species colonising artificial substrates were outlined in section 5.21 of the Cable Protection Clarification Note (REP1-138)). Either way, cable protection would only affect an extremely small proportion of the SAC, even in the maximum design scenario, and would avoid Annex I reefs through micrositing and on this basis it can be concluded no AEOI would arise. However, the proposed monitoring of cable protection (as outlined in the In Principle Monitoring Plan; IPMP; Appendix 3 to the Applicant's response to Deadline 7) would be beneficial insofar as it seeks to verify the position that cable protection could be colonised by epifauna, including S. spinulosa.
Note e, paragraph 3	In relation to the effectiveness of the sensitive cable protection measures, the Applicant would clarify that the purpose of these measures is to minimise habitat loss effects within SACs (i.e. rather than to mitigate for adverse effects on integrity) by using protection measures that will allow for some recovery of benthic communities, allowing continued ecological function. The Applicant would note that the Rock Protection Decommissioning Methods paper (REP6-018) also discusses the implications of decommissioning on Annex I features, including removal of sediment during dredging operations, with recovery of these habitats expected in line similar timescales as those for the construction phase (see also paragraph 3.3 of the Written Summary of the Applicant's oral case put at Issue Specific Hearing 5; REP6-010).
Note j	The Applicant would note the Cable Protection Clarification Note (REP1-138) provides evidence (via laboratory studies and field observations) which support the conclusions of the RIAA, that cable protection would not result in a change to the physical processes such that an adverse effect on integrity would occur. This evidence was accepted by the MMO (see REP1-095 and REP3-092), as advised by marine processes specialists at Cefas. The Applicant is not aware that Natural England has produced any evidence to dispute the above and so there is no apparent evidential or scientific basis for Natural England to disagree.

Paragraph	Applicant Comment
Note k, paragraph 2	Natural England's queries in relation to combined effects of different phases of development should not be discussed in the context of the in-combination assessment, as this does not relate to "other projects and plans" as defined in paragraph 1.3.1 of the RIES. The Applicant has provided clarifications addressing Natural England's queries. This included a lifetime effect narrative produced at Deadline 1 in response to ExA question Q1.2.103 (REP1-178), which clarified that while there will be repeat disturbance where pre-construction clearance operations are required prior to cable installation, the communities would not have had the chance to fully recovery prior to cable burial. For the vast majority of the cable, no further disturbance will occur with full recovery expected over a period of months to years (depending on the habitat and associated species). Those areas affected after cable installation (e.g. through remedial burial/repair etc.) will be very small in the context of the extents of broadscale Annex I features and recovery will occur following completion of works. In the context of a phased build (e.g. cable installation in Phase 2 occurring years after Phase 1 cable installation), this would result in smaller proportions of the habitats being affected at any one time. So, as Phase 2 is being installed, Phase 1 will have at least partly recovered (for those effects which are reversible). Even in areas where sandwave clearance has occurred and the topography of the seabed has not fully recovered, some recovery of communities (e.g. robust polychaetes, crustacea and sandeels characteristic of sandy habitats) is likely to occur as many of these are adapted to and therefore tolerant of physical disturbance of sediment (see Applicant's comments on Natural England's response to Q2.2.59; REP5-008).
Stage 2. Matrix 3	
Notes, paragraph 1	It is important to recognise that the comments from TWT (RR-047, REP1-017 and REP1-023) are not in fact an issue of baseline adequacy (TWT are not arguing something is lacking) but relate to their view that fishing activities should be addressed as part of the in-combination assessment rather than assuming they are part of the baseline. As such, the comments made by TWT relate to the scope of the in-combination assessment, not the adequacy of the baseline characterisation. The Applicant would note that the Eastern IFCA is satisfied with the adequacy of the baseline characterisation in light of The Wash and North Norfolk Coast SAC Clarification Note (REP1-140), as set out in the SoCG between the Applicant and the Eastern IFCA (REP1-201).

Paragraph	Applicant Comment
Note b	The Applicant accepts that the absence of reef habitat recorded during characterisation surveys does not preclude the possibility that biogenic reef features may develop in the intervening time between characterisation surveys and the commencement of construction operations (including sandwave and boulder clearance activities). It is for this reason that the Applicant has committed to undertaking a detailed pre-construction survey for Annex I reef habitats (including biogenic reefs) to identify the extent, distribution and quality of Annex I reefs within the Hornsea Three offshore cable corridor and temporary working areas. The results of these surveys would directly inform appropriate measures to avoid direct impacts on these habitats, either from cable installation or disposal of material dredged during sandwave clearance operations. These would be agreed with the MMO and Natural England prior to the commencement of construction activities (see Table 4.5 of the RIAA; APP-051). However, it is important for context to bear in mind that previous surveys of this part of the North Norfolk coast have also not recorded Annex I biogenic reefs, therefore the Applicant would maintain that the likelihood of development of Annex I reefs in this part of The Wash and North Norfolk Coast SAC prior to construction is low (see paragraph 5.4.5.1 to 5.4.5.6 of the RIAA).
Note f, paragraph 2	In relation to the MMO advice on a separate marine licence for remedial cable protection during the operation and maintenance phase, the Applicant would note that this is contrary to the approach proposed by the Applicant throughout the Examination. The Applicant directs the ExA to Schedule 11, Part 1 paragraph 3 and Schedule 12 Part 1 paragraph 3 which refers to the licensed marine activities, including deposit of materials for scour protection around foundations and cable protection measures, being authorised in relation to the construction, maintenance and operation of the relevant infrastructure. The approach proposed by the MMO has been adopted for other offshore wind farm projects in the past, however in these cases, cable protection was not included within the original consent application. As such, separate marine licence applications have been required for cable protection measures. The approach adopted by the Applicant on Hornsea Three allows for a more holistic approach at this stage (as advocated by the MMO and Natural England), whilst reducing the risk that separate marine licences will need to be applied for post consent. The Applicant would also clarify that the assessments presented within the Environmental Statement and the RIAA assessed a maximum design scenario for cable protection (e.g. maximum volumes, footprint, height etc.) and assumed that cable protection would be in place for the duration of the project lifetime of a maximum of 35 years. For example, this applies equally to habitat loss effects on benthic ecology receptors considered in Volume 2, Chapter 2: Benthic Ecology of the Environmental Statement (APP-062), snagging risks to commercial fisheries in Volume 2, Chapter 6: Commercial Fisheries of the Environmental Statement (APP-066) and potential interaction with sediment transport processes in Volume 2, Chapter 1: Marine Processes of the Environmental Statement (APP-061). Any other scenario (e.g. whereby 5% of export cables had cable protection installed on construction and further cable protection (within the maximum design scenario of 10% of cables requiring cable protection) is placed during the operation and maintenance phase) would be within this maximum design scenario, with receptors affected for a shorter duration than that assessed in the Environmental Statement and the RIAA. Further detail on these points is provided in the Applicant's Deadline 7 comments on Written Representations and Responses submitted

Paragraph	Applicant Comment
	by the MMO at Deadline 6. The Applicant would advocate the use of the Cable Protection Plan as an appropriate control measure post consent, as this would be a live document which would be used both in the construction phase and the operation and maintenance phase of the project (Section 5 of the outline Cable Specification and Installation Plan; REP5-011). This would provide the necessary mechanism whereby the MMO and relevant SNCBs would be consulted on any cable protection measures to be deployed within designated sites following the completion of each construction phase (as well as any other remedial burial operations which may be attempted prior to use of cable protection).
Note f, paragraph 3	The Applicant would note that the Rock Protection Decommissioning Methods paper (REP6-018) also discusses the implications of decommissioning on Annex I features, including removal of sediment during dredging operations, with recovery of these habitats expected in line similar timescales as those for the construction phase (see also paragraph 3.3 of the Written Summary of the Applicant's oral case put at Issue Specific Hearing 5; REP6-010).
Note j	See comments on Stage 2. Matrix 1, note j.
Note k, paragraph 2	See comments on Stage 2. Matrix 1, note k, paragraph 2 in relation to combined effects of different phases of development. With regard to the note that NE has queried whether the in -combination assessments includes the Race Bank marine licence applications, the Applicant provided responses to the NE submission at Deadline 6 (REP6-051), including outlining why it was not necessary to include the Race Bank marine licence application MLA/2017/00277/4 in the in-combination assessment (i.e. this relates to placement of cable protection outside the Wash and North Norfolk Coast SAC). These clarifications are provided in the Applicant's Deadline 7 comments on Written Representations and Responses submitted by Natural England at Deadline 6.

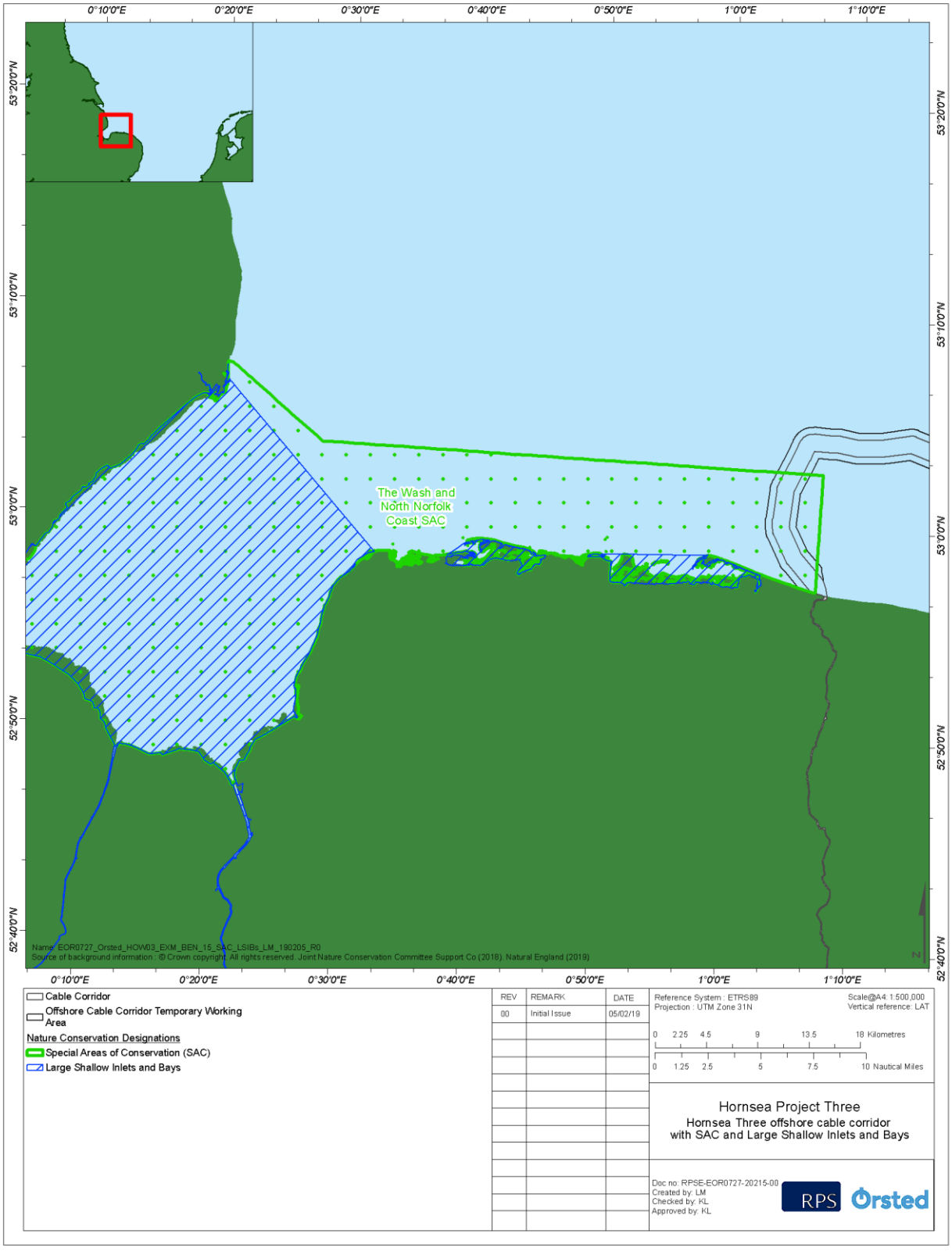

Figure 2.1: Large Shallow Inlets and Bays Annex I feature of the Wash and North Norfolk Coast SAC (from Magic.defra.gov.uk) with Hornsea Three offshore cable corridor.

3. Marine mammals

Table 3.1: Applicant's Comments on the RIES

Paragraph	Applicant comment
Stage 2, Matrix 2	
Note a.	The Applicant does not agree that the wording of this Note accurately reflects the current position of the Applicant and certain stakeholders (the Applicant cannot find evidence of WDC linking their MMMP concerns to site integrity conclusions in REP1-022). The Applicant would suggest that the text below is a more accurate reflection of the position (the proposed amendments to the original text are underlined): a. Given the impact ranges presented (Table 6.11, [APP-051]), alongside the adoption of standard mitigation (in the form of the Marine Mammal Mitigation Protocol (MMMP) developed in accordance with relevant JNCC guidance), the risk of Permanent Threshold Shift (PTS) to any harbour porpoise as a result of exposure to piling noise is negligible. There is no indication of that the potential for lethality/injury and hearing impartment effects associated with underwater noise from piling activities would lead to a reduction in the viability of the species. There is no indication that this impact would adversely affect any other factors required to ensure that favourable conservation status is maintained (paragraphs 6.5.2.45 – 49, [APP-051]). Whilst Whale and Dolphin Conservation (WDC) recognise that the current JNCC MMMP guidance is the only available guidance for developers to mitigate piling impacts, but do not agree that following the current JNCC guidance would reduce PTS to negligible levels [REP1-022 and REP4-117]. NE has advised that the JNCC guidance is out of date and alternative approaches should be considered [REP1-212 and REP4-130]. The Applicant has maintained that it has committed to developing a robust MMMP that will contain whatever mitigation is necessary to ensure PTS effects are negligible, and that it would be the be informed by the best guidance available at the time of writing [REP1-122, REP2-004, REP5-008 and REP6-010]. WDC have advised that they think that the MMMP should include a number of specific measures including the use of mitigation measures that are known to be effective [REP1-022]. NE agree with the Applicant's position that effects from the Proposed Development alone would not lead to adverse effects on the integrity of the SCI [RR-097 and REP1-213].

Paragraph	Applicant comment
Note b.	The Applicant considers that WDC do not suggest there is insufficient information on underwater noise levels. Rather the Applicant suggests that the statement should reflect that WDC do not support the application of the 26km EDR although they do recognise it has been used following SNCB advice. Moreover, the Applicant considers that the closing statements of this Note, beginning with 'The MMO has advised that an additional condition…' have no relevance to the Appropriate Assessment and should not be included. The Applicant suggests that the following amendment wording of the Note is a more accurate reflection of the position: b. The maximum spatial overlap of the effective deterrence range (26 km as advised by the SNCBs), both for a one-off effect and a seasonal effect is well below specified thresholds. There is no indication that the potential for behavioural effects associated with underwater noise on the feature would lead to significant disturbance of the species or any adverse effect on the other factors required to ensure that favourable conservation status is maintained (paragraphs 6.5.2.61 – 72, [APP-051]). WDC does not agree that adequate baseline data has been provided for the harbour porpoise population, further WDC do not support the use of the 26km EDR although they do recognise it to be in line with SNCB advice [REP1-022, REP1-227 and REP4-117]. The Applicant is of the view that the baseline data is adequate and in line with SNCB guidance [REP1-122, REP1-131, REP4-012 and REP6-036], the MMO and Natural England agree that the baseline is adequately characterised [REP1-224, and REP1-218]. WDC has stated that evidence shows that harbour porpoise do not return after noise disturbance [REP4-117 and REP4-118]. The Applicant does not agree that this is the case [REP1-131, REP2-004, REP4-012, REP6-034 and REP6-036]. NE agrees with the Applicant's position that effects from the Proposed Development alone would not lead to adverse effects on the integrity of the SCI [RR-097 and REP1-213] although it has queried whether the worst-case scenario should have allowed for the likelihood of more piling in the summer months, rather than being spread equally across the whole year [RR-097 and REP4-130]. The Applicant disputes this point [REP5-008].
Note c.	The Applicant does not believe that the current wording of this Note accurately reflects its position and would suggest it should be read as follows: c. The Applicant is not seeking consent for UXO clearance works as part of this consent, but information relating to the effects of any such clearance has been provided within the RIAA following request from Natural England. Unexploded ordinance (UXO) detonation would result in a single pulse of sound and based on data gathered on Hornsea Project One and only a small number of UXO are anticipated to require detonation. A UXO specific Marine Licence would be applied for, inclusive of a bespoke UXO Marine Mammal Mitigation Protocol (MMMP) prior to commencement of any clearance works and agreed with the MMO and statutory consultees, which would reduce the risk of injury to negligible. For behavioural effects the one-off disturbance events fall below the thresholds for significant disturbance effects. There is no indication that the potential for injurious or behavioural effects associated with underwater noise generated by UXO clearance would lead to a reduction in the viability of the species or adversely affect supporting habitats and processes relevant to the species or its prey (paragraphs 6.4.2.107 – 124, [APP-051]). TWT noted that UXO clearance had been assessed but remain concerned about the potential impacts [REP1-227]. The MMO

Paragraph	Applicant comment
	acknowledge that UXO clearance would be expected to form part of a separate marine licence when detailed information is available post-consent [REP6-072].
Note f.	The Applicant does not believe this Note accurately reflects the agreement it has reached with NE and the MMO in relation to the use of a Site Integrity Plan (SIP), and would suggest it is read as follows: f. With the implementation of the measures in Table 4.6 of [APP-051], there is no indication that the potential for in combination auditory injury and hearing impairment effects associated with underwater noise would lead to a reduction in the viability of the species or adversely impact the supporting habitats and processes relevant to the feature or its supporting prey. With regard to the spatial extent of any potential impact and the very low likelihood of exceeding the 20% threshold, there is no indication that the potential for in combination behavioural effects associated with underwater noise would lead to significant disturbance of the species or adversely impact the supporting habitats and processes relevant to this species and its prey. Due to the temporary nature of the activity there is no indication that effects would result in a permanent shift in the population or the distribution of the features within the SCI in the long term (section 6.7.2, [APP-051]). NE did not agree with the scope of the Applicant's assessment. NE advises that cable and pipeline installations may require UXO detonations and should be included in the in combination assessment [RR-097]. NE also advises that the Applicant has not assessed the combined impact from activities associated with the Proposed Development such as piling and UXO clearance [RR-097]. The Applicant maintains that the assessment is both adequate and precautionary [REP2-004 and REP2-005]. Natural England [REP6-055, (para 102)] and MMO [REP6-073, (para 1.2.1 onwards)] and the Applicant [REP6-010, (para 4.5)] all make clear that the three parties are in agreement that a) the SIP is appropriate control mechanism to manage any in-combination risk, b) the content of the outline SIP is agreed and, c) the only residual concern is one held by NE that relates to a lack of clarity around regulatory control mechanisms, which they acknowledge are out with the scope of this projects examination. TWT and WDC also disagree with the Applicant's conclusion on in combination noise effects. They do not agree with the method or scope of the Applicant's assessment of in combination effects (see [REP1-023], [REP1-027] and [REP1-022], [REP4-117] respectively). They do not agree with the approach to cumulative underwater noise management advocated by the SNCBs [REP1-023 and REP4-119] and suggest that instead noise limits should be set which should not be exceeded during piling [REP1-017, REP1-023 and REP4-119]. The Applicant maintains that its assessment is adequate and in line with SNCB guidance [REP2-004]. In response to a question from the ExA, the Applicant has provided an updated assessment [REP4-065]. TWT is concerned that monitoring and mitigation of underwater noise would be inadequate unless they are undertaken at a strategic level, supported by a levy on industry [REP1-117 and REP1-023]. WDC also disputes the adequacy of the noise monitoring proposals [REP1-022]. TWT states there is not enough detail in the draft SIP [REP4-119] and are also concerned about the lack of a mechanism for co-ordinating multiple SIPs. TWT

Paragraph	Applicant comment
	advocates a strategic solution [REP6-068]. WDC advocates either foundations which require no piling or seasonal restrictions to piling, scheduling of piling to reduce cumulative effect, the use of noise reduction at source and the use of any other noise-reduction technologies which become available in future [REP1-020, REP1-022 and REP1-219]. WDC welcomes the SIP but are concerned that it does not include what it considers to be proven mitigation methods [REP4-117]. They also recommend that it should include modelling of the effectiveness of proposed methods [REP4-119]. The Applicant argues that there is already a high degree of precaution built into the assessment [REP1-179] and no effects on integrity are predicted. However, it is not certain what other activities may occur during the construction period and the SIP is intended to mitigate any potential in combination effects that could arise [REP5-008]. The SIP cannot be finalised until project design is finalised. Potential mitigation measures that could be considered are listed in the in-principle SIP and include measures such as non-piled foundations and scheduling of piling but the Applicant seeks to maintain a flexible approach until it is clear what the extent and nature of mitigation would need to be [REP2-004, REP2-005 and REP5-008].

4. Offshore ornithology

Table 4.1: Applicant's Comments on the RIES

Paragraph	Applicant comment
Main Text	
Paragraph 2.2.2	The Applicant requests that this paragraph reflects the agreements in relation to the aerial survey methodology reached with Natural England and the RSPB as part of the Evidence Plan (APP-035). Moreover, the Applicant requests that mention is also made to the extensive contextual historical boat-based survey data that has been used to inform its RIAA. It is suggested that the following wording is more accurate: 'The Applicant advised that the DAS collected data over a 20 month period and that data were only consequently present for a single year between December and March. In the Applicant's view, there is no indication that the array area is of particular importance to birds and that variability during these months is likely to be more limited in any event than during the two breeding seasons covered by the DAS [REP1-122 and REP1- 131]. The Applicant has also highlighted the existence of an extensive, historical boat-based survey programme that provides additional contextual data, with these data having formed part of a meta-analysis undertaken by the Applicant to support the aerial survey data, at the request of Natural England and the RSPB. The Applicant has maintained that analysing the additional data collected during the DAS so that 20% rather than 10% of the sample area is used would not necessarily increase the precision of estimates of bird numbers. The sample area covered is equivalent to that used in other offshore wind farm assessments and in their view adequately captures inter-annual variability [REP1-141, REP1-131, REP3-004 and REP4-096]. The Applicant has queried as to whether NE has requested this level of precision for other wind farm assessments [REP4-096 and REP5-008]. They point out that a number of other offshore wind farm assessments have not had a full two years of ornithological data and have not been supported by extensive historical extensive survey data but NE has still accepted the validity of such data and come to a judgement on likely significant effects [REP1-141, REP4-096 and REP5-008]. The Applicant has also highlighted that the digital aerial survey methodology was presented to and agreed with Natural England and the RSPB as part of the Evidence Plan process [APP-035] with specific discussion in relation to survey coverage and precision.'
Paragraph 3.0.7	The Applicant would suggest that the phrase 'choice of Band model used in the assessment' be replaced with 'choice of Band model Option used in the assessment'.
Table 3.1	The Applicant would note that fulmar should be included as a listed component of the breeding seabird assemblage of the Flamborough and Filey Coast SPA. However, puffin and herring gull are classified as non-listed species of the assemblage.
Annex 1	Sandwich tern at the North Norfolk Coast SPA was included in the Applicant's assessment of integrity with conclusions drawn for the Greater Wash SPA considered equally applicable to NNC SPA (see paragraph 3.4.4.6 of APP-051). This should be reflected in Annex 1.
Stage 1, Matrix 1	

Paragraph	Applicant comment
Notes b and c.	In relation to assemblage features, the matrix should be consistent with the one produced for the Farne Islands in relation to collision and barrier effects on the assemblage feature. The Applicant is unaware of NE having raised issues in relation to barrier effects and collision for these species. Footnote c is therefore not correct and should be removed and footnote b updated with the following text: b. The Proposed Development lies within the mean-max foraging range of fulmar which is a part of the non-assemblage feature. NE have raised concerns about the potential impacts on auk species during the non-breeding season [REP3- 075]. The Applicant has maintained its position that LSE can be excluded [REP4-081].
Stage 1, Matrix 3	
Note b.	The Applicant suggests that footnote b is split to avoid confusion for those species for which footnote b is relevant. There are a number of species (gannet, kittiwake, herring gull and fulmar), for which only the first half of the footnote applies and this should be made clear in the Matrix.
Note c.	The statements relating to razorbill and guillemot are ambiguous. Clarity could be achieved by adopting the following text: These species were considered to be sensitive to disturbance effects and as such there is potential for LSE on these features (section 6, [APP-052]). For guillemot and razorbill, the Applicant has concluded that this only applies to the populations during the non-breeding season. Breeding adult razorbill and guillemot from FFC SPA are not predicted to make regular foraging trips into the array area ([APP-054], sections 1.3.5 and 1.3.6 respectively). The RSPB agree that the birds present in the array area during the breeding season are most likely to be non-breeding individuals but state that a significant proportion would go on to form part of the breeding population at the SPA as it is the nearest breeding colony [REP1- 111 and RR-113]. NE has similar concerns [REP1-207]. NE has emphasised the potential connectivity between the Proposed Development and the SPA in the breeding and non-breeding seasons for puffin [REP1-212].
Note j.	The Applicant would note that impacts on breeding adult guillemot and razorbill are only considered to occur in the non-breeding season. The Applicant believes this is agreed between all parties and would suggest the following text more accurately reflects the position: These species were deemed to be of medium vulnerability to displacement by the Applicant. Due to connectivity between the Proposed Development and breeding adult birds from FFC SPA in the non-breeding season and immature/non-breeding birds throughout the year there is potential for LSE. See comments under footnote c above. The RSPB and NE have raised concerns about the exclusion of LSE on breeding razorbill and guillemot (see [RR-113, REP1-111 and REP3-007] and [REP3-075] respectively).

Paragraph	Applicant comment
Note k.	Note k is not entirely accurate and potentially misleading. The Applicant would highlight that JNCC and Natural England guidance suggests that a range of displacement values from 30-70% should be used for gannet based on the vulnerability scores presented in Wade *et al.* (2016) (see Section 8 of JNCC *et al.* (2017)). A displacement rate range of 0-100% is recommended *for presentational purposes only* and not for incorporation in assessments. It should also be noted that a 30-70% displacement rate range is consistent with NE advice at other offshore wind farm projects. The following re-wording is suggested: k. Despite the wide foraging range of the species the Applicant relied upon studies that have shown that gannets in flight strongly avoid wind farms, albeit within relatively close to turbines (within 500m). JNCC and Natural England guidance suggest using a range of displacement values for this species from 30-70% based on the vulnerability of gannet reported in Wade *et al.* (2016) when assessing displacement effects. Gannet is thought to be highly sensitive to displacement but the Applicant noted that there was only limited connectivity with gannets from the SPA with the Proposed Development (section 6, [APP-052]).
Note m.	The Applicant believes its case is not accurately reflected in the existing text and would suggest the following text accurately reflects its position: NE has queried if the Applicant's approach to assessing habitat loss and prey availability is sufficient. NE agrees that a qualitative assessment is adequate for the purposes of considering barrier effects. It has also queried the assessment of lighting effects [REP1-212 and REP3-075]. The Applicant has maintained that prey availability and lighting effects have been adequately considered (see [REP3-004] and [REP5-012] respectively) and such assessments are consistent with the assessments conducted as part of the applications for other offshore wind farm projects.
Stage 1, Matrix 4	
Note a.	The Applicant suggests that this footnote is split by feature in order to provide clarity within the Matrix.
Note b.	The Applicant suggests that clarification could be achieved through a minor adjustment (underlined text) to the existing text: b. Potential LSEs are anticipated concerning disturbance to red-throated diver and common scoter during construction/decommissioning activity due to the cable corridor being located within the boundary of the SPA. Common scoter are considered particularly vulnerable to disturbance from ship traffic (paragraph 6.2.138, [APP-052]). As a result of disturbance from construction activity, indirect habitat loss may occur to both species. Potential LSEs during operation, causing displacement of red-throated diver and common scoter are anticipated along the cable corridor only (Table 6.21, [APP-052]). Displacement effects associated with wind farm development are species, season and site-specific. Due to the close proximity of the cable corridor and the high sensitivity of these species there is potential for displacement [paragraphs 6.2.135 – 136 and 6.2.142 – 143, [APP-052]).

Paragraph	Applicant comment
Stage 2, Matrix 6	
Note, paragraph 2	The Applicant suggests that reference should be made to migratory birds in this paragraph. A minor amendment (underlined) to the text is therefore suggested: NE and the RSPB have raised concerns about the definition of the breeding season used in the Applicant's assessment and its effect on apportioning effects to the SPA bird populations (see [REP1-211], [REP1-212] and [REP3-075] for NE's responses and [RR-113], [REP1-111], [REP4-137] and [REP6-076] for the RSPB responses). They advise that the breeding season should be defined using the results of site-specific monitoring at the colonies within the SPA [REP3-075, REP4-137, REP5- 027 and REP6-052]. The Applicant has maintained its position on the basis that the Proposed Development is located 150 km from the SPA and that extending the breeding season to cover the period advised by NE and the RSPB could lead to inclusion of immature/non-breeding <u>and migratory</u> birds that are not associated with the SPA breeding colonies. They also note that there is limited connectivity between the array area and the SPA [REP1-122, REP1-131, REP3-101, REP4-012 and REP5-008].
Note a.	The Applicant would suggest that the following text be added to the end of the third paragraph: '..and has presented collision risk estimates incorporating variability for those CRM input parameters recommended by Natural England.'

Paragraph	Applicant comment
Note b.	The Applicant believes that its position would be clarified if the existing text were replaced with the following (amendments to original text are underlined): PVA modelling indicates that the resulting levels of in combination mortality predicted in Table 7.39 of [APP-051] would not be sufficient for the population to decline below the SPA citation numbers for this species. This level of in combination mortality does not include consideration of as-built scenarios (Table 7.37, [APP-051]) or NAF (Table 7.38, [APP-051]) which if taken into account, further reduce the in combination collision risk. No indication that the level of mortality in Report on the Implications for European Sites for Hornsea Project Three Offshore Wind Farm combination mortality over the lifetime of the Proposed Development is likely to lead to a population which would affect the conservation status of the SPA (see paragraphs 7.7.2.25 – 38, [APP-051]). NE raised concerns about the in combination assessment and the PVA [REP1-211]. The Applicant submitted a revised PVA at deadline 1 [REP1-135] but this did not allay NE's concerns [REP3-075]. The RSPB has also queried the conclusions of [REP1-135] in relation to the productivity figures used and the interpretation of the outputs [REP2-025]. <u>The Applicant submitted further information at Deadline 4.</u> As described above, the Applicant has also carried out an assessment of in combination effects which applies correction factors to allow for the differences between projects as they were assessed in the project applications and how they would actually be constructed ("as built") (Table 7.34, [APP-051]) and also applies a NAF (Table 7.35, [APP-051]). At deadline 1 they submitted further analysis [REP1-148 and REP1-139]. The RSPB also disagree with the analysis presented in [REP1-139] and [REP1-148] [REP2-025]. NE does not agree with the CRM results presented in [REP1-139] or the analysis in REP1-148 [REP3-075] as it requires additional information which the Applicant contends has not been required for other offshore wind farms. NE acknowledges that is asking for more information than in previous projects but other projects have not presented revised collision risk figures [REP3-075]. NE does not feel that the Applicant's approach is justified and queries the assumptions it is based on [REP6-055]. The RSPB also queries whether the approach of seeking to exploit any free 'headroom' is in line with the site's conservation objectives [REP2-025]. The Applicant has maintained that this is a valid approach <u>and that it has been applied at other projects both by relevant Applicants and Natural England</u> [REP4-012 and REP6-020]
Stage 2, Matrix 7	
Note a.	The Applicant does not believe that footnote a represents the position of Natural England in relation to impacts on the Greater Wash SPA as no specific mention of this SPA is made in the reference provided [Rep 1-211].

5. Onshore ornithology

Table 5.1: Applicant's Comments on the RIES

Paragraph	Applicant comment
Stage 2, Matrix 8	
Note b.	The RSPB comment in REP1-111 regarding the data for measuring displacement effects refers to APP-065 (Offshore Ornithology), which does not apply to Pink-footed Goose (covered in APP-137 Onshore Ornithology – Wintering and Migratory Birds), and therefore should not be a consideration for this matrix. The Applicant, as stated in REP4-011 (in response to REP3-074), considers there is no evidence to support Natural England's (NE) position that the cable corridor is a preferred area for foraging and that Hornsea Three onshore cable works would cause Pink-footed Geese to forage at greater distances to their roost sites.
Note c.	There are no outstanding RSPB concerns relating to the Pink-footed Goose Management Plan (PFGMP, Appendix F of the Outline CoCP), as confirmed in correspondence dated 12th March 2019 (which will be represented in the next version of the RSPB SoCG), and therefore the RSPB agree the Applicant's position that with the management plan in place there are no LSE. The Applicant is awaiting feedback from NE to resolve their outstanding concerns stated in REP6-057. The Applicant considers that the adaptive management proposed in the PFGMP and monitoring detailed in the Outline EMP (initially submitted at Deadline 6, updated to include potential surveys in March for Deadline 7) is flexible enough to take into account seasonal changes in presence, abundance and distribution, while providing reassurance that all disturbance risks to PFG are addressed. NE have confirmed that they are not the appropriate body to approve the PFGMP (as Appendix F of the CoCP), but that the CoCP approval process should be in consultation with the relevant SNCB [REP6-057]. The Applicant has incorporated this into the DCO submitted at Deadline 7 and there are no outstanding concerns on the timing of the PFGMP sign off process.
Note f.	There are no outstanding RSPB concerns relating to the Pink-footed Goose Management Plan (PFGMP, Appendix F of the Outline CoCP), as confirmed in correspondence dated 12th March 2019 (which will be represented in the next version of the RSPB SoCG), and therefore the RSPB agree the Applicant's position that with the management plan in place there are no LSE. The Applicant has fully responded regarding the need for an additional refuge area in REP4-011.