THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

NORFOLK BOREAS OFFSHORE WIND FARM

Planning Inspectorate Reference: EN010087

Deadline 9

Natural England's comments on the Report on the Implications for European Sites (RIES)

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30 April 2020

Our Ref: NE.NB.D9.14.RIES

Contents

1 Introduction

In this document Natural England provides comments on the Report on the Implications for European Sites (RIES) for Norfolk Boreas Offshore Wind Farm.

Natural England has provided comment on the updated Habitat Regulations Assessment Screening and Integrity Matrices as submitted by the Applicant at Deadline 6 [REP6-006 and REP6-008] for Deadline 7 [REP7-050] and this is included as Appendix1 to this document for ease of reference.

2 Overview

Section/Para	Comment
2.1.5	Natural England commented on the updated matrices at Deadline 7 for Broadland SPA that the screening matrices now seem to only cover the onshore project area impacts, when it previously screened in operational collision risk alone and in-combination for the non-breeding qualifying features, and the matrices should be updated to include these features. During discussion with the developer on the 24th April they confirmed that this was an oversight and would be commenting on the RIES to re-include Broadland SPA offshore ornithology.
Table 2.1	The Potential effects column should include in-combination effects for birds (offshore), benthic habitats and marine mammals in-combination effects are currently only included for fish and onshore/terrestrial.
2.3.1	*Features omitted* Assessments of impacts alone were carried out by the Applicant in APP-201 for the following: • FFC SPA: gannet and kittiwake collision; guillemot and razorbill displacement • Alde-Ore Estuary SPA: lesser black-backed gull collision • Greater Wash SPA: little gull collision; red-throated diver displacement. In addition to the in-combination impacts listed in 2.3.1, the Applicant also presented in-combination assessments in APP-201 for: FFC SPA guillemot and razorbill in-combination displacement. APP-201 also included an assessment of displacement of red-throated diver at the Outer Thames Estuary SPA due to operation and maintenance vessel movements.
2.3.2	Natural England has provided advice to the Secretary of State for Hornsea Project Three on the 22nd April 2020 and Norfolk Vanguard on the 27th April 2020 (included as Appendix 2 and 3 to the this report for ease of reference). Natural England's advice in relation to Boreas Deadline 9 is provided with due consideration of this. Natural England has provided advice on in combination CRM both including and not including Hornsea Project 3 figures, Within our submissions at Deadline 9 and therefore subsequent to the publication of the RIES. However, it should be noted

	that Natural England was unable to advise on the predicted contribution of Hornsea Three to the in-combination collision risk mortality due to fundamental uncertainties in that projects base line data.
2.3.6	Natural England advises that the methodology for in combination impact assessment is not in line with the Waddenzee judgment. If a plan or project would not be likely to have a significant effect on the site alone, it should nevertheless be considered in combination with other plans and projects to establish whether there would be likely to be a significant effect arising from their combined impacts (English Nature 2006 Report Number 704). Paragraph 2.3.6 states that in-combination effects were not assessed for the River Wensum SAC, Norfolk Valley Fens SAC and The Broads SAC. Natural England welcomed the Onshore Clarification Notes submitted into examination [AS-025] which considered the Hornsea Project Three cable route which passes about 360m to the east of Booton Common SSSI/Norfolk Valley Fens SAC and Norfolk Boreas cable route and that those construction periods may overlap
2.5.1	The breeding season apportioning of impacts and breeding season definitions of kittiwakes of the Flamborough and Filey Coast (FFC) SPA and of lesser black-backed gull (LBBG) of the Alde-Ore Estuary (A-OE) SPA, have also been a key subject of discussions. Assessment of displacement impacts for common scoter of Greater Wash SPA has been a subject of discussions. RTD from Greater Wash SPA and Outer Thames Estuary SPA and mitigation commitments by Vanguard -being relevant for Boreas - were also discussed during examination. Offshore wind farms and associated figures included in in-combination assessments have also been a key subject of discussions.
2.6	Applicant's screening and integrity matrices Natural England has provided comment on the updated Habitat Regulations Assessment Screening and Integrity Matrices as submitted by the Applicant at Deadline 6 [REP6-006 and REP6-008] for Deadline 7 [REP7-050] and this is included as Appendix 1 to this document for ease of reference.

3 Stage 1: Likely Significant Effects

Section/Para	Comment
Table 3.1	Haisborough Hammond and Winterton (HHW) SAC The Applicant also concluded LSE in-combination effects for NVG Please see our response [REP7-050] in which we raised that the Applicant has greyed out increased suspended sediment and smothering, indicating it to not be an issue for Annex I sandbanks, however within the EIA the Applicant has considered deposition effects from Sandwave levelling etc. so there is an impact pathway and therefore a LSE during construction. As there is a LSE pathway

	smothering should be considered in the HRA Integrity Matrices.
Table 3.1 –	Southern North Sea (SNS) SAC Applicant also concluded LSE for in-combination effects for Norfolk Vanguard.
Table 3.1	The Wash and North Norfolk Coast SAC Please see our response [REP7-050] in which we noted that grey seal have been removed as this is not a designated feature of the site.
Table 3.1	Winterton-Horsey Dunes SAC We note that the site and the consideration of Grey seal were removed from the integrity Matrices as seals are not a designated feature of the site.
Table 3.1	Marine Mammal SACs Applicant also concluded LSE for in-combination effects.
Table 3.1	Onshore SACs Applicant also concluded LSE for in-combination effects with Norfolk Vanguard.
3.2.1	HHW SAC Natural England welcomes inclusion of comment on screening in LSE increased suspended sediment and smothering impacts to Annex I Sandbanks.
3.5.2	FFC SPA Natural England advises LSE for the assemblage feature of the FFC SPA due to potential connectivity of the Boreas site with the qualifying features of the site (gannet, kittiwake, guillemot, and razorbill), which are components of the assemblage and due to LSE being a coarse filter.
Table 3.2	Breydon Water SPA and Ramsar As noted in our response to the Applicants updated HRA Matrices [REP7-050] species that are not qualifying features of the SPA have been removed. The Ramsar Criterion are Internationally important waterfowl assemblage, Bewick's Swan Cygnus *columbianus bewickii* and Lapwing *Vanellus vanellus*. The list of noteworthy fauna on the JNCC document, have been included as they may meet the threshold criteria, however they have not been publicly consulted on and therefore do not constitute designated features for the purposes of HRA. Therefore they should not be included in Table 3.2.
3.9.5	HHW SAC Natural England welcomes the inclusion of impacts of suspended sediment solids to Annex I Sandbanks within the HHW SAC integrity matrix to reflect Natural England's advice.

4 Stage 2: Adverse Effects on Integrity

Section/Para	Comment
4.8.6	The increase in draught height committed to by the Applicant for turbines up to and including 14.6MW is from 22m to 35m (and not 25m as stated in the RIES).
4.8.8	We note that in REP6-024, the Applicant's calculated in-combination collision totals for kittiwakes from the FFC SPA had actually increased slightly from previous submission totals (due to the inclusion of the consented estimates for Dogger Bank Creyke Beck A and B in place of those in the project's non-material change application).
4.8.48	The RIES currently presents the Applicants position on over precaution and we highlight Natural England's responses in REP4-040, REP4-043, REP5-077 and REP7-046 in response to the Applicant's position. In summary, Natural England notes that our understanding is that in the cumulative and in-combination collision assessments the central predicted value (i.e. those for the mean bird density, mean/central avoidance rate, mean/central flight height) from each individual project assessment is used, rather than the upper figures from any predicted range based on uncertainties in the input data. In any event, for all Round 1 and Round 2 projects the use of a range of figures is simply not possible, because earlier windfarm Environmental Statements did present information to generate ranges of predicted impacts. There are also elements where the assessment may not be precautionary (e.g. the potential limitations in recording of site-specific data on seabird flight heights may have the potential to lead to underestimates of potential collisions and hence assessments may be lacking in precaution in this aspect). Further, for a range of reasons set out in our previous responses the level of uncertainty in the assessments is high, and therefore there is a requirement to be precautionary in our assessment of impacts. Our rebuttal of the Applicant's position on this matter should be reflected in the RIES, as it has been for individual components.
4.8.51	Natural England's comments in REP5-077 regarding being aware that updates to the model would make a significant difference to the counterfactual metric outputs of models run using the previous/currently available versions of the tool were made with regard to the EIA scale PVA models and guillemot FFC SPA PVA model undertaken by the Applicant in REP2-035 using the Natural England Seabird PVA tool. They do not refer to the FFC SPA PVAs undertaken during the Hornsea 3 examination or the Alde-Ore Estuary SPA LBBG PVA undertaken during the Norfolk Vanguard examination, as no updates to these models (with the exception of the guillemot FFC SPA model) have been undertaken by the Applicant. Therefore, Natural England's outstanding concerns remain with these models and the advice remains that these are updated now that the Natural England PVA tool updates have been completed. However, we have continued to consider the outputs of these models in our advice at Norfolk Boreas as they represent the best available evidence on which to base an assessment at the present time.
4.8.54	Natural England have advised that the density independent PVA model outputs are the most appropriate to use for the colonies and species concerned for the Norfolk Boreas assessment, as for these colonies there is no clear evidence to support the

	application of any particular form or magnitude of density dependence.
4.9 9	Benthic Ecology - Haisborough, Hammond and Winterton SAC Natural England has provided detailed advice on the updated SIP and CSIMP [NE.NB.D9.03.SIP] and also provided a Position Statement [NE.NB.D9.09.PS] at Deadline 9.

5 Alternatives, compensation and IROPI

Natural England has provided detailed responses to the proposed compensation for FFC SPA [REP7-025], Alde-Ore Estuary SPA [REP7-026] and HHW SAC [REP7-027] for Deadline 9. The summary from our Position Statement [NE.NB.D9.09.PS] is included in the table below.

Section/Para	Comment
5.1.12	Natural England has provided advice to SoS in relation to Hornsea Project 3 (Appendix 2) and Norfolk Vanguard OWF(Appendix 3), and subsequently has provided advice into the Norfolk Boreas examination Deadline 9 in response to: • Position statement on derogation [REP6-025] • In Principle Habitats Regulations Derogation case [REP7-024 to REP7-028] Natural England's position to Alternatives and Compensation as presented within our Summary Position is included in the text below.
Alternatives HHW SAC	A commitment to surface-laid cables and the use of marker buoys would remove the need for cable protection altogether. This has been achieved for the Lincs Offshore Wind Farm in The Wash and North Norfolk Coast SAC and is currently also being employed by The Wash Harbour Masters to protect the Race Bank offshore windfarm cables. We continue to advise that this alternative should be considered.
HHW SAC	Natural England agrees that an extension to the HHW SAC site boundary would be the most environmentally beneficial measure to deliver compensation for both Annex 1 Sandbanks and Reefs habitat and ensure coherence of the Natura 2000 network. Whilst Natural England consider, on ecological grounds, that this measure has the potential to compensate for Annex 1 Sandbanks and Reefs habitat in HHW SAC, more detail is required regarding how this would be delivered. We acknowledge there are likely to be practical challenges and potential policy issues in securing this compensation measure as well as any required additional site management measures. Therefore consultation with Defra, other regulators (such as MMO and Eastern Inshore Fisheries and Conservation Authority) and key stakeholders is required.

FFC SPA Kittiwake	Given that the key issue for Kittiwake at FFC SPA, based on our understanding of site condition, is decreased productivity, Natural England are keen that measures focussing on increasing productivity, such as prey availability, are taken forward. However, Norfolk Boreas has decided that construction of artificial nests in the southern North sea / south-east England, but located outside of the Flamborough and Filey Coast kittiwake population would provide the most confidence in deliverability. Though this isn't Natural England's preferred option, we agree that in-principle, the provision of additional nest sites for kittiwakes in the southern North Sea/south-east of England might have the potential to be of benefit to the regional kittiwake population and hence in our view, would ensure coherence of the Natura 2000 network (N2K), particularly if considered as a phased approach that also includes more medium term measures on prey availability. Whilst this measure would not directly benefit the FFC SPA population, we do recognise that it could be considered as a measure to ensure the coherence of the N2K network for kittiwake. We do advise however, that greater confidence is needed: a. That there would be a net benefit to the overall kittiwake population size (not just simply causing a redistribution); and b. That there are sufficient food resources within likely foraging range around any new location to support the required level of productivity. Whilst Natural England consider this measure has the potential to compensate for kittiwake at FFC SPA, more detail is required regarding the size and productivity of any new colony, the location and type of any new structure, the size of new structure, how the project intends to quantify the success of the measure, and the distance of the measure from the FFC SPA population. It should also be noted that depending on the chosen location there may also be an increased collision risk that would need to be taken account of when determining the productivity of any new colony.
Alde-Ore Estuary SPA Lesser black-backed gull	Given that the key issue for lesser black-backed gull at Alde-Ore Estuary SPA, based on our understanding of site condition, is decreased productivity, Natural England are keen that measures focussing on increasing productivity, such as predator control, are taken forward. Ultimately the project has decided that funding a coordinator, whose role would be to facilitate the organisation of a stakeholder working group tasked with overseeing a review of the population's health, factors which have contributed to the decline, and proposals for conservation measures, would be the their preferred

	compensation option. Depending on the outcome of this review, a trial may be undertaken to test options, before a final measure (or suite of measures) is taken forward for implementation, which could include predator control at nesting sites. Natural England's view is that whilst the funding of a project coordinator and scoping study is helpful, there must be a commitment to delivering measures on the ground that would offset the predicted collision risk mortality. Site management measures should be already happening within the designated site. The Section 106 agreement which was secured to address the impacts from the Galloper offshore windfarm to the LBBG population by facilitating changes to site management measures for the benefit of LBBG is still in the scoping phase of options which is effectively undertaking the same role as the Applicant's scoping study. Therefore, for Norfolk Boreas' proposals to demonstrate that they would have any added benefit beyond the S106 agreement, the outcomes of the S106 need to be determined first. Any compensation measure proposed by the Applicant would also need to be kept separate to the S106 to clearly demonstrate deliverables from the two projects. Therefore, whilst we recognise the benefit of the Applicant's proposal in helping to identify possible compensation measures; we do not feel it will achieve the desired outcomes without further specification of how Norfolk Boreas will compensate for reduced productivity of the LBBG population as a result of their project. Natural England agrees with the Applicant that mammalian predator control is the most suitable compensation measure and we believe that this could be achieved through partnership working with local land owners in the wider Alde-Ore. Therefore we feel that further detail on this measure needs to be clarified and conformation that delivery of the measure can be assured.

6 Annex 1: European Sites considered by the Applicant at the Screening Stage

Natural England has provided comment on the updated Habitat Regulations Assessment Screening and Integrity Matrices as submitted by the Applicant at Deadline 6 [REP6-006 and REP6-008] for Deadline 7 [REP7-050] and this is included as Appendices to this document for ease of reference.

7 Annex 2 Summary of Positions in relation to Adverse Effects on Integrity

Section/Para	Comment
FFC SPA	This table should make clear that Natural England agree AEoI can be ruled out for FFC SPA for: gannet in-combination (collision, displacement, collision plus displacement); guillemot and razorbill in-combination displacement; seabird assemblage in-combination (collision and displacement) when H3 and H4 are

	excluded (REP4-040 and REP7-050). Due to Natural England's uncertainty regarding the appropriate estimates to use for Hornsea Project Three and Hornsea Project Four) Natural England consider there to be an AEoI to FFC SPA kittiwakes irrespective of whether Hornsea Project Three and Hornsea Project Four are included or excluded. Further to this, Natural England has highlighted that the in-combination total of collision mortality had already exceeded levels which were considered to be of an AEoI to kittiwake at FFC SPA, and that any additional mortality arising from these proposals would therefore be considered adverse.'
Alde-Ore Estuary SPA	Natural England have advised [Deadline 9] that it could not be certain that there will be no AEoI of Alde-Ore Estuary SPA through impacts to lesser black-backed gull, in-combination with other plans and/or projects.
Haisborough Hammond Winterton SAC Sandbanks	Sandbanks: Introduction of new substrate Natural England welcomes the opportunity to confirm its position. Natural England has concluded that an AEoI on the Sandbank feature of HHW SAC due to the introduction of cable protection cannot be excluded beyond all reasonable scientific doubt. Please see our Deadline 9 submissions and Annex 3 below for further detail. Natural England does not agree with the Applicant's conclusions that the mitigation secured in the SIP or CSIMP will rule AEoI integrity to the Annex I Sandbank Feature of HHW SAC. It is for the Secretary of State to determine, on the basis of an Appropriate Assessment, whether the information provided by the Applicant actually supports the conclusion of no AEoI to HHW SAC. In making this judgement the decision maker will need to take account of the uncertainties identified by Natural England in our Deadline 9 responses.
Haisborough Hammond Winterton SAC Sandbanks	Sandbanks: Smothering and increased suspended sediment Natural England welcomes the opportunity to confirm its position. For Annex I sandbank features we believe, based on the information provided by the Applicant, that there is unlikely to be an AEoI from smothering and increased suspended as a result of site preparation works and construction activities as the benthic communities have a high tolerance to smothering and increased suspended sediments.
Haisborough Hammond Winterton SAC Reef	Reef- Introduction of new substrate Natural England welcomes the opportunity to confirm its position. Natural England considers that an AEoI on the Annex I feature Reef within the HHW SAC cannot be excluded beyond all reasonable scientific doubt due to the introduction of cable protection (and/or cable installation activities) However, if at the time of installation micro siting is possible, reef features are fully avoided and no cable protection is used within fisheries management areas for the recovery of reef, then it may be possible to exclude an AEoI to this feature. . Please see

	our Deadline 9 submissions and Annex 3 below for further detail.
Haisborough Hammond Winterton SAC Reef	Reef- Smothering and increased suspended sediment Natural England welcomes the opportunity to confirm its position. As set out in the Applicants Additional Mitigation Measures Documents and 8.20 SIP and CSIMP control documents there is the intension to avoid Annex I reef features by a distance of 50m and subsequently avoid smothering effects from depositing Sandwave clearance sediment. However, there remains an outstanding concern that the sediment removed during sandwave levelling should be placed in areas of similar grain size (Please see 95% similar grain size condition for Norfolk Vanguard) so that the Sandbank or Reef habitats are not significantly changed . Please see our Deadline 9 submissions and Annex 3 below for further detail

8 Annex 3: Integrity Matrices

Page	Section/Para	Comment
P. 72	AOE SPA LBBG	Regarding (b), as set out in our Norfolk Boreas Deadline 6 and 7 responses, REP6-049 and REP7-048, to the Applicant's positions on headroom in REP4-014 and REP6-021, Natural England advises that reductions in predicted impacts resulting from 'as-built wind farm designs' should not be given weight in an Appropriate Assessment, unless the reduction of the Rochdale Envelope has been legally secured and that updated CRM is carried out using the final turbine parameters and overall project design. To date, there is only one English OWF where these two criteria have been met: East Anglia One. Natural England considers that an AA that rests its in-combination conclusions on 'as-built' impact reductions for which are not legally secured could leave any associated consent decisions open to challenge.
P. 75	FFC SPA kittiwake	Regarding (b), as set out in our Norfolk Boreas Deadline 6 and 7 responses, REP6-049 and REP7-048, to the Applicant's positions on headroom in REP4-014 and REP6-021, Natural England advises that reductions in predicted impacts resulting from 'as-built wind farm designs' should not be given weight in an Appropriate Assessment, unless the reduction of the Rochdale Envelope has been legally secured and that updated CRM is carried out using the final turbine parameters and overall project design. To date, there is only one English OWF where these two criteria have been met: East Anglia One. Natural England considers that an AA that rests its in-combination conclusions on 'as-built' impact reductions which are not legally secured could leave any associated consent decisions open to challenge.
P. 77	FFC SPA gannet	Regarding (b), Natural England notes that we have agreed that an AEoI can be ruled out for in-combination collision risk when Hornsea 3 and 4 are excluded. This is based on: • After 30 years the colony would still be predicted to be above the conservation objective population size of 8,469 pairs or 16,938 individuals with a growth rate of 1% per annum, and that the colony is predicted to still grow above the current mean population of

		24,594 adults under any growth rate scenario from 2% to 5% per annum; and, • We considered it to be highly unlikely that the FFC gannet colony annual growth rate would be as low as 1%, and from the analysis of gannet colony growth rates we conducted the current annual growth rate of c 11% appears to be relatively high for a colony of this age and so the colony is likely to do better than a 1.3 % annual growth rate in the foreseeable future [REP4-040]. This was also the case for in-combination collision plus displacement (part h).
P. 85	General	There is no table 3 is something missing?
P. 86	HHW SAC Sandbanks	a)Temporary physical disturbance during construction a) Paragraph states: The Applicant's HRA Report [section 7.3.1.5 of APP-201] confirmed that all seabed material arising from the HHW SAC during cable installation would be placed back into the SAC to ensure the sediment is available to replenish the sandbank features. It confirmed [REP4-014] that final sediment disposal strategy would be agreed with the MMO in consultation with Natural England and included within the final HHW SIP. The MMO [REP4-034] and Natural England[REP4-043] agreed this approach was appropriate Natural England is content that the Applicant has demonstrated that there are suitable disposal locations for sandwave levelling operations, which would both retain the sediment within the Sandbank system to allow for its recovery and avoid impacts to the Annex 1 Reef feature. However, changes to sediment composition at the disposal locations has not been resolved (i.e. the 95% similar sediment grain size condition). Natural England would like to take this opportunity to clarify that we have agreed that the use of a downfall pipe and the placement of sediment within the SAC is appropriate; however we still fundamentally disagree with the SIP as a mechanism to address AEoI issues at the time of construction. Although sandwave levelling has been proposed as a means of reducing the potential requirement for cable protection, Natural England highlights that there is insufficient evidence to demonstrate that full recovery of the Sandbank system is achievable and within the affected Annex l Sandbank systems. This is because there is insufficient certainty that there will not be a need for cable protection over the lifetime of the project. Therefore Natural England cannot currently rule out an AEoI beyond all reasonable scientific doubt to HHW SAC Sandbanks from sandwave levelling and temporary physical disturbance during construction.
P.90	HHW SAC Reefs	b) Temporary physical disturbance during construction – reefs Natural England has provided further advice in response to the updated SIP and CSIMP at Deadline 9 [NE.NB.D9.03.SIP] Natural England cannot be certain that the avoidance of Annex I Reef habitats through micro-siting the cable is achievable and therefore that it wouldn't hinder the management

		measures put in place to restore Annex I Reef from fisheries pressures, particularly if cable protection was needed. In addition Natural England maintains that there are uncertainties in relation to the recoverability of Annex I reef from cable installation activities.
P. 91	HHW SAC Sandbanks and Reef	c) Temporary physical disturbance during operation – sandbanks and reef Natural England [RR-099] noted that sandwave levelling does not ensure that cables remain buried. The Applicant [AS-024] explained that the worst-case scenario for the O&M phase is based upon the potential for suboptimal burial in the absence of sandwave levelling. In relation to the above statement Natural England notes that within the Control Document (8.20) the Applicant has committed to following the reburial hierarchy if suboptimal cable burial is achieved or should repairs be required during the operational phase, which is welcomed by Natural England. In addition should further cable protection be required during the operation phase then this will subject to a further marine licence. Therefore, any Annex I sandbank recovery since construction is likely to be slowed in areas where there is repeated O&M impacts. However, please note the uncertainties Natural England has raised during examination in relation to the limited evidence of full recovery and potential site specific difference in recoverability. If the mitigation measures have achieved the desired outcome of avoiding impacts to Annex I reef at the time of construction, then any reef that has subsequently developed over the export cables during the operational phase has a high probability of recovery. However, there remains uncertainty in relation to the recoverability of established reefs if impacted at the time of construction, similarly those uncertainties remain for further O&M in those areas during the life time of the project until recovery of Reef can be proven (potentially though the afore mentioned O&M impacts to reef that has established over the cable route since construction). Natural England therefore cannot say beyond reasonable scientific doubt no AEoI to HHW SAC Sandbanks or Reefs alone and in-combination.
P. 85	HHW SAC Sandbank and Reef	Habitat loss d) Cable protection In Natural England's view, even with the proposed reduction in the number of export cables from six to two by using a High Voltage Directional Current (HVDC), reduced amount of cable protection from 10% -5% and avoidance of reef in priority areas the remaining proposed levels of cable protection would constitute a lasting and potentially irreversible impact on both designated site features, thereby hindering the conservation objectives of the site. Annex I Sandbanks and Reefs features within the site, which are both in unfavourable condition. Consequently Natural England cannot be certain that cable protection will not adversely affect the integrity of the HHW SAC site Whilst Natural England can agree that decommissioning cable protection would change the impact from permanent to temporary if concrete mattress (or similar type product) are used there is still a further consideration of

		significant temporal impacts from a lasting impact for >30 years. There is no empirical evidence presented of what the impacts are likely to be on Annex I habitats and the sites conversation objectives from such a temporally long time and whether habitat recovery is achievable to its pre-impacted state. Therefore we advise due to the uncertainties, that the proposed mitigation measure would not rule out AEoI to HHW SAC Annex I feature Sandbanks or Reef beyond all reasonable scientific doubt.
P.93	HHW SAC Sandbanks	e. Permanent habitat loss during operation – sandbanks Whilst Natural England recognises that the placement of any cable protection within Annex I sandbanks is likely to be a persistent i.e. sometimes exposed/buried. The WCS must be assessed which is that the cable protection is exposed and there is a change to Annex I habitat therefore hindering the conservation objectives of the site for the life time of the project and beyond as recovery will not be immediate or guaranteed. As this impact is lasting/long term and site recovery wouldn't be assured, Natural England's view is that reasonable scientific doubt remains regarding the impact of the proposals on the conservation objectives for the site. Accordingly a precautionary approach is required. If it is considered that certain types of cable protection could be modified to enable a greater success of recovery/removal at decommissioning, whilst reducing wider designated site impact, then we advise that this would need to be reflected in the DCO/DML to ensure this mitigation is secured.
P. 94	HHW SAC Reefs	f. Permanent habitat loss during operation – reefs The impact to Annex I Reef is lasting/long term and site recovery wouldn't be assured, Natural England's view is that reasonable scientific doubt remains regarding the impact of the proposals on the conservation objectives for the site. Accordingly a precautionary approach is required. If it is considered that certain types of cable protection could be modified to enable a greater success of recovery/removal at decommissioning, whilst reducing wider designated site impact, then we advise that this would need to be reflected in the DCO/DML to ensure this mitigation is secured. Please see our Position Statement [NE.NB.D9.09.PS] for further details.
P. 94	HHW SAC Sandbanks	g. New substrate during operation – The RIES states that the Applicant's conclusions have not been disputed by any Interested Parties. Natural England understands that the introduction of new substrate or cable protection during the operational phase would be subject to a separate marine licence.
P. 95	HHW SAC Reefs	h) New substrate during operation - reefs Natural England understands that the introduction of new substrate or cable protection during the operational phase would be subject to a separate

		marine licence.
P. 95	HHW SAC Reefs	i). Increased suspended sediment and smothering during construction – reef Natural England welcomes the opportunity to confirm its position. As set out in the Applicants Additional Mitigation measures documents and 8.20 control documents there is the intension to avoid Annex I reef features by a distance of 50m, therefore avoiding smothering effects from depositing Sandwave clearance sediment. However, there remains an outstanding concern that the sediment should be placed in areas of similar grain size (95% similar grain size condition for Norfolk Vanguard) so the habitats are not significantly changed and/or impact on other site features. Please see our Deadline 9 response for further detail.
P. 97	HHW SAC Sandbanks	j). Increased suspended sediment and smothering during construction Within the EIA the Applicant have considered deposition effects from Sandwave levelling etc. so there is an impact pathway and therefore a LSE during construction. As there is a LSE pathway smothering should be considered in the HRA Integrity Matrices. Natural England provided further advice at D9 For Annex I sandbank features we believe based on the information provided by the Applicant that there is unlikely to be an AEoI from smothering and increased suspended as a result of site preparation works and construction activities as the benthic communities have a high tolerance to smothering and increased suspended sediments.
P. 97	HHW SAC Sandbanks Reef	k) Decommissioning Natural England welcomes the opportunity to clarify its position in relation to AEoI on HHW SAC from decommissioning. The Applicant has drawn up a decommissioning plan that provides evidence on the feasibility of the removal of cable protection, which it suggests is more likely to be possible for concrete mattresses (or similar type product). Natural England welcomes the potential to successfully remove any cable protection. If removal could be achieved, then whilst the impacts would no longer be permanent, which is welcomed, they will still last for the lifetime of the infrastructure (30 years) and potentially longer as a residual impact. Therefore, because this impact is lasting/long term and site recovery wouldn't be assured, Natural England's view is that reasonable scientific doubt remains regarding the impact of the proposals on the conservation objectives for the site. Accordingly a precautionary approach is required. If it is considered that certain types of cable protection could be modified to enable a greater success of recovery/removal at decommissioning, whilst reducing wider designated site impact, then we advise that this would need to be reflected in the DCO/dML to ensure this mitigation is secured. Overall, whilst the additional work undertaken to refine the project parameters is welcomed and serves to considerably reduce the impacts of

		the project on the interest features of HHW SAC and the likelihood thereof, Natural England's overall position remains that an AEoI to HHW SAC Sandbanks and Reefs cannot be excluded beyond all reasonable scientific doubt.
P. 97	HHW SAC Sandbanks	m) In-combination effects – sandwaves For the avoidance of doubt the Annex I feature is 'Sandbanks' and not Sandwaves, which are the mobile part of the Annex I sandbanks. In considering the in combination effects on the Sandwaves Natural England has concluded that an AEoI on the Sandbank feature of HHW SAC cannot be excluded beyond all reasonable scientific doubt.
P. 98	HHW SAC Reef	n) In-combination effects – Reef In considering the in combination effects on the Annex I feature Reefs within the HHW SAC Natural England have concluded that an AEoI on the Annex I Reef feature cannot be excluded beyond all reasonable scientific doubt.

Appendix 1 Natural England's comments on Norfolk Boreas Habitat Regulation Assessment Screening and Integrity Matrices

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THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

NORFOLK BOREAS OFFSHORE WIND FARM

Planning Inspectorate Reference: EN010087

Deadline 7

Natural England's response to updated Habitat Regulations Assessment Screening and Integrity Matrices

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31st March 2020

Our Ref NE.NB.D7.09.HRAMatrices

Contents

1 Introduction

Please find below Natural England's comments on the following documents as submitted at Deadline 6.

- Norfolk Boreas Updated Appendix 5.3 Habitat Regulations Assessment Screening Matrices (Version 4) [REP6-006].
- Norfolk Boreas Updated Habitats Regulations Assessment Integrity Matrices (Version 4) [REP6-008].

At Deadline 5 the Examining Authority (ExA) issued a Rule 17 request for further information with regard to clarification of species listed as features of the SPA and/or Ramsar citations for those sites which are designated as both an SPA and Ramsar. The Applicant reviewed the relevant tables and updated the tables as appropriate for Deadline 6.

For the sake of brevity we have focused on those designated sites which have been screened in to the EIA, or where we have particular comment.

2 Screening Matrices

6 Alde-Ore Estuary SPA & Ramsar

It seems that a number of species have been added to the screening matrices for the Ramsar. The other species which have been added appear to fall within section 22 Noteworthy Fauna. The list of noteworthy fauna on the JNCC document, may have been included as they may meet the threshold criteria, however they have not been publicly consulted on and therefore do not constitute designated features for the purposes of HRA.

25 Breydon Water SPA & Ramsar

We note that species that are not qualifying features of the SPA have been removed.

The Ramsar Criterion are Internationally important waterfowl assemblage, Bewick's Swan Cygnus *columbianus bewickii* and Lapwing *Vanellus vanellus*. The list of noteworthy fauna on the JNCC document, have been included as they may meet the threshold criteria, however they have not been publicly consulted on and therefore do not constitute designated features for the purposes of HRA.

26 Broadland SPA & Ramsar

We note that Pink-footed Goose is not a designated feature of the SAC, but is listed as 'not yet classified' for the SPA in the Third SPA Review (Stroud et al. 2016).

The screening matrices now seems to only cover the onshore project area impacts; it should and we believe previously did consider collision risk from the offshore site. Operational collision risk alone and in-combination was previously screened in for the non-breeding qualifying features and the matrices should be updated to include these features.

38 Coquet Island SPA

Note that puffin is not a qualifying feature of the SPA in its own right, but is a component of the seabird assemblage feature.

Natural England suggests that the Applicant be clearer and note the potential for connectivity for auks with Boreas outside of the breeding season in its justification for screening out displacement impacts from the project alone on the assemblage feature of the site. Given the potential for all three auks to winter in the North Sea, this would therefore include consideration of the seabird assemblage feature at Coquet Island, which includes puffin. However, we agree with the Applicant that the proportions of these populations migrating through the Norfolk Boreas site are likely to be very small relative to BDMPS.

69 Farne Islands SPA

Natural England advises that the Applicant includes the designated features Roseate tern, guillemot and a seabird assemblage. With regard to the auk features of this site (guillemot and the seabird assemblage feature, which includes razorbill and puffin) we advise that the Applicant considers where there is an impact pathway in the non-breeding season (even if there is no impact pathway in the breeding season), as given the potential for all three auks to winter in the North Sea, this would therefore include consideration of these features for this site.

74 Flamborough and Filey Coast SPA

We note the addition of the seabird assemblage and removal of puffin from the screening matrices.

83 Greater Wash SPA

No comment

87 Haisborough, Hammond and Winterton SAC

The Applicant has greyed out increased suspended sediment and smothering, indicating it to not be an issue for Annex I sandbanks, however within the EIA the Applicant have considered deposition effects from Sandwave levelling etc. so there is an impact pathway and therefore a LSE during construction. As there is a LSE pathway smothering should be considered in the HRA Integrity Matrices.

99 Humber Estuary SAC

No comment

106 Klaverbank SAC

No comment

129 Noordzeekustzone SAC

No comment

132 Norfolk Valley Fens SAC

We note revised screening matrices to screen out narrow-mouthed whorl snail.

134 North Norfolk Coast SPA & Ramsar

We note that species that are not a designated feature of the SPA have been removed

143 Outer Thames Estuary SPA

This refers to the Outer Thames Estuary SPA and pSPA extension. The extension is now classified and need only refer to Outer Thames Estuary SPA.

146 Paston Great Barn SAC

No comment

156 River Wensum SAC

Natural England welcome that the River Wensum SAC designated features Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation and Desmoulin's whorl snail have now been screened in for direct effects, due to the potential for HHD Drilling mud outbreaks.

170 Southern North Sea SAC

No comment

183 The Broads SAC

No comment

185 The Wash and North Norfolk Coast SAC

We note that grey seal have been removed as this is not a designated feature of the site.

3 Integrity Matrices

6 Alde-Ore Estuary SPA and Ramsar

Lesser black-backed gull: We welcome that the alone and in-combination collision figures discussed in the footnotes have been updated to account for the revised figures presented by the Applicant in REP5-059 and REP6-024.

Natural England agrees that there is unlikely to be an AEOI from collision risk from Norfolk Boreas alone. However, we do not agree with the Applicant that an AEOI can be ruled out for in-combination collision risk. We advise that an AEOI cannot be ruled of from in-combination collision risk for this feature – see reasons set out in our Deadline 4 response [REP4-040] and Natural England's Deadline 7 response (NE.NB.D7.08CRM) to the Applicant's revised cumulative and in-combination collision risk submitted in REP6-024. Additionally, please see our Deadline 4 responses [REP4-039 and REP4-040] for our responses regarding the Applicant's comments on precaution in assessments.

We note that the Applicant considers that the main driver of gull numbers in this SPA appears to be suitable management at the colonies to protect gulls from predators. We would query the relevance of this statement, (as we have previously in the assessment of the impacts from the Norfolk Vanguard offshore wind farm proposal) because the impacts of the project need to be considered in addition to any existing impacts on the colony and in the context of the population trend at the site.

25 Breydon Water SPA and Ramsar

Migrant non-seabirds: Based on the non-seabird migrant collision risk modelling document in Annex 7 of Appendix13.1 of APP-566, notwithstanding some methodological issues identified with this by Natural England, we do not anticipate an AEOI for the relevant features of this site from collision risk from Norfolk Boreas alone or in-combination with other plans and projects.

26 Broadland SPA and Ramsar (offshore)

Migrant non-seabirds: Based on the non-seabird migrant collision risk modelling document in Annex 7 of Appendix13.1 of APP-566, notwithstanding some methodological issues identified with this by Natural England, we do not anticipate an AEOI for the relevant features of this site from collision risk from Norfolk Boreas alone or in-combination with other plans and projects.

26 Broadland SPA and Ramsar (onshore)

We welcome the update to clarify the mitigation in place for functionally linked land for SPA and Ramsar species as secured within the OLEMS. Note the updated Integrity Matrices for Broadland SPA and Ramsar (onshore). Natural England is content that with the further information and mitigation proposed (at Deadlines 1 and 2) within the OLEMS

that there will not be an AEOI of the Broadland SPA or Ramsar features, from Norfolk Boreas alone or in combination.

74 Flamborough and Filey Coast SPA

We welcome that the alone and in-combination collision figures discussed in the footnotes for the kittiwake and gannet features of the site have been updated to account for the revised figures presented by the Applicant in REP5-059 and REP6-024.

Kittiwake: Natural England agrees there is unlikely to be an AEOI from collision risk from Norfolk Boreas alone. However, we do not agree with the Applicant that AEOI can be ruled out for in-combination collision risk. We advise that an AEOI cannot be ruled of from in-combination collision risk for this feature – see reasons set out in our Deadline 4 response [REP4-040] and our Deadline 7 response (NE.NB.D7.08 CRM) to the Applicant's revised cumulative and in-combination collision risk submitted in REP6-024. Additionally, please see our Deadline 4 responses [REP4-039 and REP4-040] for our responses regarding the Applicant's comments on precaution in assessments.

With regard to the Hornsea 3 further design mitigations, Natural England notes that whilst any amendments to the Hornsea 3 project design envelope (i.e. lower tip height and reduction in turbine numbers) would result in a proportional reduction in the collision estimates, Natural England will most likely be unable to agree on what the absolute level of reduction for Hornsea 3 will be as we believe the issues with the underlying baseline data have not been resolved.

Gannet: Natural England agrees there is unlikely to be an AEOI from collision risk from Norfolk Boreas alone, from displacement from Norfolk Boreas alone, and from combined collision plus displacement from Boreas alone.

We welcome that the Applicant has updated the in-combination collision plus displacement figures to take account of the revised in-combination collision totals presented in REP6-024. We also agree with the Applicant that AEOI can be ruled out for in-combination collision, from in-combination displacement and from in-combination collision plus displacement when Hornsea 3 and Hornsea 4 are excluded from the in-combination total. However, as set out in our Deadline 4 response [REP4-040] and our Deadline 7 (NE.NB.D7.08 CRM)response to the Applicant's revised cumulative and in-combination collision risk submitted in REP6-024, due to Natural England's significant concerns regarding the incomplete baseline surveys for the Hornsea 3 project, and the associated level of uncertainty as regards the potential impacts of that project, along with the inevitable uncertainty regarding the figures for Hornsea 4 (as from PEIR) Natural England is not in a position to advise that an AEOI can be ruled out for the gannet feature of the FFC SPA for in-combination collision, in-combination displacement, or in-combination collision plus displacement when Hornsea 3 and Hornsea 4 are included in the in-combination total.

Razorbill & Guillemot: Natural England agrees there is unlikely to be an AEOI on these features from displacement from Norfolk Boreas alone and in-combination with other plans and projects when Hornsea 3 and Hornsea 4 are excluded from the in-combination totals – see reasons set out in our Deadline 4 response [REP4-040]. However, as set out in our Deadline 4 response [REP4-040], due to Natural England's significant concerns regarding the incomplete baseline surveys for the Hornsea 3 project, and the associated level of uncertainty as regards the potential impacts of that project, along with the inevitable uncertainty regarding the figures for Hornsea 4 (as from PEIR) Natural England is not in a position to advise that an AEOI can be ruled out for these features of the FFC SPA for in-combination displacement when Hornsea 3 and Hornsea 4 are included in the in-combination totals.

Seabird Assemblage: Natural England agrees there is unlikely to be an AEOI from collision risk and displacement from Norfolk Boreas alone and in-combination with other plans and projects when Hornsea 3 and Hornsea 4 are excluded – see reasons set out in our Deadline 4 response [REP4-040]. However, as set out in our Deadline 4 response [REP4-040], due to Natural England's significant concerns regarding the incomplete baseline surveys for the Hornsea 3 project, and the associated level of uncertainty as regards the potential impacts of that project, along with the inevitable uncertainty regarding the figures for Hornsea 4 (as from PEIR) Natural England is not in a position to advise that an AEOI can be ruled out for this feature of the FFC SPA for in-combination when Hornsea 3 and Hornsea 4 are included.

83 Greater Wash SPA

Red-throated diver (RTD): Construction/cable laying – Natural England notes that the information provided by the Applicant in footnote b) for RTD at this site discusses the predicted mortality due to displacement resulting from the presence of up to two cable laying vessels. Based on a worst case scenario of up to two cable laying vessels present in the SPA at one time using the Natural England recommended displacement (100%) and mortality (1-10%) rates, at the upper end of our recommended range the predicted impact figures are not insignificant and may not result in no AEOI. However, our understanding from AS-024 (the Applicant's response to our Relevant Representations) is that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas, which includes: *'during the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel.'* In which case, based on this commitment from the Applicant, we agree that an AEOI from displacement due to construction activities from the project alone and in-combination can be ruled out for RTD feature of the Greater Wash SPA (as set out in our response to Examining Authority Question Q8.9.3 in REP2-080). We advise that the footnote for this in the integrity matrix is updated to reflect this mitigation commitment.

Operation & maintenance (O&M) – With regard to operation and maintenance vessel movements our understanding from AS-024 (the Applicant's response to our Relevant Representations) is that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas, specifically:

- Avoid and minimise maintenance vessel traffic, where possible, during the most sensitive time period for red throated diver (RTD) in January/ February/ March.
- During the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel.
- Restrict vessel movements where possible to existing navigation routes.
- Avoid over-revving of engines (to minimise noise disturbance).
- Avoid rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid disturbance to areas with consistently high diver density.

This mitigation has been included in the Outline PEMP [APP-705]. Condition 14 (1) (d) (vi) of Schedules 9 and 10 of the updated draft DCO version 2 [AS019] secures that the final project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation must include details of:

> *"procedures to be adopted within vessel transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities."*

Therefore, based on the adoption of best practice vessel operations to minimise disturbance to RTD, we agree that an AEOI from operation and maintenance vessel movements can be ruled out for RTD feature of this site (as set out in our response to Examining Authority Question Q8.9.2 in REP2-080). However, we advise that the footnote for this in the integrity matrix is updated to reflect this mitigation commitment.

Little gull: We welcome that the alone and in-combination collision figures discussed in the footnotes have been updated to account for the revised figures presented by the Applicant in REP5-059 and REP6-024.

Natural England agrees that there is unlikely to be an AEOI from collision risk from Norfolk Boreas alone and in-combination with other plans and projects – see reasons set out in our Deadline 4 response [REP4-040] and our Deadline 7 response (NE.NB.D7.08 CRM) to the Applicant's revised cumulative and in-combination collision risk submitted in REP6-024.

Common scoter: Natural England agrees that there is unlikely to be an AEOI from displacement due to cable laying vessels from Norfolk Boreas alone and in-combination with other plans and projects.

87 Haisborough, Hammond and Winterton SAC

Natural England cannot currently rule out AEOI on the Haisborough Hammond Winterton SAC beyond reasonable scientific doubt, as discussed in our recent response to the HHW SAC Position Paper [Our Ref:NE.NB.D7.O7.HHWSAC Paper], Position Statement Regarding the Proposed Site Integrity Plan for the Haisborough Hammond and Winterton Special Area of Conservation [REP4-041], Natural England's Written Summary of Oral Representations made at Issue Specific Hearing 4 on offshore effects including the Draft Development Consent Order [rep4-034], and Relevant Representation [RR-099]

Annex I reef and Annex I Sandbanks

There remains an industry wide confusion in relation to lasting permanent habitat loss impacts that occur because of construction activities, such as the placement of cable protection on sub-optimally buried cables, that has an ongoing impact over the life time of the project and beyond. The Applicants view is that impacts are assessed as an operational impact. However within the DCO/DML it is considered a construction impact and any maintenance activities of cables would then occur during the operational phase. We note that the Applicant has tried to address this concern by having an 'introduction of new substrate' column, but the HRA should reflect the above point.

99 Humber Estuary SAC

Natural England is satisfied that there will not be an AEOI on Humber Estuary SAC from Norfolk Boreas alone or in combination.

106 Klaverbank SAC

Natural England is content that there will not be an AEOI on the site from Norfolk Boreas alone or in combination.

129 Noordzeekustzone SAC

Natural England is content that there is unlikely to be an AEOI on this site from Boreas alone or in combination.

132 Norfolk Valley Fens SAC

Based on the information provided in the Clarification Note Natural England is content that there will not be an AEOI on the Norfolk Valley Fens SAC from Norfolk Boreas alone or in combination.

134 North Norfolk Coast SPA and Ramsar

Migrant non-seabirds: Based on the non-seabird migrant collision risk modelling document in Annex 7 of Appendix13.1 of APP-566, notwithstanding some methodological issues identified with this by Natural England, we do not anticipate an AEOI for the relevant features of this site from collision risk from Norfolk Boreas alone or in-combination with other plans and projects.

143 Outer Thames Estuary SPA

Red-throated diver (RTD): As with RTD at the Greater Wash SPA with regard to operation and maintenance vessel movements our understanding from AS-024 (the Applicant's response to our Relevant Representations) is that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas and that this mitigation has been included in the Outline PEMP [APP-705] and condition 14 (1) (d) (vi) of Schedules 9 and 10 of the updated draft DCO version 2 [AS019] secures that the final project environmental management plan (in accordance with the outline project environmental management plan). Therefore, based on the adoption of best practice vessel operations to minimise disturbance to RTD, we agree that an AEOI from operation and maintenance vessel movements can be ruled out for RTD feature of this site (as set out in our response to Examining Authority Question Q8.9.2 in REP2-080). However, we advise that the footnote for this in the integrity matrix is updated to reflect this mitigation commitment and that it is updated to refer to the Outer Thames Estuary SPA rather than the Greater Wash SPA.

146 Paston Great Barn SAC

Natural England notes the mitigation within the OLEMS and the points to be included in the Hedgerow Mitigation Plan. We would welcome an Outline Hedgerow Mitigation Plan being submitted as part of the examination as a certified document to ensure that all hedgerow management commitments can be accommodated across the Rochdale envelop (as raised in our D7 response).

Natural England is satisfied that there is an unlikely to be an AEOI on Barbastelle if the hedgerow mitigation outlined within the OLEMS, and Hedgerow Mitigation Plan can be implemented and secured.

156 River Wensum SAC

Natural England are content with the detail currently provided in the Clarification Note and Method Statement for Crossing the River Wensum and adjacent Watercourses [AS-5.D2.V1] and look forward to being consulted on the site specific water crossing plans post consent as specified within OCoCP. Natural England is content that there is unlikely to be an AEOI on the site from Norfolk Boreas from operations as set out. In relation to Environmental incident response and contingency Natural England welcome the commitment within the OCoCP to contact Natural England within 24 hours.

170 Southern North Sea SAC

Natural England believes there will be a likely significant effect on the harbour porpoise feature of the SNS Special Area of Conservation (SAC). We also believe AEoI cannot be ruled out at this stage. The production of a SIP allows for the HRA to be revisited when more information is available regarding all the relevant plans and projects and the implementation of the most appropriate mitigation methods at that time to ensure there will be no AEoI, as raised in our Oral Rep ISH4 (REP4-043). Natural England confirmed that

the only outstanding issue with the SNS SAC SIP was the lack of sight of the mechanism to ensure in combination impacts would be appropriately managed to ensure they remain within the site thresholds.

183 The Broads SAC

Natural England is satisfied that there is unlikely to be an AEOI on the Broads SAC from the Norfolk Boreas project alone.

185 The Wash and North Norfolk Coast SAC

We note that grey seal have been removed as are not a designated feature of the site; however text below still refers to grey seal. Natural England is content that there will not be an AEOI on the Wash and North Norfolk Coast SAC, due to Norfolk Boreas alone or in combination.

Appendix 2 Natural England's advice to SoS in in relation to Hornsea Project 3 OWF

Date: 22 April 2020
Our ref: Hornsea Project Three

Gareth Leigh
Department for Business, Energy & Industrial Strategy
1 Victoria Street
London
SW1H 0ET

Natural England,
Lateral,
8 City Walk
Leeds
LS11 9AT

BY EMAIL ONLY

Dear Gareth,

Hornsea Project Three – Applicant's submission to Secretary of State Consultation Request for further information

Natural England's remit is to ensure sustainable stewardship of the land and sea so that people and nature can thrive. We are working to achieve a healthy and biodiverse marine environment which can enable a truly sustainable UK offshore wind sector, to support the achievement of 'net zero' and address the climate change emergency. We use our expertise to help facilitate offshore windfarms that are sensitively located and constructed, whilst protecting marine ecosystems from proposals with significant environmental impacts through our statutory advice. This will build the marine environment's resilience to climate change and its ability to mitigate its effects.

On 27th September 2019 the Secretary of State (SoS) wrote to Ørsted to request further information 'in consultation with Natural England' on matters pertaining to the Habitats Regulations derogations and to Stage 2 of the Marine Conservation Zone (MCZ) assessment process. Natural England provided advice to Ørsted during the consultation period, as detailed in our letter to BEIS on 17th February 2020.

Having reviewed the documents submitted by the project on 14th February 2020, Natural England provides the following statutory advice to the SoS and BEIS for consideration. This advice will consider any further mitigation measures proposed by the project, additional mitigation that could be implemented, and the compensatory measures selected for the features of sandbanks and kittiwake. It will also consider further mitigations and requirements under Section 126(7) of the Marine and Coastal Access Act 2009 (MCAA) for MCZs, and the potential implications of this application for other projects in the future. In proving this advice, Natural England has drawn from the EC Guidance Document on Article 6(4) of the Habitats' Directive 92/43/EEC.

1. Special Areas of Conservation (SACs)

Two Special Areas of Conservation (SAC's) with Annex I Sandbanks (slightly covered by water all of the time) as a feature were identified in the SoS's request for further information: North Norfolk Sandbanks and Saturn Reef (NNSSR) and The Wash and North Norfolk Coast (WNNC) SAC. The former site is located offshore and the latter is nearshore and adjacent to Cromer Shoal Chalk Beds MCZ. For both sites, Natural England identified significant concerns at the scale of impact – both temporal and spatial – from cable installation and the deposition of cable protection. It should also be noted that Natural England are not satisfied that the potential impacts to Annex 1 reef features in both sites have been sufficiently assessed or mitigated for.

1.1 Article 6(3) Assessment

The Secretary of State, acting as the relevant competent authority for this project, will need to ensure that it has acted in accordance with Article 6 of the Habitats Directive, as informed by the relevant judgements of the Court of Justice of the European Union ("CJEU"). With regards the interpretation of Article 6(3) of the Habitats Directive, in *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw* (C-127/02), the CJEU stated that:

> 59. Therefore, pursuant to Article 6(3) of the Habitats Directive, the competent national authorities, taking account of the conclusions of the appropriate assessment of the implications of [the plan or project], in the light of the site's conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects…

More recently, in the CJEU stated in the *Holohan & Others v An Bord Pleanala* (C-461/17) that:

> 34 The [appropriate] assessment carried out under that provision may not have lacunae and must contain complete, precise and definitive findings and conclusions capable of dispelling all reasonable scientific doubt as to the effects of the proposed works on the protected area concerned…
>
> 37 … all aspects which might affect [the conservation] objectives must be identified and since the assessment carried out must contain complete, precise and definitive findings in that regard, it must be held that all the habitats and species for which the site is protected must be catalogued. A failure, in that assessment, to identify the entirety of the habitats and species for which the site has been listed would be to disregard the above mentioned requirements and therefore … would not be sufficient to dispel all reasonable scientific doubt as to the absence of adverse effects on the integrity of the protected site…

In accordance with Article 6(4) of the Habitats Directive, if the Secretary of State, acting as competent authority, is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site

(as the case may be). If the Secretary of State makes this decision he must secure any necessary compensatory measures in order to ensure that the overall coherence of Natura 2000 is protected. Natural England can provide ecological advice on the adequacy of those compensatory measures.

1.2 Position at the close of examination

1.2.1 NNSSR SAC

Upon the close of examination Natural England advised that sufficient baseline evidence had been provided to inform an assessment of the impacts to North Norfolk Sandbanks and Saturn Reef SAC but disagreed with the conclusions of the applicants' Report to Inform the Appropriate Assessment.

In Natural England's view the proposed levels of cable protection would constitute a lasting and potentially irreversible impact on designated site features, thereby hindering the conservation objectives of the site. Both Sandbank and Reef features within the site are in unfavourable condition. Consequently Natural England cannot be certain that cable protection will not adversely affect the integrity of the site.

Although sandwave levelling had been proposed as a means of reducing the potential requirement for cable protection, Natural England highlighted that there was insufficient evidence to demonstrate that full recovery of the sandbank system is achievable and within all sandbank systems. The applicant had also failed to demonstrate that suitable disposal locations could be identified that would retain the sediment within the sandbank system to allow for its recovery, whilst avoiding impacts to the Annex 1 reef feature.

Natural England advised that the failure to fully assess and address these matters at the time of application would mean that they would need to be resolved by the MMO prior to construction. This would create a considerable risk to the project, and likely to require significant resource post-consent from the MMO and Natural England.

1.2.2 The WNNC SAC

Natural England also advised that there was insufficient evidence provided for The Wash and North Norfolk Coast SAC to allow the SoS to make a robust assessment under Article 6(3) of the Directive and to draw conclusions on the consequences of the proposals beyond reasonable scientific doubt. Consequently, Natural England advised that it could not be certain that there will be no adverse effects on the integrity of this protected site.

The concerns relating to the use of cable protection and the evidence around sandwave levelling were also relevant to this site. It is Natural England's view that the information provided by the applicant for the appropriate assessment does not allow for complete, precise and definitive findings and conclusions capable of dispelling all reasonable scientific doubt as to the effects of the proposed works on the protected area. It should also be noted that the Annex 1 features of Mudflats and Sandflats, Sandbanks, and Reefs are either partly or wholly in unfavourable condition, making them particularly vulnerable to additional impacts.

1.3 Additional Evidence Provided by the Applicant post-examination

The project carried out additional benthic, geophysical and geotechnical surveys and provided updated data and assessment for both SACs. Whilst the evidence identified that the proposals would predominantly impact on sandbank features, it also showed that there are areas of more mixed sediment and Annex 1 reef located along the export cables. These additional data have enabled the Applicant to refine their maximum design scenario for cable protection within the two sites (see Section 3 on proposed mitigation below). Despite the new data, there remains uncertainty as to whether cable burial will be achievable in all areas due specific ground conditions and gaps in the evidence. In addition, there is uncertainty around the placement of cable protection within designated sites in relation to the location of specific more sensitive sub-features. These are more likely to be associated with technically more challenging ground conditions.

In order to address Natural England's outstanding concerns regarding sandwave levelling, the Applicant provided principles on sandwave disposal to give confidence that the sediment would be disposed of in areas of similar particle size and retained within the site. However, it was not clear from their assessment how this would be achieved with sufficient certainty, or if areas would recover and in what timescale that recovery would take place.

The evidence provided in relation to the success of Sandwave levelling was limited with only one project using this methodology in English waters for cable installation. No evidence was presented to demonstrate that sandbanks had fully recovered , that cables had and would remain buried for the lifetime of the project, and that this method was applicable to all sandbank systems. Therefore there are considerable uncertainties in the success of this method achieving the desired outcomes.

Due to deposition sites for Sandwave levelling remaining undetermined, it is unclear if sediment will be retained within the designated site, and how impacts to Annex 1 reef can be avoided during installation.

Although the additional steps taken by the applicant are welcome, the additional evidence and disposal principles do not provide certainty beyond reasonable scientific doubt that the impacts to sandbanks as a result of sandwave levelling are temporary, that the sandbank feature will fully recover, or that the associated sediment disposal areas can be located areas that allow the material to be retained within the sandbank system without adversely impacting Annex 1 reef features.

1.4 Additional Mitigation Proposed by the Applicant post-examination

The additional surveys have enabled the Applicant to refine their maximum design scenario in relation to the volume of sandwave clearance and cable protection required. This refinement is welcome, and Natural England would encourage all projects to undertake this level of detailed assessment in determining their Maximum Design Scenarios (MDS) at the time of Application. Based on this, cable protection estimates have been reduced from 10% to 6% of cable length in both sites, with NNSSR reduced from 497,400 m^2 to 418,440 m^2 and WNNC from 46,200 m^2 to 27,720 m^2. Similarly, Sandwave clearance volume in WNNC has reduced from 132,737 m^3 to 48,000 m^3.

Natural England welcomes this refinement of the cable protection estimates and any reduction in the

overall volume of cable protection is positive. However this reduction does not remove the impact. Cable protection will remain in place for at least 25 years, and will impact on the sandbank (and reef) feature for that time, possibly permanently due to the uncertainty of whether it can be removed and the potential impacts of removal at decommissioning.

In addition the project has indicated that it is committed to ensuring disposal of sediment in areas of similar particle size to ensure minimising impacts of disposal and retention of sediment within the site. Whilst Natural England welcome this commitment, we are not clear if/how this will be achieved in practice. This should be clarified in order to avoid problems prior to construction.

Natural England note that it is unclear how the proposed revisions will be secured. We recommend that the proposed change to project parameters and methodologies are fully secured within the DCO/dML where appropriate and that a 'Schedule of Mitigation' is provided and agreed, which clearly sets out all of the mitigation measures.

Overall, whilst the additional work undertaken to refine project parameters is very welcome and serves to reduce impacts, Natural England's overall position regarding AEoI remains unchanged.

1.5 Additional Measures that could Avoid/Reduce/Mitigate impacts

Natural England notes that the EC Guidance[1] highlights that a proposal put forward under Article 6 (4) should be *'the least damaging for habitats, for species and for the integrity of the Natura 2000 site, regardless of economic considerations, and that no other feasible alternative, exists that would not affect the integrity of the site.'*

To assist the SoS in this regard we are providing advice in this section on potential alternative measures that may help avoid/reduce/mitigate the impacts of the proposed development and we feel therefore warrant consideration.

1.5.1 Avoid

We note that at NNSSR it may be possible to identify an alternative cable route that avoids or minimises interaction within the designated site. It is suggested that this has not been considered due to technical feasibility and economic considerations. The EC Guidance makes it clear that "*the least damaging option should be considered regardless of economic constraints*. We recommend the Applicant provide more detail on technical feasibility of this option for the SoS's consideration.

We note that the location of the current grid connection point means that impacts to inshore designated sites cannot be avoided.

1.5.2 Reduce

By using High Voltage Direct Current (HVDC) transmission system rather than an High Voltage Alternating Current (HVAC) there is the possibility to reduce the number of cables, which would mean a

[1] https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

reduction in impact from installation and cable protection. However, to achieve this there may need to be a commitment to remove the phased build option from the project design envelope. Removal of redundant infrastructure along the export cable would also help to reduce the number of cable crossings required and therefore the amount of cable protection required.

1.5.3 Mitigate

A commitment to surface-laid cables and the use of marker buoys would remove the need for cable protection altogether. This has been achieved for the Lincs Offshore Wind Farm in The Wash and North Norfolk Coast SAC and is currently also being employed by The Wash Harbour Masters to protect the Race Bank offshore windfarm cables.

1.6 Compensatory measures

As stated above (Section 1.1), under Article 6(4) of the Habitats Directive, the project may be permitted if the Secretary of State is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest. Prior to submission of their response to the further information request, the applicant presented a range of compensation options to Natural England, who provided advice on the potential for each option to deliver like-for-like compensation (see letter submitted to PINS on 17th February 2020). During these discussions, Natural England advised the applicant that presenting a range of options in their final submission would be appropriate given the complexities and uncertainties involved in delivering each one successfully, and that a 'package' of compensation options may be a more appropriate solution. Ultimately, the applicant decided to propose two options for the loss of Sandbanks: 1. Removal of marine litter (with specific reference to discarded fishing gear); and 2. Creation/improvement of blue mussel beds within WNNC SAC. We therefore provide the SoS advice on these proposals.

1.6.1 Removal of marine litter

The applicant has established the nature and extent of the damage to the sandbank feature from both cable protection and sandwave clearance in both SACs. Whilst Natural England acknowledges the wider marine benefits that removal of litter could provide, there is little evidence of the impact of litter on the form and function of marine features and therefore this has not assessed or quantified as part of the conservation objectives of designated site features. Consequently it is unclear if/how removal of marine litter would compensate for the impacts to sandbanks as a result of the proposed development, achieving overall coherence of the Natura 2000 network.

Natural England notes that the location of the proposed measures are within The Wash and North Norfolk Coast SAC and not within the North Norfolk Sandbanks and Saturn Reef SAC.

1.6.2 Creation/improvement of blue mussels

Although the Applicant is proposing the creation/improvement of blue mussel beds within WNNC SAC, it is unclear if the Applicant is referring to the intertidal or subtidal area.

Within WNNC SAC '**Intertidal** Biogenic reef: Blue mussel beds' are a sub-feature of the Annex 1 Reef feature. Consequently, proposals to create or enhance blue mussel beds in the intertidal area would

enhance or increase the extent of Annex 1 Reef, but would not directly compensate for impacts to subtidal Sandbank features.

Blue mussel beds occurring in the **subtidal** area of WNNC are considered to be a component community of the sandbank feature (under the 'Distribution: presence and spatial distribution of biological communities' attribute) and are not identified as a sub-feature. It would therefore difficult to demonstrate that this type of enhancement would directly compensate for the impacts to the sandbank feature.

It should also be noted that the Conservation Advice for NNSSR SAC makes no reference to blue mussel beds. Therefore enhancement of this reef feature could not be considered as compensation in the context of NNSSR sandbank feature.

In terms if efficacy, whilst the seeding of mussel beds has occurred in other areas of the UK, it is unclear if beds could be established in a site like the WNNC and maintained in the long term.

1.7 Summary of compensation options

It is unclear if the measures proposed would be sufficient to compensate for the impacts to sandbank features arising as a result of the application, and therefore it is not clear that the overall coherence of the Natura 2000 network will be maintained.

The efficacy of the proposed measures in delivering measureable outcomes remains in question.

Whilst both options could be started before the impact to sandbanks takes place, it is unclear if they could deliver before loss occurs.

The Applicant is proposing a 1:1 compensation ratio. EC Guidance[2] states that *"compensation ratios of 1:1 or below should only be considered when it is demonstrated that with such an extent, the measures will be 100% effective in reinstating structure and functionality within a short period of time"* the uncertainties associated with these measures therefore cast doubt over the suitability of this ratio.

An Appropriate Assessment should contain "*complete, precise and definitive conclusions capable of dispelling all reasonable scientific doubts as to the effects of the proposed works on the protected area*". The failure to provide this leads to wider margins of uncertainty. This should be considered alongside the uncertainties associated with proposed compensatory measures when determining an appropriate ratio.

1.8 Additional Considerations.

Although not part of the SoS's request, Natural England wishes to highlight outstanding concerns regarding Annex 1 reef, specifically that the potential impacts to reef have not been sufficiently assessed or mitigated for in either SAC.

[2] https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf p.18

2. Special Protection Areas (SPAs)

A number of protected sites and species were identified by Natural England as being at risk of significant impact from this development, including kittiwake, gannet, razorbill and fulmar from Flamborough and Filey Coast (FFC) Special Protection Area (SPA). The SoS request specifically focussed on kittiwake at FFC SPA, but Natural England reiterates that due to the issues raised below on the baseline data and analysis, other sites and features are also likely to be negatively impacted by this development alone and in-combination.

2.1 Position at the close of Examination

Upon the close of the examination, Natural England's advice remained that there was insufficient baseline information provided to enable the SoS make a robust assessment under Article 6(3) and to be certain about the consequences of the proposals beyond all reasonable scientific doubt (See Section 1.1 for information on Article 6(3) assessment). Subsequently, Natural England advised that it could not be certain that there will be no adverse effects on the integrity of FCC SPA through impacts to the features of kittiwake, gannet, razorbill, fulmar and seabird assemblage, either alone or in-combination with other plans and/or projects.

Further to this, Natural England highlighted that the in-combination total of collision mortality across consented plans/projects had already exceeded levels which were considered to be of an Adverse Effect on Integrity to Kittiwake at FFC SPA, and that any additional mortality arising from these proposals would therefore be considered adverse.

2.2 Additional Evidence Provided by the Applicant post-examination

The original data used in their assessment was for April 2016 to November 2017, giving 20 months in total. There is only one year of data for the December to March period, meaning these four months had not been adequately characterised.

Natural England reviewed a report that presented outputs from an additional four surveys which took place in January, February and March 2019 (with two surveys undertaken in February). The dates and exact timings of these surveys have not been provided.

Whilst additional survey effort is welcome it should be noted that the intention is for surveys to be undertaken concurrently, over a minimum of 24 months, whereas these surveys were undertaken across multiple years thereby reducing the confidence in the data set. It is known that there are natural inter-annual population differences which are likely to skew the datasets, hence the need for concurrent surveys over more than one consecutive year. Although the additional information increases the survey coverage, there remains only one December count, which will affect both displacement and collision estimates. Based on the original December to March dataset for 2016-17, December was the month of peak occurrence in this period for kittiwake, gannet, herring gull, guillemot, razorbill and fulmar.

Whilst a summary of this new survey data has been provided as a separate report, an updated and complete assessment of collision risk or displacement had not been undertaken. Therefore the SoS

would need to base his Article 6(3) assessment on the original assessments provided in support of the application, which are incomplete and do not contain clear, precise or definitive findings and conclusions. Even if this updated assessment had been provided, uncertainty would remain due to the missing month and the lack of concurrency.

Consequently, Natural England's position on the baseline data, and assessments derived from that data remains unchanged. Natural England cannot be certain, beyond all reasonable scientific doubt, that there will be no adverse effects on the kittiwake, gannet, guillemot, razorbill and seabird assemblage features of the Flamborough and Filey Coast SPA (or other SPAs).

An Appropriate Assessment should contain "complete, precise and definitive conclusions capable of dispelling all reasonable scientific doubts as to the effects of the proposed works on the protected area". The failure to provide this leads to wider margins of uncertainty and may have implications beyond the individual project level (i.e. within the in-combination and cumulative assessments of subsequent plans/projects).

2.3 Additional Mitigation Proposed by the Applicant post-examination

The applicant has committed to a number of mitigation measures that Natural England welcome, including reduction in turbine numbers, a lower rotor tip height, and a reduction in total swept area.

These reductions will result in a proportional reduction in the impact to birds, however the absolute level of reduction is not agreed given the issues with the underlying data as previously discussed. It should also be noted that the measures are unlikely to fully exclude collision impact, so in combination considerations remain relevant. Because of this, Natural England's advice on adverse effects on site integrity remain unchanged.

Natural England note that it is unclear how the proposed additional mitigation will be secured and recommend that the proposed change to project parameters and methodologies are fully secured within the DCO/dML where appropriate. We also recommend that a 'Schedule of Mitigation' is provided and agreed, which clearly sets out all of the mitigation measures.

2.4 Additional Measures that could Avoid/Reduce/Mitigate impacts

Whilst it may be possible to identify additional measures to avoid/reduce/mitigate collision and displacement impacts arising as a result of this proposal, based on the information provided we are not able to quantify the impacts and are therefore unable to determine the adequacy of any potential measures.

2.5 Compensatory measures

Please see section 1.1 for information regarding implementation of Article 6(4) of the Habitats Directive.

The project discussed a number of compensatory measures with Natural England. Given that the key issue for Kittiwake at FFC SPA, based on our understanding of site condition, is decreased productivity, Natural England were keen that measures focussing on increasing productivity, such as prey availability.

Ultimately the project decided that mammalian predator control would be the most appropriate option to take forward. This measure would occur at a maximum of three non-designated island colonies (total area of 500 ha) across the UK, with specific focus on islands off the North-west of Scotland.

Natural England does not agree that sufficient evidence has been presented by the applicant to demonstrate that this option would effective compensation for kittiwake. Kittiwake nest on cliffs and they are not known to be at risk from mammalian predators, which have been shown to especially target ground-nesting species such as puffin. There has been some success demonstrated for mammalian predator control on ground-nesting species, but none for kittiwake. Additionally, the locations identified for this measure are not within the range of the FFC SPA population, or even the greater regional population, and would therefore not be effective in restoring the overall coherence of the network.

Given that it is unclear how many kittiwake are being compensated for, how the project intends to quantify the success of the measure, the lack of evidence for the potential effectiveness of such a measure, and the distance of the measure from the FFC population, Natural England does not agree that mammalian predator control would be a suitable compensation option for kittiwake at FFC SPA.

Natural England also highlights that any proposals to implement measures within other countries would need involvement from their Relevant Authorities (i.e. Marine Scotland) and advisory bodies.

2.6 Additional Considerations

While the SoS request focussed on kittiwake from FFC SPA, Natural England's position is that the inadequate baseline data means that it is not possible to rule out collision/displacement impacts beyond all reasonable scientific doubt, to multiple species at multiple sites.

3. Marine Conservation Zones (MCZs)

Two MCZs were identified as requiring further consideration by the applicant: Cromer Shoal Chalk Beds (CSCB) and Markham's Triangle (MT).

Natural England welcomes the applicant's commitment to removal of all infrastructure from Markham's Triangle MCZ. As such, we agree that an assessment under Section 126(7) of MCAA for this site is not required as no direct impacts will occur on the site, and indirect impacts – for example, dispersal of sediment onto the site – will not be of a sufficient level to hinder the conservation objectives of the site.

Natural England note that it is unclear how this revised proposal will be secured and recommend that the proposed change to project parameters and methodologies are fully secured within the DCO/DML where appropriate.

3.1 Position at end of Examination

Upon the close of examination, Natural England remained concerned about the impacts to the site

features of CSCB from the creation of eight extensive Horizontal Directional Drilling (HDD) exit pits and/or trenching in the nearshore area and the potential for additional cable protection in these areas.

Consequently Natural England advised that a significant impact on the features of CSCB MCZ could not be ruled out and that an assessment under Section 126(7) of MCAA was required.

3.2 Additional Mitigation Proposed by the Applicant post-examination

Total cable protection estimates have also been reduced from 10% to 6% of the cable length. However, concerns of significant impact to site still remains due to uncertainties on the impacts of any cable protection in terms of long-term changes to sediment movement. No changes have been proposed to the HDD exit pits.

3.3 Additional Measures that could Avoid/Reduce/Mitigate impacts.

3.3.1 Reduce

Natural England remains unclear as to why eight HDD exit pits are required when the maximum design scenario is for six cables to be used. A reduction in the number of cables would reduce the amount of impact to CSCB MCZ, by reducing the amount of cable protection required as well as the number of HDD exit pits. We have question whether this could be achieved by using High Voltage Direct Current (HVDC) transmission system rather than an High Voltage Alternating Current (HVAC) and/or by removing the phased build option from the proposal.

3.3.2 Mitigate

A commitment to surface-laid cables and the use of marker buoys would remove the need for cable protection in subtidal areas altogether.

3.4 Measures of Equivalent Environmental Benefit (MEEB)

The Applicant has proposed the measure of litter removal, as described for one of the SAC sandbank compensation options, as an option for MEEB at Cromer Shoal Chalk Beds MCZ. Whilst there is currently no guidance available for MEEB in MCZs, the same concerns apply as for compensation in SACs. Specifically, there is little evidence of the impact of litter on the form and function of marine feature and it is unclear if/how removal of marine litter would compensate for impacts to the MCZ features.

4. Overarching Comments

4.1 Consenting considerations

4.1.1 Decommissioning feasibility

One of the key issues for impacts to both NNSSR and WNNC SACs is the impact of cable protection on Sandbanks. The Applicant has determined this to be of a 'long-term temporary impact due to their commitment to removal of any cable protection at decommissioning. Natural England notes that successful removal of cable protection has not yet been adequately demonstrated, or if removal after 25+ years would assure the recovery of the site to pre-impact levels or indeed result in a greater overall impact to the site due to adaptation of habitats to the cable protection.

4.1.2 Securing mitigations

A number of the mitigations proposed by the Applicant have not yet been secured in the DCO/DMLs, which is necessary to ensure they are carried out sufficiently or alternatives pursued should they not be successful. These mitigations also include agreeing an In Principle Monitoring Plan that will clearly define the monitoring requirements – and the rationale behind them – for all receptors likely to be impacted by the development.

4.1.3 Recording Changes to assessments

During the examination process the Applicant supplied a high volume of additional information and has subsequently made further revisions. Consequently, the information presented in the Environmental Statement no longer reflects the current position of the project. Given that the ES and HRA are regularly referred to as part of the post consent/condition discharge phase of a project, there is a need for the final updated version of the assessments to be made clear for future reference.

4.2 Consenting Implications for this Project and Future Developments

Natural England highlights the following risks that would need to be addressed should the Application be consented, based on the information presented both at the time of application and subsequently:

- Where NSIP projects at the consenting phase have not been able to mitigate, reduce, avoid and compensate to a satisfactory level for known impacts, and to take account of uncertainties, then this will impair Natural England's ability to advise on subsequent projects, including on the scale of impacts and likely success of any mitigation/compensation measures where there is an in-combination impact.

- It should be noted that if uncertainties about the impact of the development are not fully resolved at the time of consenting, there is a risk that there will be considerable project delays prior to and during construction whilst due process is followed and these are finally resolved. The Applicant/developer must accept this consequence at their own risk.

- Based on evidence from previous offshore wind farm projects where there were unresolved issues post-consent, a significant level of resource was required to provide statutory advice. This is disproportionate to the resource required by projects which have in accordance with PINS guidance, resolved issues before submitting their application.

- As set out in the PINS guidance[3] NSIP applications should be "front-loaded". Therefore, going forwards, it remains our view that lessons should be learnt to ensure that the current Hornsea Project Three situation can, and will be, avoided. An applicant should therefore ensure that all of the relevant data is collected and discussed in detail as part of the evidence plan process. Doing this will help ensure that, if required, Article 6(4) derogations options can be discussed prior to application submission, and appropriately secured.

[3] https://www.gov.uk/government/publications/guidance-on-the-pre-application-process-for-major-infrastructure-projects

Yours sincerely,

Emma Brown
Yorkshire and North Lincolnshire Area Team

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Appendix 3 Natural England's advice to SoS in relation to Norfolk Vanguard OWF

Date: 27 April 2020
Our ref: Norfolk Vanguard

Gareth Leigh
Department for Business, Energy & Industrial Strategy
1 Victoria Street
London
SW1H 0ET

Natural England,
Lateral,
8 City Walk
Leeds
LS11 9AT

BY EMAIL ONLY

Dear Gareth,

Norfolk Vanguard – Applicant's submission to Secretary of State Consultation Request for further information

Natural England's remit is to ensure sustainable stewardship of the land and sea so that people and nature can thrive. We are working to achieve a healthy and biodiverse marine environment which can enable a truly sustainable UK offshore wind sector, to support the achievement of 'net zero' and address the climate change emergency. We use our expertise to help facilitate offshore windfarms that are sensitively located and constructed, whilst protecting marine ecosystems from proposals with significant environmental impacts through our statutory advice. This will build the marine environment's resilience to climate change and its ability to mitigate its effects.

On 6th December 2019 the Secretary of State (SoS) wrote to Vattenfall to request further information 'in consultation with Natural England' on matters pertaining to the Habitats Regulations derogations process for their Norfolk Vanguard Offshore windfarm (the 'Project'). Natural England provided advice to the Project during the consultation period, as detailed in our letter to BEIS on 28th February 2020. This letter included our advice on non-compensatory matters (as per our letter to the Applicant dated 19th December 2019).

Having reviewed the documents submitted by the Project on 28th February 2020, Natural England provides the following statutory advice to the SoS and BEIS for consideration. This advice considers any further mitigation measures proposed by the Project, additional mitigation that could be implemented, and the compensatory measures selected for the features of sandbanks, reefs, lesser black-backed gulls and kittiwake. In providing this advice, Natural England has drawn from the EC Guidance Document on Article 6(4) of the Habitats' Directive 92/43/EEC.

1. Special Area of Conservation (SAC)

One Special Area of Conservation (SAC) with Annex I Sandbanks (which are slightly covered by sea water all the time) and Annex I Reefs as features were identified in the SoS's request for further information: Haisborough Hammond and Winterton (HHW) SAC. This site is located off the north east coast of Norfolk. Natural England has identified significant concerns at the scale of impact – both temporal and spatial – from export cable installation and the deposition of cable protection.

1.1 Article 6(3) Assessment

The Secretary of State, acting as the relevant competent authority for this project, will need to ensure that it has acted in accordance with Article 6 of the Habitats Directive, as informed by the relevant judgements of the Court of Justice of the European Union ("CJEU"). With regards the interpretation of Article 6(3) of the Habitats Directive, in *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw* (C-127/02), the CJEU stated that:

> 59. Therefore, pursuant to Article 6(3) of the Habitats Directive, the competent national authorities, taking account of the conclusions of the appropriate assessment of the implications of [the plan or project], in the light of the site's conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects…

More recently, in the CJEU stated in the *Holohan & Others v An Bord Pleanala* (C-461/17) that:

> 34 The [appropriate] assessment carried out under that provision may not have lacunae and must contain complete, precise and definitive findings and conclusions capable of dispelling all reasonable scientific doubt as to the effects of the proposed works on the protected area concerned…
>
> 37 … all aspects which might affect [the conservation] objectives must be identified and since the assessment carried out must contain complete, precise and definitive findings in that regard, it must be held that all the habitats and species for which the site is protected must be catalogued. A failure, in that assessment, to identify the entirety of the habitats and species for which the site has been listed would be to disregard the above mentioned requirements and therefore … would not be sufficient to dispel all reasonable scientific doubt as to the absence of adverse effects on the integrity of the protected site…

In accordance with Article 6(4) of the Habitats Directive, if the Secretary of State, acting as competent authority, is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be). If the Secretary of State makes this decision he must secure any necessary compensatory measures in order to ensure that the overall

coherence of Natura 2000 is protected. Natural England can provide ecological advice on the adequacy of those compensatory measures.

1.2 Position at the close of examination

1.2.1 Annex I Sandbanks and Reefs

Upon the close of examination Natural England advised that sufficient baseline evidence had been provided to inform an assessment of the impacts to Annex I Sandbanks and Reefs feature of Haisborough Hammond and Winterton (HHW) SAC, however, disagreed with the conclusions of the Applicants' Report to Inform the Appropriate Assessment.

i) Cable protection

In Natural England's view, even with the proposed reduction in the number of export cables from six to two by using a High Voltage Directional Current (HVDC) the remaining proposed levels of cable protection would constitute a lasting and potentially irreversible impact on both designated site features, thereby hindering the conservation objectives of the site. Annex I Sandbanks and Reefs features within the site are both in unfavourable condition. Consequently Natural England cannot be certain that cable protection will not adversely affect the integrity of the site.

ii) Sandwave levelling

Although sandwave levelling had been proposed as a means of reducing the potential requirement for cable protection, Natural England highlighted that there was insufficient evidence to demonstrate that full recovery of the Sandbank system is achievable and within the affected Annex l Sandbank systems. This is because there is insufficient certainty that there will not be a need for cable protection over the lifetime of the project.

iii) Sediment disposal

Natural England was content that the Applicant had demonstrated that there are suitable disposal locations for sandwave levelling operations, that would both retain the sediment within the Sandbank system to allow for its recovery and avoid impacts to the Annex 1 Reef feature. However, changes to sediment composition at the disposal locations had not been resolved (i.e. the 95% similar sediment grain size condition).

iv) Micro-Siting

Natural England could not be certain that avoidance of Annex I Reef habitats through micro-siting the cable was achievable and therefore that it wouldn't hinder the management measures put in place to restore Annex I Reef from fisheries pressures, particularly if cable protection was needed.

V) Consideration of Adverse Effect on Integrity

Natural England's advice is that adverse effects on site integrity should be addressed at the time of Application.[1] The failure to do so would leave a number of substantial issues to be resolved by the Marine Management Organisation (MMO) prior to construction. It should be noted that if

[1] Please see Annex 1 which sets out Natural England's legal position on this matter submitted into the Boreas offshore windfarm examination at Deadline 4 [REP4-045] (Matthew's first paper)

uncertainties about the impact of the development are not fully resolved at the time of consenting, there is a risk that there will be considerable project delays prior to and during construction whilst proper processes are followed and these are finally resolved.

1.3 Additional Evidence Provided by the Applicant post-examination

The Applicant provided various documents as evidence of further mitigation measures proposed to reduce the risk of adverse effect on integrity. These included an updated Haisborough Hammond and Winterton (HHW) SAC site integrity plan (SIP) and several new documents: Additional Mitigation document including Assessment of the addition mitigation in HHW SAC; HHW SAC Cable Specification, Installation and Monitoring Plan (CSIMP), cable protection decommissioning note, BT cable letter of comfort, HHW SAC position statement, and overview of HRA assessment.

The additional steps taken by the Applicant are welcomed and considerably reduce the risk of an adverse effect on integrity. This is because they provide greater confidence that cable protection will not be needed, and that the potential consequential impacts from sandwave levelling impacts could be minimised or avoided. However, they do not completely remove the need for cable protection over the lifetime of the project and therefore, the additional evidence is not sufficient to remove all reasonable scientific doubt as to the absence of adverse effects on the integrity on the protected Annex I Sandbanks and Reefs as a result of installation of cable protection over the life time of the project.

1.4 Additional Mitigation Proposed by the Applicant post-examination

i) Cable protection

The Applicant has undertaken a further review of data sets to determine where cable protection is most likely to be needed to be placed and thus further reducing the amount of cable protection within the HHW SAC from 10% to 5%. In addition the Applicant has committed to further reduce cable protection required at cable crossings within HHW SAC, with the support of BT, by removing any disused telecom cables that cross the export cable route.

The Applicant has committed to follow a cable burial hierarchy i.e. to always attempt to re-bury a cable before using cable protection, and a requirement to seek a new marine licence for any new areas of cable protection which might be required. In addition, the Applicant has committed to agree the cable route, to continue to explore opportunities to minimise the impacts from cable installation, as well as to agree the location, extent, type and quantity of any cable protection with the MMO in consultation with Natural England prior to deployment. All of these commitments are welcomed and have also been secured in the updated development consent order / deemed marine licence (DCO/DML).

A commitment has also been made by the Applicant to place no cable protection in the areas the Applicant has termed priority areas to be managed as reef i.e. fisheries byelaw/management areas to aid the recovery of Annex I reef.

Natural England welcomes the refinement of the cable installation methodology (including prohibiting the use of jack up vessels in the HHW SAC) and the reduction in cable protection estimates and locations is positive.

ii) Decommissioning

The Applicant has drawn up a decommissioning plan that provides evidence on the feasibility of the removal of cable protection, which it suggests is more likely to be possible for concrete mattresses (or similar type product). Natural England welcomes the potential to successfully remove any cable protection. If removal could be achieved, then whilst the impacts would no longer be permanent, which is welcomed, they will still last for the lifetime of the infrastructure (30 years) and potentially longer as a residual impact. Therefore, because this impact is lasting/long term and site recovery wouldn't be assured, Natural England's view is that reasonable scientific doubt remains regarding the impact of the proposals on the conservation objectives for the site. Accordingly a precautionary approach is required. If it is considered that certain types of cable protection could be modified to enable a greater success of recovery/removal at decommissioning, whilst reducing wider designated site impact, then we advise that this would need to be reflected in the DCO/DML to ensure this mitigation is secured.

Overall, whilst the additional work undertaken to refine the project parameters is welcomed and serves to considerably reduce the impacts of the project on the interest features of HHW SAC and the likelihood thereof, Natural England's overall position remains that an adverse effect on integrity cannot be excluded beyond all reasonable scientific doubt.

1.5 Additional Measures that could Avoid/Reduce/Mitigate impacts

Natural England notes that the EC Guidance[2] highlights that a proposal put forward under Article 6 (4) should be *'the least damaging for habitats, for species and for the integrity of the Natura 2000 site, regardless of economic considerations, and that no other feasible alternative, exists that would not affect the integrity of the site.'*

To assist the SoS in this regard we are providing advice in this section on potential alternative measures that may help avoid/reduce/mitigate the impacts of the proposed development and we feel therefore warrant consideration.

1.5.1 Avoid

Natural England note that the cable route could be taken to the south avoiding the HHW SAC entirely. However, it was presented in the evidence plan process that the Crown Estate was opposed to this due to potential implications for other industries such as aggregates. We have suggested previously that this alternative warranted consideration.

1.5.2 Reduce

[2] https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

Natural England consider that the Applicant has taken all reasonable steps to reduce the impacts of the proposed development on both designated features of HHW SAC and we welcome this effort.

1.5.3 Mitigate

A commitment to surface-laid cables and the use of marker buoys would remove the need for cable protection altogether. This has been achieved for the Lincs Offshore Wind Farm in The Wash and North Norfolk Coast SAC and is currently also being employed by The Wash Harbour Masters to protect the Race Bank offshore windfarm cables. We continue to advise that this alternative should be considered.

We note that the Applicant hasn't considered, despite the request within the Secretary of States letter dated 6th December 2019, the suggestion of a condition to dispose of Sandwave clearance sediment in habitats of similar particle size. Whilst the Applicant has indicated that it is committed to ensuring disposal of sediment in areas adjacent to the clearance it remains unclear if these areas will have similar grain size and how this will be demonstrated. As per Natural England's letter to the Applicant on 19th December 2019, we do not advise that the condition as written will achieve the desired outcome. However, we remain committed to help resolve this issue going forwards.

1.6 Compensatory measures

As stated above (Section 1.1), under Article 6(4) of the Habitats Directive, the project may be permitted if the Secretary of State is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest.

The project discussed a number of compensatory measures with Natural England. Given that the key issue for Annex I Sandbanks and Reefs at HHW SAC, based on our understanding of site condition, is lasting change of habitat¸ Natural England were keen that measures focussing on ensuring no loss of designated features were taken forward. Ultimately the project decided to propose an extension to the boundary of HHW SAC to incorporate an area where there is suitable confidence, based on best available evidence, in the presence of Annex I Sandbanks and Reefs. The Applicant is proposing a 1:10 compensation ratio to allow for any uncertainties in deliverability.

Natural England agrees that an extension to the HHW SAC site boundary would be the most environmentally beneficial measure to deliver compensation for both Annex 1 Sandbanks and Reefs habitat and ensure coherence of the Natura 2000 network.

Whilst Natural England consider, on ecological grounds, that this measure has the potential to compensate for Annex 1 Sandbanks and Reefs habitat in HHW SAC, more detail is required regarding how this would be delivered. We acknowledge there are likely to be practical challenges and potential policy issues in securing this compensation measure as well as any required additional site management measures. Therefore consultation with Defra, other regulators (such

as MMO and Eastern Inshore Fisheries and Conservation Authority) and key stakeholders is required.

2. Special Protection Areas (SPAs)

A number of protected sites and species were identified by Natural England as being at risk of significant impact from this development alone or in-combination, including kittiwake, gannet, razorbill and seabird assemblage from Flamborough and Filey Coast (FFC) Special Protection Area (SPA) and lesser black-backed gull from Alde-Ore Estuary SPA. However, the SoS request specifically focussed on kittiwake at FFC SPA and lesser black-backed gull at Alde-Ore Estuary SPA.

2.1 Position at the close of Examination

2.1.1 Kittiwake at Flamborough and Filey Coast SPA

At the close of the examination, Natural England advised that it could not be certain that there will be no adverse effects on the integrity of FCC SPA through impacts to the features of kittiwake, gannet, razorbill, fulmar and seabird assemblage, in-combination with other plans and/or projects.

Further to this, Natural England highlighted that the in-combination total of collision mortality across consented plans/projects had already exceeded levels which were considered to be of an Adverse Effect on Integrity to Kittiwake at FFC SPA, and that any additional mortality arising from these proposals would therefore be considered adverse.

We also highlighted that the possibilities for mitigation / compensation, and the confidence in any related advice, has been reduced by the (as yet undetermined) Hornsea Project Three application.

2.1.2 Lesser black-backed gull at Alde-Ore Estuary SPA

At the close of the examination, Natural England advised that it could not be certain that there will be no adverse effects on the integrity of Alde-Ore Estuary SPA through impacts to lesser black-backed gull, in-combination with other plans and/or projects.

Further to this, Natural England highlighted that the in-combination total of collision mortality across consented plans/projects had already exceeded levels which were considered to be of an Adverse Effect on Integrity to LBBG at Alde-Ore Estuary SPA, and that any additional mortality arising from these proposals would therefore be considered adverse.

2.2 Additional Evidence Provided by the Applicant post-examination

The project carried out updated Collision Risk Modelling (CRM) to take account of the additional mitigation measures proposed. Natural England agrees with the revised CRM figures calculated by the Applicant for the project for both kittiwakes from the Flamborough and Filey Coast (FFC) SPA and for lesser black-backed gulls (LBBGs) from the Alde-Ore Estuary SPA. We welcome the reductions in the collision risk predictions, and **confirm that we again conclude that adverse**

effect on integrity can be ruled out for both kittiwake at the FFC SPA and LBBG at the Alde-Ore Estuary SPA from Norfolk Vanguard alone. Whilst it is recognised that the Projects contributions to the in-combination mortality totals is small, when compared to other projects; Natural England again advises that it is not possible to rule out an adverse effect on integrity for kittiwake at FFC SPA and LBBG at Alde-Ore Estuary SPA from in-combination collision impacts with other plans and projects.

The project also carried out calculations to demonstrate where there is headroom in the in-combination assessment from the as built projects when compared against projects as consented. Natural England acknowledges the work that the Applicant has done to consider potential headroom in the in-combination/cumulative collision risk figures by assessing the 'as built' rather than the worst case scenario (WCS). However, whilst Natural England agrees that there is likely to be some headroom, the extent of any potential headroom is not agreed. In addition, it is important to note that there is not yet an agreed way forward to calculate headroom and the approach undertaken by the Applicant has not been subjected to wider scrutiny and approval.

2.3 Additional Mitigation Proposed by the Applicant post-examination

The Applicant has committed to a number of mitigation measures that Natural England welcome, including further reduction in turbine numbers, and further raising minimum draught height of turbines.

We welcome the Project's engagement with the supply chain for both turbine manufacturers and construction vessels regarding constraints around draught height increases and turbine installation. We consider that the Applicant has made significant efforts to reduce the impacts of their proposal and demonstrated due consideration to ensure that all proposed mitigation measures are feasible. These reductions will result in a proportional reduction in the impact to birds.

Natural England welcomes the further clarity provided on how the proposed additional mitigation will be secured and that the proposed change to project parameters and methodologies have been fully secured within the DCO/dML where appropriate. We also note that a 'Schedule of Mitigation' has been provided and agreed, which clearly sets out all of the mitigation measures.

However, it should be noted that the measures are unlikely to fully exclude collision impact, so in combination considerations remain relevant. Because of this, Natural England's advice on adverse effects on site integrity remain unchanged.

2.4 Additional Measures that could Avoid/Reduce/Mitigate impacts

Natural England consider that the Applicant has taken all reasonable steps to avoid, reduce and mitigate the impacts of the proposed development on both kittiwakes at Flamborough and Filey Coast SPA and lesser black-backed gull at Alde-Ore Estuary SPA

2.5 Compensatory measures

2.5.1 Kittiwake at Flamborough and Filey Coast SPA

Please see section 1.1 for information regarding implementation of Article 6(4) of the Habitats Directive.

The project discussed a number of compensatory measures with Natural England. Given that the key issue for Kittiwake at FFC SPA, based on our understanding of site condition, is decreased productivity, Natural England were keen that measures focussing on increasing productivity, such as prey availability, were taken forward.
However, the project decided that construction of artificial nests in the southern North sea / south-east England, but located outside of the Flamborough and Filey Coast kittiwake population would provide the most confidence in deliverability.

Though this wasn't Natural England's preferred option, we agree that in-principle, the provision of additional nest sites for kittiwakes in the southern North Sea/south-east of England might have the potential to be of benefit to the regional kittiwake population and hence in our view, would ensure coherence of the Natura 2000 network (N2K), particularly if considered as a phased approach that also includes more medium term measures on prey availability. Whilst this measure would not directly benefit the FFC SPA population, we do recognise that it could be considered as a measure to ensure the coherence of the N2K network for kittiwake.

We do advise however, that greater confidence is needed:

a. That there would be a net benefit to the overall kittiwake population size (not just simply causing a redistribution); and
b. That there are sufficient food resources within likely foraging range around any new location to support the required level of productivity.

Whilst Natural England consider this measure has the potential to compensate for kittiwake at FFC SPA, more detail is required regarding the size and productivity of any new colony, the location and type of any new structure, the size of new structure, how the project intends to quantify the success of the measure, and the distance of the measure from the FFC SPA population.

It should also be noted that depending on the chosen location there may also be an increased collision risk that would need to be taken account of when determining the productivity of any new colony.

2.5.2 Lesser black-backed gull at Alde-Ore Estuary SPA

Please see section 1.1 for information regarding Article 6(4) of the Habitats Directive.

The Applicant discussed a number of compensatory measures with Natural England. Given that the key issue for lesser black-backed gull at Alde-Ore Estuary SPA, based on our understanding of site condition, is decreased productivity, Natural England were keen that measures focussing on increasing productivity, such as predator control, were taken forward.

Ultimately the project decided that funding a coordinator, whose role would be to facilitate the organisation of a stakeholder working group tasked with overseeing a review of the population's health, factors which have contributed to the decline, and proposals for conservation measures, would be the their preferred compensation option. Depending on the outcome of this review, a trial may be undertaken to test options, before a final measure (or suite of measures) is taken forward for implementation, which could include predator control at nesting sites.

Natural England's view is that whilst the funding of a project coordinator and scoping study is helpful, there must be a commitment to delivering measures on the ground that would offset the predicted collision risk mortality.

Site management measures should be already happening within the designated site. The Section 106 agreement which was secured to address the impacts from the Galloper offshore windfarm to the LBBG population by facilitating changes to site management measures for the benefit of LBBG is still in the scoping phase of options which is effectively undertaking the same role as the Applicant's scoping study. Therefore, for the Project's proposals to demonstrate that they would have any added benefit beyond the S106 agreement, the outcomes of the S106 need to be determined first. Any compensation measure proposed by the Applicant would also need to be kept separate to the S106 to clearly demonstrate deliverables from the two projects.

Therefore, whilst we recognise the benefit of the Applicant's proposal in helping to identify possible compensation measures; we do not feel it will achieve the desired outcomes without further specification of how Norfolk Vanguard will compensate for reduced productivity of the LBBG population as a result of their project.

Natural England agrees with the Applicant that mammalian predator control is the most suitable compensation measure and we believe that this could be achieved through partnership working with local land owners in the wider Alde-Ore. Therefore we feel that further detail on this measure needs to be clarified and conformation that delivery of the measure can be assured.

2.6 Additional Considerations

2.6.1 Kittiwake at Flamborough and Filey Coast SPA

The approach and draft conditions are limited to construction of artificial nest sites, as the Applicant considers this to be the most appropriate measure to deliver compensation prior to the construction of Norfolk Vanguard. Natural England welcomed the additional effort the Applicant went to in order to present a broad range of compensation measures and would recommend other measures, for example sandeel fisheries management would be more likely to directly benefit the FFC SPA population.

2.6.2 Lesser black-backed gull at Alde-Ore Estuary SPA

The approach and draft conditions are limited to a providing a 'facilitator' role for site management measures, as the Applicant considers this to be the most appropriate measure to deliver compensation prior to the construction of Norfolk Vanguard. Natural England welcomed

the additional effort the Applicant went to in order to present a broad range of compensation measures and would recommend other measures, for example direct delivery of predator control measures, would be more likely to directly benefit the Alde-Ore Estuary SPA population.

3. Overarching Comments

3.1 Consenting considerations

3.1.1 Decommissioning feasibility

One of the key issues for impacts to Haisborough Hammond and Winterton SAC is the impact of cable protection on Annex I Sandbanks and Reefs. The Applicant has determined this to be of a 'long-term temporary impact' due to their commitment to removal of any cable protection at decommissioning. Natural England notes that successful removal of cable protection has not yet been adequately demonstrated, or if removal after 30+ years would assure the recovery of the site to pre-impact levels or indeed result in a greater overall impact to the site due to adaptation of habitats to the cable protection.

3.1.2 Securing mitigations

All mitigations proposed by the Applicant have been secured in the DCO/DMLs, which Natural England welcome as this is necessary to ensure they are carried out sufficiently or alternatives pursued should they not be successful. This mitigation also includes agreeing an In-Principle Monitoring Plan that will clearly define the monitoring requirements and the rationale behind them, for all receptors likely to be impacted by the development.

3.1.3 Recording Changes to assessments

During the examination process the Applicant supplied a high volume of additional information and has subsequently made further revisions. Consequently, the information presented in the Environmental Statement no longer reflects the current position of the project. Given that the ES and Habitats Regulations Assessment (HRA) are regularly referred to as part of the post consent/condition discharge phase of a project, there is a need for the final updated version of the assessments to be made clear for future reference.

3.2 Comments on additional information presented

As revised assessments and documents have been submitted which include significant project design changes from that considered during the examination process Natural England has included a series of Annexes that provide our detailed comments to support the content of this letter and to aid the decision making process. These are detailed in Table 1 below.

Yours sincerely

[redacted]
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Table 1: Details of Annexes that provide our detailed comments to support the content of this letter and to aid the decision making process.

	Response Topic	Pages
Annex 1	Natural England's Position Statement regarding the Proposed Site Integrity Plan for the Haisborough, Hammond and Winterton (HHW) Special Area of Conservation (SAC)	13
Annex 2	Natural England's Comments on the Applicant's Haisborough Hammond and Winterton SAC Position Paper of February 2020 as submitted into Norfolk Boreas Examination	10
Annex 3	Natural England Comments on 8.20 Control Documents: Outline Norfolk Vanguard Offshore Wind Farm Haisborough Hammond and Winterton Special Area of Conservation Site Integrity Plan and Cable Specification Installation, Monitoring Plan	5
Annex 4	Natural England's comments on 11.D10.2 Appendix 3 - Cable Protection Decommissioning Evidence	4
Annex 5	Natural England's Comments on ExA: Mit; 11.D10.2 Additional Mitigation	5
Annex 6	Natural England's Comments on ExA; Mit; 11.D10.2 Appendix 2 - Assessment of Additional Mitigation	5
Annex 7	Natural England's Comments on 8.25 In Principle Compensation Measures	3
Annex 8	Natural England's comments on Norfolk Vanguard Ornithology Position Statement, ExA; Pos; 11.D10.2 (MacArthur Green 2020b)	23
Annex 9	Natural England's comments on Norfolk Vanguard Summary Overview on Habitats Regulations Assessment (HRA), ExA; Sum; 11.D10.2.	5

Annex 10	Natural England's comments on Norfolk Vanguard Additional Mitigation, ExA; Mit; 11.D10.2 (Royal HaskoningDHV 2020) and Norfolk Vanguard Additional Mitigation Appendix 1: Updated Collision Risk Modelling, ExA; Mit; 11.D10.2.App1 (MacArthur Green 2020)	8
Annex 11	Natural England's comments on Norfolk Vanguard Habitats Regulations Derogation, Provision of Evidence Appendix 1 Flamborough and Filey Coast SPA In Principle Compensation Measures for Kittiwakes, ExA; IROPI; 11.D10.3.App1	12
Annex 12	Natural England's comments on Norfolk Vanguard Habitats Regulations Derogation, Provision of Evidence Appendix 2 Alde-Ore Estuary SPA In Principle Compensation Measures for Lesser black-backed gull, Document Reference 8.24	5
Annex 13	Natural England's comments on Norfolk Vanguard Ornithology Position Statement Appendix 1 Headroom Calculations, ExA; Pos; 11.D10.2. App1 (MacArthur Green 2020)	4