

# Norfolk Vanguard Offshore Wind Farm

# The Applicant's Response to the Request for Additional Information

Applicant: Norfolk Vanguard Limited  
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*Photo: Ormonde Offshore Wind Farm*



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## Table of Contents

<b>1</b>	<b>The Secretary of State's Request for Additional Information .....</b>	<b>1</b>
<b>1.1</b>	<b>Haisborough Hammond and Winterton Special Area of Conservation .....</b>	<b>2</b>
<b>1.2</b>	<b>Dillington Hall Nature Recovery Project.....</b>	<b>9</b>
<b>2</b>	<b>References .....</b>	<b>13</b>
	<b>Appendix 1 Norfolk Boreas Limited's comments on Interested Parties' Representations submitted on 21 October 2021 .....</b>	
	<b>Appendix 2 Norfolk Boreas note on Optimising cable routeing through the HHW SAC .....</b>	
	<b>Appendix 3 Wendling Beck NRP Concept Plan .....</b>	

## Glossary of Acronyms

AEoI	Adverse Effect on Integrity
BEIS	Department for Business, Energy & Industrial Strategy
ExA	Examining Authority
HHW	Haisborough, Hammond and Winterton
FFC	Flamborough and Filey Coast
MMO	Marine Management Organisation
NE	Natural England
PVA	Population Viability Analysis
SAC	Special Area of Conservation
SPA	Special Protection Area

## 1 The Secretary of State's Request for Additional Information

1. On 11 October 2021 the Secretary of State published a letter requesting the submission of additional information from Norfolk Vanguard Limited (the Applicant) by 8 November 2021 in relation to the Haisborough, Hammond and Winterton Special Area of Conservation (SAC) and the Dillington Hall Nature Recovery Project. Subsequently, by letter dated 26 October 2021, the Secretary of State extended the deadline for responses to 19 November 2021. This document includes the Applicant's response to that request for Additional information.
2. In addition, in the Secretary of State's letter dated 11 October 2021, it stated:  
  
*"Once the Secretary of State has considered the submissions that have been made to him, he will decide whether any further consultation is to take place. Interested Parties should not assume that further rounds of consultation will be required."*
3. In the event that no further rounds of consultation take place, and on the basis that Interested Parties make similar representations to the Norfolk Vanguard re-determination as those submitted for the Norfolk Boreas project prior to the deadline of 21 October 2021, the Applicant considers that it may be helpful for the Secretary of State to have regard to Norfolk Boreas Limited's comments on Interested Parties' representations submitted for the Norfolk Boreas project on 21 October 2021. Accordingly, Norfolk Boreas Limited's comments on Interested Parties' Representations submitted on 21 October 2021 (document reference ExA.ASR.D22.V1) is therefore included at Appendix 1 to this document.

## 1.1 Haisborough Hammond and Winterton Special Area of Conservation

Paragraph number	Paragraph text	Applicant's Response:
6. (i)	<p>In respect of the in-principle compensation measures for the reef and sandbank features of Haisborough, Hammond and Winterton SAC, the Applicant is asked:</p> <p>(a) To confirm the number of marine debris retrieval campaigns to be completed during the lifetime of the project; and</p>	<p>Following the desk based assessment for potential areas of marine debris and seabed surveys to confirm presence, a single marine debris retrieval campaign is highly likely to be sufficient to deliver the appropriate compensation especially given that the worst case size of effect is very small (up to 2ha).</p> <p>Therefore, the Applicant would propose to undertake a single campaign, and this would be detailed in the compensation strategy which will be submitted for approval by the SoS. If during the development of the strategy and following the desk based review it became clear that a further marine debris retrieval campaign might be required at a later date during operation of the wind farm this could be agreed through approval of the compensation strategy by the Secretary of State. The Haisborough, Hammond and Winterton SAC In Principle Compensation document has been updated (and Version 3 has been submitted on 19 November 2021) to clarify this.</p> <p>The Applicant also notes that within its Sandbanks Compensation Strategy, Hornsea Project Three committed to a single campaign. Therefore, the principle of a single campaign appears to have been accepted by the SoS, even for a project which has a far greater worst case area of effect than Norfolk Vanguard, such that a single campaign can be considered appropriate for this Project.</p>
	<p>(b) To identify the existing oil and gas infrastructure proposed for removal, along with an update on engagement with the current owners of such infrastructure.</p>	<p>The Applicant has continued discussions with Defra, OPRED and owners of oil and gas infrastructure to identify further infrastructure that could be removed. OPRED have confirmed via an email on the 24 September again that they “do not believe that it [removal of oil and gas infrastructure] is a viable option” for the Norfolk Boreas and Norfolk Vanguard projects, and therefore have not provided any further support during this consultation.</p> <p>Defra have provided the Applicant with a report titled “Review of rock and other protective material use in offshore oil and gas operations in the UK Continental Shelf” (Genesis 2020) which demonstrates that between 2011 and 2016 an area of 44,299m<sup>2</sup> was impacted by seabed deposits made by the Oil and Gas industry to protect assets within the Haisborough Hammond and Winterton SAC; namely rock protection, concrete mattresses and grout bags. A geodatabase of these deposits was compiled for the report and the Applicant has requested this information from OPRED (who commissioned the report). However, OPRED have since responded indicating that they do not hold this data and are therefore unable to</p>

Paragraph number	Paragraph text	Applicant's Response:
		<p>provide it. The Applicant will continue to seek this information directly from the authors of the report, which if received would enable the Applicant to identify which protection was placed for projects that are now out of service or will be in the near future.</p> <p>In the absence of this data the Applicant has used publicly available data from the Oil and Gas Authority (acquired in 2021) and from Global Marine (acquired in 2020) to identify those oil and gas and subsea cable assets which are late life, out of service, or decommissioned and are located in the HHW SAC and contacted the owners.</p> <p>Thus, in addition to the consultation undertaken with OPRED and Helix (see the Applicant's Response to the Request for Further Information submitted on the 25 June 2021 (document reference ExA.PD.D19.V1) the Applicant has now also consulted with Perenco, ENI UK and ONE-Dyas in order to investigate other opportunities for the removal of surface laid oil or gas pipelines and/or associated infrastructure. Consultation with these companies has occurred as follows:</p> <ul style="list-style-type: none"> <li>• Perenco (Davy and Arthur developments) – email response on 6 October 2021</li> <li>• One-Dyas (Sean field development) – Meeting on 12 October 2021</li> <li>• ENI UK (Hewett Field) – Meeting on 12 October 2021</li> </ul> <p>Although possible opportunities for removal have been identified by the Applicant through these consultations, it is apparent that there is currently little scope (despite Natural England's advice that there is significant opportunity for removal of oil and gas surface laid infrastructure within the HHW SAC) for the Applicant to fully deliver compensation through decommissioning of surface laid infrastructure alone or in line with the timeframes currently being requested by Natural England and The Wildlife Trusts (TWT). The reason for this can be summarised as follows:</p> <ul style="list-style-type: none"> <li>• Oil and gas operators are duty bound to decommission their own assets at end of life</li> <li>• The comparative assessment process may identify surface laid infrastructure for removal where safe to do so, if it was a risk to other marine users however this would then be removed as part of the normal oil and gas decommissioning process</li> <li>• Buried or partially buried infrastructure would likely be left in situ for environmental/and or reasons of safety</li> </ul>

Paragraph number	Paragraph text	Applicant's Response:
		<ul style="list-style-type: none"> <li>• Given the points above, it is therefore unclear what could be left for a third party to decommission in order to deliver compensation</li> <li>• The asset remains a lifetime liability of the asset owner with regard to monitoring and safety</li> <li>• Therefore, the asset would need to be divested to (e.g. acquired by) the third party in order for them to decommission it introducing significant uncertainty around delivery timeframes.</li> </ul> <p>The above could potentially limit the amount of compensation which could be delivered within appropriate timeframes through removal of surface laid oil and gas infrastructure, to that infrastructure which has been decommissioned in situ but has since become re-exposed and any associated material which has been placed to protect other sea users (for example recently placed rock dump). Other than the 0.83km of pipeline within the HHW SAC associated with the decommissioned Camelot Field (see Helix Letter of comfort in Appendix 1 Request for Further Information submitted on the 25 June 2021 (document reference ExA.PD.D19.V1)), it is currently not possible to quantify the volume of such infrastructure that could be available for decommissioning, although the Applicant's understanding is that this could be relatively limited. In any case, this would still, at that point, be the responsibility of the asset owner to remedy either by making safe or ultimately removal if absolutely necessary. This then reintroduces the potentially significant legal complications around divestment and responsibility, which could potentially only be required for relatively small sub-sections of pipelines and any associated protection. Other important factors must be considered such as the promotion of reuse of pipelines for CO<sup>2</sup> capture and transport by the OGA, the uncertainties around decommissioning programmes which are dependent on the desire of an asset owner to maximise value in response to fluctuations in gas prices and other commercial considerations. This means with regard to assets due to be decommissioned in the short to medium term, there is some uncertainty as to when any compensation could be delivered to fit with planned construction programmes.</p> <p>Whilst the Applicant has been asked to provide an update on negotiations with owners of infrastructure that could provide compensation for the HHW SAC, no request has been received in respect of progress for ornithological compensation sites for the Norfolk Vanguard project. However, in light of interested parties comments on the Norfolk Boreas</p>



Paragraph number	Paragraph text	Applicant's Response:
		<p>project in relation to progress on securing sites for ornithological compensation, the Applicant has also provided an update on negotiations for ornithological compensation sites which are being progressed jointly with Norfolk Boreas (see the Applicants "Summary of the Applicant's Negotiations on Compensation Sites" document reference ExA.AS-3.D13.V1 which forms part of the Applicants submission for this 19 November 2021 deadline). This includes a letter from The Crown Estate indicating its support for the possible use of Crown Estate owned land and the seabed to deliver compensation. This is relevant to the Applicants' proposals to deliver compensation for the HHW SAC if required as well as ornithological compensation. The letter from The Crown Estate is contained as Appendix 5 in the Summary of the Applicant's Negotiations on Compensation Sites for Ornithology (ExA.AS-3.D13.V1).</p>
6. (ii)	<p>The Applicant is also asked to provide:</p> <p>(a) Details of modifications to the Norfolk Vanguard project, which would avoid the need for all cable rock protection within the SAC (except for cable crossing points). This should include the provision of more detailed information on micro-siting and/or the use of marker buoys to protect unburied cables, by identifying their location; and</p>	<p>The Applicant has committed to not place rock protection within the HHW SAC and therefore no modifications to the Project would be required to avoid the need for cable rock protection within the HHW SAC.</p> <p>With regards to placing cable protection within the HHW SAC, the Applicant has investigated ways that this could be avoided including the following:</p> <ul style="list-style-type: none"> <li>• <b>Site selection:</b> The Applicant has undertaken an assessment of alternative export cable routes both as part of the EIA [APP-328] and in the context of an in-principle derogation case (published on 9 March 2021) and has concluded that there is no feasible alternative export cable route that would avoid the HHW SAC. This is due to the fact that if cables were routed to the north of the HHW SAC they would encounter other designated sites (both SACs and MCZs) and if routed to the south they would encounter licensed aggregate dredging areas and further designated sites. Early opportunities to avoid marine protected sites were explored through the evidence plan process [APP-079] and due to concerns raised by members of the public and a number of statutory authorities (including Natural England and TWT about impacts on the Cromer Shoal MCZ potential landfall locations and cable routes were ruled out in order to avoid the MCZ. During these early site selection discussions Natural England and other stakeholders focussed on avoiding impacts to the MCZ and concerns regarding routeing through the HHW SAC were not raised.</li> <li>• <b>Mitigation:</b> The Applicant has reduced and mitigated impacts as far as possible.</li> </ul>

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		<p>This has been acknowledged by Natural England for the Norfolk Boreas project in their Position Statement regarding mitigation and compensation for the Norfolk Boreas project [REP9-045, para 1.24 in the Boreas Examination Library] which states,</p> <p><i>"Natural England considers that the Applicant has taken all reasonable steps to reduce the impacts of the proposed development on both of the designated features of HHW SAC and we welcome this effort"</i>; and as the mitigation for Norfolk Boreas and Norfolk Vanguard is the same this also applies equally across both projects.</p> <ul style="list-style-type: none"> <li>• <b>Pre-sweeping:</b> It is extremely desirable for the Project to ensure that all cables are buried to an optimum depth so that they remain buried for the lifetime of the Project. This is desirable not only to reduce and remove environmental effects but also to protect the cables and maintain the flow of electricity. The best way to achieve this is through pre-sweeping and that is the Applicant's preferred approach to cable installation.</li> <li>• <b>Micrositing:</b> Areas within the HHW SAC where export cable burial to an optimum depth will be more challenging have been identified (see Appendix 3 of the HHW SAC control documents 8.20 (latest version published on the 9 March 2020) in response to the Secretary of State's consultation letter dated 6 December 2019). These areas do not overlap with the priority areas to be managed as Sabellaria reef which has allowed the Applicant to make the commitment to not placing cable protection within these areas unless otherwise agreed with the MMO and Natural England. Furthermore, these more challenging areas will be investigated further and avoided if further work does indeed indicate that cable burial may not be possible within them. However, as reported in version 2 of the HHW SAC compensation document [8.25] all bidders for export cable installation are very confident of achieving 100% cable burial within the HHW SAC and this remains the case following further route selection work. In addition, following ISH4 of the Norfolk Boreas examination, Norfolk Boreas Limited produced a clarification note on Optimising cable routing through the HHW SAC [REP4-022 in the Norfolk Boreas Examination Library]. This note is attached to this submission as Appendix 2 of this document. It demonstrates how it is possible for the Norfolk Vanguard and the Norfolk Boreas export cables to be routed through the SAC in such a way as to avoid all known sensitive features.</li> </ul>

Paragraph number	Paragraph text	Applicant's Response:
		<ul style="list-style-type: none"> <li> <b>Alternative methods of protection:</b> As mentioned above the Applicant has committed to using cable protection which can be decommissioned within the HHW SAC (except at crossing points) and therefore has ruled out the use of rock protection. Appendix 3 - Cable Protection Decommissioning Evidence of the Applicant's submission published on 9 March 2020 in response to the Secretary of State's consultation letter dated 6 December 2019 [Document Reference: ExA; Mit; 11.D10.2.App3] provides information on the types of cable protection which could be employed in order to achieve this and the Applicant has committed to further studies of the decommissioning potential of the latest products on the market as part of the HHW SAC control documents [8.20]. The Applicant has also considered marker buoys as a possible mitigation measure, however due to the water depths within the HHW SAC, the mobile sediment conditions, the distance offshore and possible risks to Health and Safety of other marine users it has not been possible to commit to this method of cable protection. It is also considered that any benefits achieved by this method of cable protection may be outweighed by disturbance caused from cable movements on the seabed and resulting repair works being undertaken due to damage to the cable, both of which could cause significant disturbance to the biological communities.         </li> </ul> <p>In summary all possible modifications to avoid placing cable protection (rock or otherwise) within the HHW SAC have been investigated and either ruled out or secured as commitments. The commitment to decommission cable protection within the HHW SAC apart from at crossings points rules out the use of rock dumping and this is of particular relevance to this request and in the Applicant's opinion is sufficient, along with the other mitigation proposed, to enable the Secretary of State to rule out Adverse Effect on Integrity in this particular case.</p>
	<p>(b) Further information is also requested to demonstrate that all reefs can be avoided during cable installation.</p>	<p>Sabellaria reef is ephemeral and will move around from year to year and therefore the Applicant has committed to undertaking Annex I surveys no earlier than one year prior to construction. The results of that survey will be used to undertake the final micro-siting of the export cables to avoid Annex I reef. Doing this work any earlier could result in areas of newly formed reef being affected. However, as is recognised by the Applicant, should the results of that survey show that Sabellaria reefs are so prevalent that they span the entire 2km to 4.2km width of the cable corridor it would not be possible for the export cables to completely avoid reef in all locations. In this scenario, due to the extensive nature of the</p>

Paragraph number	Paragraph text	Applicant's Response:
		<p>reef the effect of an up to 30m wide area of influence, associated with cable installation would be negligible on the reef feature and following installation the reef would rapidly recover. It is due to the uncertain nature of the extent and location of the reef at the time of construction that the Applicant can only avoid reef "where possible" at this stage. The Applicant has however committed to not place cable protection in priority areas to be managed as Annex I reef (see the HHW SAC control documents 8.20 for further detail). This substantial commitment was made based on a study of seabed conditions (Appendix 3 of the HHW SAC control documents 8.20) which identified that the more challenging areas for cable burial to the optimum depth do not overlap with the priority areas to be managed for Sabellaria reef (as Identified by Natural England and the JNCC).</p> <p>Therefore, the Applicant will avoid any permanent impacts on reef features by not placing cable protection in the priority areas and will avoid temporary impacts on the reef where possible (acknowledging that it would not be possible should the reefs be so extensive that they span the entire cable corridor). However due to the ephemeral nature of Sabellaria reef it is not possible for the Applicant to provide certainty of avoidance until immediately prior to construction.</p> <p>A clarification note was submitted on how the Norfolk Boreas and Norfolk Vanguard export cables would be micro-sited to avoid all sensitive features within the HHW SAC. This note demonstrated that using current data it was clearly possible to avoid all sensitive features [REP4-022 in the Norfolk Boreas Examination library and attached as Appendix 2 of this document]. It is the Applicant's view therefore that this note provides sufficient evidence that an Adverse Effect on Integrity could be ruled out for both Norfolk Vanguard and Norfolk Boreas.</p>

## 1.2 Dillington Hall Nature Recovery Project

Paragraph number	Paragraph text	Applicant's Response:
8.	<p>The Secretary of State also requests that the Applicant and Natural England should consider and respond to the email of 8 September 2021 from Dillington Hall Estate at, (<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010079/EN010079-004401-Post%20Recommendation%20Submission%20-%20Dillington%20Hall%20Estate_Redacted.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010079/EN010079-004401-Post%20Recommendation%20Submission%20-%20Dillington%20Hall%20Estate_Redacted.pdf</a>), which highlights that the Norfolk Vanguard cable route will pass through a Natural England Nature Recovery Project ("NRP"). Information is requested on any implications the NRP has in respect of the Application and confirmation or otherwise that the conclusions of the EIA remain valid.</p>	<p>The Wendling Beck NRP proposal (included in Appendix 3) shows the alignment of the Norfolk Vanguard cable route, which is described as "<i>The Wild Cable Route – The reinstatement of the Vattenfall offshore cable</i>". The NRP proposal indicates this will be a mixed grassland corridor, and it is evident that the NRP vision is to introduce this grassland corridor following the installation of the Vattenfall cables.</p> <p>The Norfolk Vanguard construction programme was set out in the Project Description [APP-329], submitted in June 2018. Cable duct installation is reported to complete in 2023. These construction completion dates have not changed since the application was submitted.</p> <p>The NRP includes the creation of a 3.4km wildlife corridor along the same alignment of the Norfolk Vanguard cables. However, approximately 0.4km of this corridor is existing woodland and another 0.4km is existing marshy grassland, which will both be retained by the NRP.</p> <p>Both of these habitats already formed part of the existing Norfolk Vanguard baseline and were taken into account in the assessment. An additional 0.2km of NRP wildlife corridor is currently scrub habitat, which was also considered a habitat of ecological value in the Norfolk Vanguard assessment. As such, in terms of a change in land use the NRP will lead to 2.4km of existing arable reverting to grassland, which represents approximately 10ha of existing arable reverting to grassland (based on a 45m wide corridor).</p> <p>The total area of grassland (excluding amenity and improved grassland) originally identified in the Norfolk Vanguard baseline was 23.4ha. As the potential effects are of short duration and reinstatement would happen rapidly, the magnitude of effect was assessed to be negligible on a receptor of high importance, representing an impact of minor adverse significance. The additional 10ha of grassland created by the NRP would increase the total area of existing grassland within the Norfolk Vanguard Order limits to approximately 33.4ha.</p> <p>However, the impact would remain temporary in nature and reinstatement would still happen rapidly and would remain an effect of negligible magnitude, on a receptor of high importance, representing an impact of minor adverse significance. On this basis, the</p>

Paragraph number	Paragraph text	Applicant's Response:
		<p>conclusions of the ES as presented in Chapter 22 Onshore Ecology [APP-346] remain valid and do not change notwithstanding the potential future change in the baseline conditions associated with the Wendling Beck NRP.</p> <p>The draft DCO and associated outline documents to be certified contain commitments to ensure that the habitats present ahead of construction are fully considered, and that mitigation and reinstatement is agreed based on those pre-construction conditions, in consultation with Natural England and the affected landowners. If the Wendling Beck NRP introduces <i>"The Wild Cable Route – The reinstatement of the Vattenfall offshore cable"</i> and its associated change from arable to a grassland corridor, ahead of the Vattenfall works, then this would effectively represent a newly un-surveyed habitat and form part of an updated baseline that would be reflected in the mitigation for reinstatement of those affected land parcels. On this basis the Applicant does not believe there is any necessity to secure further commitments specifically related to the Wendling Beck NRP. The existing commitments are captured in the following outline documents which would be certified under the DCO:</p> <p><b>Outline Landscape and Ecological Management Strategy (OLEMS) (document reference 8.7, published on the Planning Inspectorate's website on 9 March 2020 in response to the Secretary of State's consultation letter dated 6 December 2019)</b></p> <ul style="list-style-type: none"> <li>• Table 2 <i>"Habitat - There will be post-consent surveys of all unsurveyed areas."</i></li> <li>• Section 9.3.3.3 – <i>"All grassland habitats will be reinstated following the completion of works (either following completion of duct installation phase or following completion of cable pull phase where relevant)."</i></li> </ul> <p>Section 9.7.3.1 – <i>"A Hedgerow Mitigation Plan will be developed in consultation with Natural England prior to the removal of hedgerows. This mitigation plan will be included within the EcoMP, secured through Requirement 24 of the DCO. This mitigation plan will detail the reinstatement approach for hedgerows removed during construction and the monitoring and maintenance requirements following hedgerow planting."</i></p> <ul style="list-style-type: none"> <li>• 9.11.3.3 – <i>"Habitats suitable for supporting common reptiles would be fully reinstated either following completion of duct installation phase or following completion of cable pull phase where relevant."</i></li> </ul> <p>These are secured through DCO Requirement 24 Ecological Management Plan, which states</p>

Paragraph number	Paragraph text	Applicant's Response:
		<p> <i>"No stage of the onshore transmission works may commence until for that stage a written ecological management plan (which accords with the outline landscape and ecological management strategy as appropriate for the relevant stage) has been submitted to and approved by the relevant planning authority in consultation with Natural England. <b>The ecological management plan must be informed by post consent ecological surveying of previously un-surveyed areas</b> for the relevant stage."</i> </p> <p> <b>Outline Code of Construction Practice [REP9-010]</b> - secured through DCO Requirement 20 Code of Construction Practice:         </p> <p> <i>"Appendix B – Role of the Agricultural Liaison Officer....</i> </p> <ul style="list-style-type: none"> <li>• <i>Coordinating the provision of a detailed pre-construction condition survey.</i></li> <li>• <i>Undertake pre-construction and day-to-day discussions with affected parties to minimise disruption, where possible, to existing farming regimes and timings of activities.</i></li> <li>• <i>Undertaking site inspections during construction to monitor working practices and ensure landowners' and occupiers' reasonable requirements are fulfilled.</i></li> <li>• <i>Discussing and agreeing reinstatement measures following completion of the works."</i></li> </ul> <p>           Following consideration of the Wendling Beck NRP proposal the Applicant concludes that the impact assessment presented in Chapter 22 Onshore Ecology [APP-346] remain valid. The draft DCO and associated outline documents secure commitments that any habitats present ahead of construction are fully considered, and that mitigation and reinstatement is agreed, in consultation with the relevant statutory nature conservation body and landowner as appropriate, based on those pre-construction conditions. On this basis the Applicant does not believe there is any necessity to secure further commitments specifically related to the Wendling Beck NRP. The Applicant also notes that Natural England have responded to an identical request from the SoS for the Norfolk Boreas project on the 21 October 2021 in which Natural England state that <i>"Natural England notes that the Outline Code of Construction Practice (OCoCP) and the Outline Landscape Environmental Management Scheme (OLEMS) have a range of consultation and mitigations already secured that should be sufficient to ensure that the mitigation needed is consulted upon and approved prior to the works. This also includes consultation with the landowners."</i> This supports the Applicant's position that it is not necessary to impose additional requirements         </p>

Paragraph number	Paragraph text	Applicant's Response:
		beyond those already proposed, which already adequately secure these matters in the dDCO.



## 2 References

Genesis (2020) Review of rock and other protective material use in offshore oil and gas operations in the UK Continental Shelf: Report prepared for the Department for Business, Energy & Industrial Strategy

## **Appendix 1 Norfolk Boreas Limited's comments on Interested Parties' Representations submitted on 21 October 2021**

# Norfolk Boreas Offshore Wind Farm

# The Applicant's

# Comments on

# Interested Parties

# Representations

Applicant: Norfolk Boreas Limited  
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Author: Royal HaskoningDHV

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## Table of Contents

<b>1</b>	<b>Applicant’s Comments on Interested Parties Representations to the SoS Letter dated 9 July 2021 .....</b>	<b>1</b>
<b>1.1</b>	<b>Colin King, Diana Lockwood, Patricia Lockwood .....</b>	<b>2</b>
<b>1.2</b>	<b>Holme Hale Parish Council.....</b>	<b>5</b>
<b>1.3</b>	<b>Oulton Parish Council .....</b>	<b>8</b>
<b>1.4</b>	<b>HSBC .....</b>	<b>9</b>
<b>1.5</b>	<b>Comments on Natural England's advice regarding benthic compensation.....</b>	<b>10</b>
<b>1.6</b>	<b>Comments on Natural England's advice regarding ornithological compensation.....</b>	<b>31</b>
<b>1.7</b>	<b>Marine Management Organisation (MMO) .....</b>	<b>55</b>
<b>1.8</b>	<b>Royal Society for the Protection of Birds .....</b>	<b>56</b>
<b>1.9</b>	<b>The Wildlife Trusts .....</b>	<b>66</b>
<b>2</b>	<b>References .....</b>	<b>70</b>

## Glossary of Acronyms

AEol	Adverse Effect on Integrity
AOE	Alde-Ore Estuary
BEIS	Department for Business, Energy & Industrial Strategy
CfD	Contracts for Difference
CSIMP	Cable Specification, Installation and Monitoring Plan
DCO	Development Consent Order
dDCO	Draft Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
ExA	Examining Authority
HHW	Haisborough, Hammond and Winterton
FFC	Flamborough and Filey Coast
GW	Gigawatts
MMO	Marine Management Organisation
NE	Natural England
NSAG	Necton Substation Action Group
OCoCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Ecological Management Strategy
OTMP	Outline Traffic Management Plan
PVA	Population Viability Analysis
RAG	Red, Amber, Green
RSPB	Royal Society for the Protection of Birds
RUK	Renewables UK
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SoS	Secretary of State
SPA	Special Protection Area
TWh	Terawatt-hours
TWT	The Wildlife Trusts

## 1 Applicant's Comments on Interested Parties Representations to the SoS Letter dated 9 July 2021

1. This document contains the Applicant's comments on submissions made by Interested Parties which were published 20 August 2021 in response to the Secretary of States (SoS's) letter dated 9 July 2021.

## 1.1 Colin King, Diana Lockwood, Patricia Lockwood

Summary of Submission	Applicant's Comments
<p>The Interested Parties submissions raise concerns over a number of matters relating to the onshore project substation, namely cumulative impacts with Norfolk Vanguard, accuracy of the landscape visualisations, landscape mitigation, operational noise and flood risk.</p>	<p>Potential cumulative impacts, including any potential cumulative impacts with Norfolk Vanguard have been fully assessed in the Norfolk Boreas Environmental Statement and were considered as part of the Norfolk Boreas Examination.</p> <p>The Applicant has provided responses to the concerns raised in the Interested Parties submissions during the Norfolk Boreas Examination and refers to the following documents, which contain the Applicant's responses to the specific concerns (Examination library reference given in square brackets):</p> <p><b>Landscape visualisations</b></p> <p>In [REP5-045] and [REP6-013] the Applicant confirmed that all visualisations are produced to Scottish Natural Heritage guidelines as set out in 'Visual Representation of Wind Farms Version 2.2' (February 2017), which as stated in [NB REP8-014] are the appropriate standards applicable to visualisations to represent potential effects on landscape and visual amenity. Great care has been taken to conform to these standards to ensure the visualisation are as accurate as possible. Visualisations form an important part of the assessment and while their accuracy in respect of the standards can be verified, their limitations are formally recognised in guidance and in respect of this, their role in the assessment process is clearly set out. The visualisations form a key part of the assessment but as stated in [NB REP8-014] observations in field have also been used to inform the written assessment. Further details are provided in the following submissions:</p> <ul style="list-style-type: none"> <li>• Written Summary of the Applicant's Oral Case at Issue Specific Hearing 3, Agenda Item 4 b) ii) [REP4-013]</li> <li>• Applicant's responses to the Examining Authority's Further Written Questions – Q2.9.1.2, Q2.5.2.2 and Q2.9.6.4 [REP5-045]</li> <li>• Applicant's comments on Deadline 5 submissions section 1.8 [REP6-013]</li> <li>• Applicant's comments on Deadline 7 submissions section 1.20 [REP8-014]</li> <li>• Applicant's response to Open Floor Hearing 3 – Items 2, 13, 14 [REP13-015]</li> </ul>



Summary of Submission	Applicant's Comments
	<p><b>Landscape mitigation</b></p> <p>As stated in [REP5-051] the mitigation measures have been designed to screen both Norfolk Boreas and Norfolk Vanguard from the small number of locations where views to the onshore project substations would occur. The proposed mitigation is considered in the Landscape and Visual Impact Assessment (LVIA) to be sufficient to mitigate potential landscape and visual impacts experienced by non-residential receptors within very localised extents in proximity to the onshore project substation, albeit in some instances over a time frame of between 10 and 25 years.</p> <p>Stakeholders have raised queries regarding the potential to lower the finished floor level of the onshore project substation and/or the use of bunds. As detailed in [REP2-021] and [REP5-045] the options of lowering the finished floor level and large scale bunding were considered and discounted. In order to ensure a design is responsive to the unique characteristics and attributes of a local landscape, the best approach is generally to work with the landform, in order to minimise the magnitude of change. In order to cut a level platform of 250m x 300m at a lower ground level would require a huge amount of earthworks and would fundamentally alter the character of the local landscape. Similarly, the introduction of large scale bunds would appear out of character in this traditional, rural landscape and at variance with the gently undulating landform. As stated in [REP10-034] during the development of the landscape management scheme for the onshore project substations, the use of small scale bunding will be given further consideration as part of the overall detailed design. Further details are provided in the following submissions:</p> <ul style="list-style-type: none"> <li>• Applicant's response to Examining Authority's Written Questions – Q9.4.3 [REP2-021];</li> <li>• Applicant's responses to the Examining Authority's Further Written Questions – Q2.9.1.2, Q2.5.2.2 and Q2.9.6.4 [REP5-045]</li> <li>• Applicant's comments on Deadline 4 submissions and additional submissions – section 1.8 [REP5-051]</li> <li>• Applicant's response to Examining Authority's Fourth Written Questions – Q4.9.6.7 and Q4.9.6.4 [REP10-034]</li> <li>• Applicant's response to Open Floor Hearing 3 – Items 2, 13, 14 [REP13-015]</li> </ul>

Summary of Submission	Applicant's Comments
	<p><b>Operational noise</b></p> <p>The operational noise limits are secured by Requirement 27 of the Norfolk Boreas dDCO along with the need for a scheme of monitoring compliance which will demonstrate conformity with the noise limits. In [REP6-013] the Applicant confirmed that to provide a conservative assessment in the Norfolk Boreas ES Chapter 25 Noise and Vibration [APP-238], all operational phase impacts assessed the cumulative impact of Norfolk Boreas and Norfolk Vanguard being fully operational against the prevailing baseline soundscape i.e. with Dudgeon operational. In response to concerns raised [REP6-013] provided further clarification on the baseline survey undertaken, the approach and dataset of which was presented and agreed with local authorities as part of the Expert Topic Group meetings. As referenced in [REP11-008] the Norfolk Boreas ES Chapter 25 [APP-238] provides full details of how the operational noise criteria have been derived and assessed in accordance with the British Standard 4142. The operational noise limits were conditions set by Breckland Council.</p> <p>As stated in [REP6-013] the predicted noise levels reported in the ES Chapter 25 [APP-238] at each receptor for the Norfolk Boreas scheme and cumulatively with the Norfolk Vanguard scheme (with mitigation), demonstrate compliance at each receptor with the operational noise limits and no impact at identified receptor locations in accordance with BS 4142:2014 derived impact magnitudes. The operational noise limits are considered appropriate to ensure the soundscape at the identified and agreed receptors does not change beyond the existing Dudgeon condition noise levels from the operation of the Norfolk Boreas and / or Norfolk Vanguard onshore project substations. Further details are provided in the following submissions:</p> <ul style="list-style-type: none"> <li>• Applicant's responses to the Examining Authority's Written Questions – Q12.2.6 [REP2-021]</li> <li>• Applicant's responses to Examining Authority's Further Written Questions - Q2.12.2.4 [REP5-045]</li> <li>• Applicant's comments on Deadline 5 Submissions - Table 1.8 [REP6-013]</li> <li>• Applicant's comments on Deadline 6 Submissions and Other Submissions Section 1.1, comments on Breckland Council's response to Q2.12.2.4. [REP7-016]</li> </ul>

Summary of Submission	Applicant's Comments
	<ul style="list-style-type: none"> <li>• Applicant's comments on Deadline 8 submissions - Table 1.4 [REP9-011]</li> <li>• Applicant's comments on Deadline 10 submissions and Other Submissions– Table 1.9 [REP11-008]</li> </ul> <p><b>Flood risk</b></p> <p>In [AS-024] and [NB REP11-008] Norfolk Boreas limited confirmed that appropriate flood mitigation has been allowed for in the design of the onshore project substation site to ensure that there will be no negative impacts on existing flood risk to the site, or surrounding areas. The onshore project substation drainage strategy will be guided by the principles of Sustainable Urban Drainage Systems (SuDS). The strategy will limit development site surface water run-off to the existing greenfield rate, with sufficient attenuation for rainfall events up to 1 in 100-year probability plus allowance for climate change over the lifetime of the projects. This is captured in the Outline Operational Drainage Plan [APP-712] and secured through dDCO Requirement 32. Further details are provided in the following submissions:</p> <ul style="list-style-type: none"> <li>• Comments on Relevant Representations – Table 15 [AS-024]</li> <li>• Applicant's Comments on Deadline 10 Submission and Other Submission – Table 1.9 [REP11-008]</li> </ul>

## 1.2 Holme Hale Parish Council

Summary of Submission	Applicant's Comments
<p>Holme Hale Parish Council provide comments on the Onshore Project Substation Masterplan (document 8.27). They refer to the proposed plan not being in accordance with the Horlock Rules with respect to the location of the buildings and query the use of the Design Guide and the Design Review Process. They request justification for the siting of the buildings and clarification on the stakeholders to be engaged. Concerns are also raised that sheet metal will not be secure during high winds.</p>	<p>The Horlock Rules are National Grid's in house guidance for assisting with the siting and design of substations. As detailed in the ES Chapter 4 Site Selection and Assessment of Alternatives [APP-217] section 4.13, the Horlock Rules have been considered as part of the development of the onshore project substation location and will be considered as part of the detailed design (see ES Chapter 4 [APP-217], Table 4.4 for further details), along with other relevant guidance and site-specific information.</p>

Summary of Submission	Applicant's Comments
	<p>With respect to design the Horlock Rules state that <i>'In the design of new substations or line entries, early consideration should be given to the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.'</i> Work has been undertaken to better understand which aspects of the onshore project substation would have the greatest effect on the key views from local areas. This work identified that the most notable components of the onshore project substation are the converter buildings and that locating the converter buildings together in the northern part of the site would assist in mitigating visual effects, particularly for the residents in the Ivy Todd area to the south by increasing the separation distance.</p> <p>The issue of good design and the onshore project substation layout, have been examined during the Norfolk Boreas examination, see:</p> <ul style="list-style-type: none"> <li>• Written Summary of the Applicant's Oral Case at Issue Specific Hearing 3, Agenda Item 4 b) v) [REP4-013]</li> <li>• Applicant's Responses to the Examining Authority's Further Written Questions, Q2.9.6.5 and Q2.9.6.6 [REP5-045]</li> <li>• Applicant's Responses to the Examining Authority's Further Written Questions, Q3.9.6.2 and Q3.9.6.3 [REP7-017]</li> </ul> <p>In response to Action Point 15 from the Examining Authority during Issue Specific Hearing 3 Onshore Effects [EV6-006], the Applicant included wording and figures in the Design and Access Statement, section 5.3.3 and Figures 9 and 10, [REP14-014] to secure the zoning and massing of buildings in the northern part of the site to assist in mitigating visual effects. It is this zoning and massing of the buildings which have informed the Onshore Project Substation Masterplan (document 8.27) and in accordance with the Horlock Rule on design demonstrates how the Applicant has given early consideration to the siting of buildings and equipment which are appropriate for the location to seek to minimise effects.</p> <p>The final layout and design of the onshore project substation will be determined when further detailed design information is available based on the most appropriate and best available technology. As secured by Requirement 16 (2) of the dDCO, details will be submitted to and approved by Breckland Council. To assist in discharging this requirement, the Design Guide will be developed at an</p>

Summary of Submission	Applicant's Comments
	<p>early stage to facilitate a review of the landscape proposals and architecture of the converter buildings to develop locally specific mitigation measures based on existing good practice precedents, detailed analysis of local landscape conditions and consideration of how the onshore project substation infrastructure can be best integrated into the existing rural landscape. The development of the Design Guide therefore aligns with and builds on the principles of the Horlock Rules by seeking early consideration of the site-specific design and mitigation to minimise effects.</p> <p>As outlined in the Design Review Process (Design and Access Statement (DAS), section 5.3.6 [REP14-014]) the development of the Design Guide will enable local stakeholders to provide feedback on the proposed mitigation and on the aspects of the design which can be influenced. As detailed in paragraph 79 of the DAS, local stakeholders to be engaged as part of this process will include <i>'Necton Parish Council, Holme Hale Parish Council, relevant landowners and closest located residents to the onshore project substation.'</i></p> <p>The Preliminary Design Report [DAS Appendix 3] will guide and inform the Design Guide. The report presents appropriate design options for the external architectural treatment of the converter buildings and includes a review of the materials options, as well as colour options and information on form, massing and style. The report explored a number potential material options based on the technical requirements and evaluated the benefits and disadvantages . The report concluded sheet metal as the most appropriate material for the construction of the convertor buildings, in light of their high performance and safety standards, existing use in surrounding agricultural buildings and range of colours which present the most extensive scope in terms of design options. The converter buildings will house sensitive electrical equipment which needs to be within a controlled environment, and therefore a key requirement was the material's ability to be resistant to weather conditions such as high winds. It is paramount to the operation of the onshore project substation that the integrity of the building is maintained, and the building will be installed, inspected and monitored to high standards to ensure that this is the case.</p> <p>In summary the Onshore Project Substation Masterplan (document reference 8.27) and the onshore project substation design has been developed in line with</p>

Summary of Submission	Applicant's Comments
	<p>the design principles set out in the Horlock Rules by ensuring the siting of buildings are the most appropriate for their location. The Horlock Rules will continue to be considered along with other relevant guidance in the detailed design of the onshore project substation. The Design Guide builds on the principles of the guidance by providing information on site specific mitigation and design and will enable the specified stakeholders, including Holme Hale Parish Council to provide feedback on the proposals at an early stage once detailed design information has been developed.</p>

### 1.3 Oulton Parish Council

Summary of Submission	Applicant's Comments
<p>Oulton Parish Council provide comments on the <i>'Response to Secretary of State Letter dated 9 July 2021 - Updated information on cumulative and in combination effects with the Dudgeon and Sheringham Shoal Extension Projects'</i> submitted by the Applicant. Oulton Parish Council also include a copy of a document produced by Equinor as part of the recent Dudgeon and Sheringham Shoal Extensions Projects Preliminary Environmental Information (PEI) titled <i>"Main Construction Compound Site Selection Report"</i>, which identifies that RAF Oulton is one of four potential locations being considered for the main construction compound for the Dudgeon Extension Project (DEP) and Sheringham Extension Project (SEP). RAF Oulton is already the main construction compound for Hornsea Project Three and if selected for DEP and SEP this would generate additional traffic on Link 68 (The Street). Oulton Parish Council is concerned that potential construction traffic numbers associated with the use of RAF Oulton as the main compound for DEP and SEP has not been taken into account by the Applicant.</p>	<p>The <i>Updated information on Cumulative and In Combination Effects with the Dudgeon and Sheringham Shoal Extension Projects</i> (doc reference: ExA.AS-3.D21.V1) submitted by the Applicant took into account all the available traffic data that was contained within the DEP and SEP PEI, including construction traffic reported for Link 68 (The Street). No traffic data were provided by Equinor for the potential use of RAF Oulton as a main construction compound; therefore it was not possible for the Applicant to take this into account when considering potential cumulative traffic impacts.</p> <p>Oulton Parish Council acknowledge in their response that Equinor has not provided any details of construction traffic numbers associated with a potential main construction compound located at RAF Oulton, either as part of their PEIR or in response to a separate request from Oulton Parish Council.</p> <p>The <i>Main Construction Compound Site Selection Report</i> produced by Equinor provides a high level comparison of potential sites and acknowledges that traffic is a significant constraint for RAF Oulton compared to the other options being considered, stating <i>"RAF Oulton scores relatively worse for all the transport constraints and the risk of cumulative impacts with other projects, which is particularly sensitive when considering the road network in this part of Norfolk"</i>.</p>

Summary of Submission	Applicant's Comments
	<p>It should be noted that construction traffic limits have been agreed by Norfolk Boreas, Norfolk Vanguard and Hornsea Project Three (with Norfolk County Council) as part of their respective examinations (and secured in the respective Outline Traffic Management Plans). These limits remain secured for the respective projects even if the RAF Oulton site is taken forward as the main construction compound for DEP and SEP.</p> <p>Should RAF Oulton be taken forward as the main construction compound for DEP and SEP, Equinor would undertake a detailed cumulative impact assessment taking into account traffic data provided by Norfolk Boreas, Norfolk Vanguard and Hornsea Project Three to inform determination of the DEP and SEP application for development consent.</p>

## 1.4 HSBC

Summary of Submission	Applicant's Comments
<p>The Head of Infrastructure at HSBC confirmed that they have no comments to make at this time in relation the application.</p>	<p>The Applicant welcomes HSBC's confirmation and has no further comments.</p>

## 1.5 Comments on Natural England's advice regarding benthic compensation

2. The Applicant has reviewed Natural England's submission dated 20 August 2021. Much of the submission made by Natural England appears to repeat issues which Natural England raised at the start of the examination (reference to *10th October 2020*) and relates to matters which were dealt with by the Applicant during examination or have been responded to as part of the Secretary of State led consultation. The original position of Natural England, as provided in their Relevant Representation [RR-099], is outlined in the latest submission, and it is disappointing that this does not reflect the progress made during the course of ongoing engagement; although some progress is acknowledged in some parts of the submission, because this progress is not directly linked to the original positions, it does not portray the significant level of agreement which has been reached over the course of the examination and Secretary of State led consultation.
3. Importantly though, Natural England's submission recognises:

*"The additional steps taken by the Applicant to avoid, reduce and mitigate the impacts including: reducing cable protection to 5% along the cable length within the SAC, no jack up barrages within the SAC, adoption of the reburial hierarchy, no cable protection in areas to be managed as reef and only using cable protection which can be decommissioned 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."*
4. This demonstrates the significant lengths the Applicant has gone to in order to mitigate potential impacts on the Haisborough, Hammond and Winterton Special Area of Conservation (HHW SAC) to ensure that a finding of no Adverse Effect on Integrity can be reached. Much of the mitigation proposed was based on advice received from Natural England, in a direct attempt to allay their concerns. It is disappointing, therefore, that since the application was submitted, Natural England's advice (that Adverse Effects on Integrity cannot be ruled out) has not changed. Given this, it would appear that Natural England has taken no account of the mitigation proposed in arriving at the conclusion which has formed the basis of their advice, due to the overly precautionary approach taken.



5. In addition, Natural England go on to state:

*“Natural England considered that there was sufficient evidence to demonstrate that Annex I Sandbanks and Reefs were present in the area proposed for the SAC extension, and that an extension to the HHW SAC site boundary would be the most environmentally beneficial measure to ensure the coherence of the Natura 2000 network.”*

6. This demonstrates that during examination agreement was reached (as is still the case) on at least one suitable method for compensation, should it be required, and both parties were confident that this could be delivered.
7. With regards to Annex 1 (Natural England’s comments on the HHW SAC compensation proposal), the Applicant is aware of Natural England’s position and through ongoing engagement has sought to address Natural England's concerns at every opportunity. Where possible the HHW SAC compensation document 8.25 has been updated to reflect this. However, as the Applicant has also taken account of the concerns and opinions of other stakeholders including Defra, MMO, OPRED, NFFO, TWT, owners of infrastructure and other sea users, it has not been possible to address all of Natural England’s requests. Version 2 (and also taken through to Version 3 which has been submitted at the current deadline) of the HHW SAC document provides a consultation section (section 1.3) which demonstrates how the proposals have been shaped by the different stakeholders. Notwithstanding the different views of stakeholders, it is clear that the Secretary of State can have confidence that there are several different compensation options which could be delivered, if required, and the Applicant has progressed the understanding and detail of these options beyond any level of detail which has previously been provided for in-principle measures at the pre-consent stage. Indeed, the Secretary of State was satisfied that one such option, proposed for Hornsea Project Three, was sufficient and could be secured in granting consent for Hornsea Project Three, where the level of impact was far in excess of the scale of potential impact from the Norfolk Boreas project.
8. Finally, whilst Natural England’s check list (Annex 5) provides a useful guide to what it would like to see in a compensation proposal, it is a generalised checklist which is not necessarily suitable for all compensation proposals. Where relevant, the Applicant has incorporated matters from the check list within the HHW SAC compensation document, to ensure these matters are fully addressed in the compensation strategy submitted for approval to the Secretary of State (if compensation is required). In any event, the Applicant has responded to the check list below to demonstrate the extent to which these matters have already been considered and addressed

at the pre-consent stage, notwithstanding the compensation measures have been proposed without prejudice to the Applicant's primary position that there is no risk of AEoI.

9. The Applicant has sought to address Natural England's comments in each version of the HHW SAC compensation document [8.25] and an updated version (Version 3) has been submitted at the current deadline on the 21 October 2021 with some minor updates.
10. The remainder of the Applicant's response to Natural England's submission consists of two tables. Table 1.1 highlights and responds to new issues or new positions which were not raised during the examination and Table 1.2 identifies where issues previously raised have already been responded to by the Applicant during the examination or within the Applicant's responses to the Secretary of State's consultation.

**Table 1.1 New comments which were not raised by Natural England during the examination**

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
Main letter and Annex 1 point 5	<p><b>Mitigation as well as compensation</b></p> <p>Natural England's latest position is that for effects caused by cable protection all mitigation should be provided even if compensation is also required to be delivered.</p>	<p>The Applicant does not agree with this position as if the effect has been mitigated then it should not require compensation and vice versa, or, if the mitigation does not fully remove the effect, then compensation should be scaled back accordingly. The Applicant maintains that the mitigation of not placing rock and gravel protection (condition 3(1)(g)) and decommissioning of cable protection (as committed to in the HHW SAC control documents (document reference 8.20)) fully mitigates the permanent effects of cable protection and, along with other mitigation secured, reduces impacts to a level where AEoI does not arise and therefore no compensation is required.</p> <p>Natural England's new position is directly opposed to the position Natural England presented within the examination. It is stated by Natural England in the SoCG [REP16-010] that, should compensation be required, certain conditions (3(1)(g) and Condition 20 (commitment to decommission cable protection as committed to in document 8.20)) to mitigate effects of cable protection would no longer be needed.</p> <p>At the very least, if this mitigation is required but the SoS considers it is not sufficient (with the other mitigation proposed) to rule out AEoI, then the compensation measures would need to be scaled back accordingly and therefore less than a 1:1 ratio (see below for further discussions on ratios) may be appropriate. For example, in the case of Norfolk Boreas the mitigation of removing the cable protection at the end of the project would remove the permanent nature of the effect; however, the compensation measure</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<p>would be of a permanent nature (i.e. once any surface laid infrastructure was removed it would be permanently removed and/or once the HHW SAC has been extended that would also be a permanent change). Therefore, if both mitigation and compensation are required then the compensation must be scaled back to recognise that the effect would only be temporary (albeit long term temporary) and therefore a less than 1:1 ratio may be applicable.</p>
<p>Main letter 2.2.2</p>	<p><b>Sandwave levelling</b> Natural England state that insufficient evidence has been provided to demonstrate recovery following sandwave levelling.</p>	<p>In the Applicant's response to the request for further information [ExA.PDR.D21.V1] submitted on 20 August 2021, the Applicant has provided recent examples, as well as historic evidence, of sand wave recovery in environments similar to those experienced within the HHW SAC. This new evidence was submitted at the same time as Natural England's comments and therefore Natural England will not have considered the additional evidence when making this statement. Natural England suggest that new evidence is available from the Race Bank Offshore wind farm and the Applicant has submitted this evidence to the SoS in document ExA.PDR.D21.V1.</p>
<p>Main letter 2.5 Annex 1 point 7 and Annex 5</p>	<p><b>Natural England's checklist to appraise the merits of particular compensation packages</b>  Natural England's view is that sufficient clarify on all these matters is needed prior to determination</p>	<p>The compensation measures put forward for the HHW SAC have been developed through consultation with Natural England and a number of other stakeholders and were provided on a 'without prejudice' basis given the Applicant's firm position that there is no risk of AEoI. The Applicant's position is fully supported by the documentary evidence submitted and is also based on the significant level of mitigation which the Applicant has committed to and which Natural England acknowledge to be <i>"exemplar efforts...in minimising the impacts of the project"</i> (see Natural England's letter dated 20 August 2021).</p> <p>The Applicant has sought, during the limited time available to meet the requirements of the check list (which has been provided to the Applicant very late in the process) as far as possible. Further details are provided below and in the Applicant's Response to the Request for Further Information submitted on 21 October 2021 [ExA.PDR.D22.V1].</p> <p>Whilst the checklist may assist in the provision of compensation packages where routes to compensation are clear and previous relevant examples can be followed, this is not the case for offshore wind. The checklist also appears more suited to cases where there is agreement that AEoI will arise and it is known that compensation must therefore be provided, rather than in-principle compensation cases which are provided without prejudice or where, as in this case it is not yet known whether cable protection will even be required and evidence has been presented to demonstrate this is in fact highly</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<p>unlikely to be required. As a result, Norfolk Boreas amounts to an exceptional case which warrants a different approach (see the HHW SAC compensation document submitted (Document Reference 8.25) and the Applicant's Response to the Request for further information [ExA.PD.D19.V1] submitted on 25 June 2021 for further justification). In these circumstances, it is not proportionate to expect the Applicant to secure compensation measures to the same level of detail in advance of consent and prior to a determination being made on whether there is AEoI, or in advance of a determination of the scale of the compensation which may be required (because this may affect the approach taken to compensation options and any agreements entered into with asset owners). This is perhaps even more relevant for effects from Norfolk Boreas, where compensation is being sought (without prejudice) for cable protection that, in practice, is highly unlikely to be required.</p> <p>Furthermore, as mentioned above, through the development of the HHW SAC compensation proposals with stakeholders, it became evident that there would not be one single compensation measure that would meet all stakeholders' requirements. Therefore, the Applicant has put forward a range of compensation measures for consideration by the Secretary of State, which will be developed further if required. Given the range of options put forward, it is not proportionate to expect all of these measures to be developed to the stage expected by Natural England as outlined in the checklist prior to determination. Many stakeholders are not prepared to invest the resources required to reach agreements or provide information for proposals being made on a without prejudice basis, where it is not yet known whether compensation will be required, or if it is, which option(s) would be taken forward.</p>
Main letter 2.5 (ii)	<p><b>Compensation requirements</b> Given the SoS decision for Hornsea Project Three in relation to lasting SAC impacts from cable protection over the lifetime of the project, we anticipate a similar requirement for Norfolk Boreas. We also note that there is equal uncertainty in both projects in relation to the need for and scale of actual cable protection post installation.</p>	<p>The Applicant strongly disagrees with this position. Hornsea Project Three was consented with effects on SACs through cable protection that were 25 times the size of the potential effects for Norfolk Boreas. Therefore, the scale of impacts from the projects is simply not comparable. Furthermore, the Applicant has done far more to mitigate the possible effects of cable protection, committing to not place cable protection in priority areas to be managed for Sabellaria reef and committing to not place rock or gravel as cable protection within the HHW SAC (apart from at cable crossings) neither of which commitments were made by Hornsea Project Three. Therefore, the Applicant maintains that there is a significant difference between the potential for effects and the scale of effects that the two projects could cause. Further information is provided in REP17-003, section 1.12 and REP15-004 section 1.4 line 5. In</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<p>addition to this, the Applicant is becoming increasingly certain that cable protection (the reason why in-principle compensation is being sought) will not in fact be required within the HHW SAC (See Version 2 of the HHW SAC compensation document and the Applicant's Response to the Request for further information submission made at the deadline of the 25 June [ExA.PD.D19.V1] for further evidence for this).</p>
<p>Main letter 2.5 (iii)</p>	<p><b>Compensation constraints</b> In future, Natural England would be pleased to join discussions between the relevant regulators/competent authorities and interested parties to explore and resolve potential blockers to the delivery of relevant compensation measures, thereby facilitating the prompt delivery of renewable energy.</p>	<p>The Applicant has engaged with Natural England jointly with other stakeholders such as Defra and has committed to continuing to do so. The Applicant is however disappointed that despite Natural England's description of the mitigation proposed by the Project as "<i>exemplar efforts....in minimising the impacts of the project</i>" (see Natural England's letter dated 20 August 2021), this has not led to any change in advice by Natural England, which the Applicant considers is due to the overly precautionary approach which Natural England has taken throughout.</p> <p>It is also of concern to the Applicant that Natural England has raised many new issues at a very late stage in the process and has changed its position, post examination, on a number of matters including, for example, the extent to which cable protection must still be decommissioned if compensation for the permanent impacts of that cable protection has also been provided.</p> <p>For the government to meet its net zero targets by 2050 it is vitally important for regulators to be working with all parties to ensure that whilst precautionary, approaches taken are evidence based and not overly restrictive and that where stakeholders disagree on compensation measures a mechanism is available to resolve these disagreements.</p>
<p>Annex 1 Point 16</p>	<p><b>Monitoring</b> Monitoring needs to provide evidence of how the features of the SAC recover from cable installation. A long list of often complex research questions is suggested by Natural England.</p>	<p>Monitoring for the recovery of features following cable installation is provided within the HHW SAC control documents (8.20, REP14-031 and REP14-033) and within the In Principle Monitoring Plan (document 8.12, REP14-027) and it is not appropriate to relate this or extend this to monitoring of the compensation as the compensation will not occur in the same area as the cable installation.</p> <p>Natural England's submission contains a long list of generalised questions many of which relate to colonisation of, and effects caused by <u>rock protection</u> placed during cable installation. Importantly:</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<ol style="list-style-type: none"> <li>1. The Applicant is increasingly confident that cable protection will not be required (see the Applicant's Response to the Request for further information, submitted on 25 June 2021).</li> <li>2. The Applicant, in consultation with Natural England has committed to not placing rock protection within the HHW SAC (apart from at cable crossings, of which there is now only 1 crossing point).</li> </ol> <p>Therefore, it is not appropriate for the Applicant to seek to address these industry wide concerns, and, in any event, they are not relevant to this particular project given it will not be placing rock protection in the HHW SAC.</p> <p>As explained in the In-Principle Compensation document (document 8.25), once the compensation measures (should they be required) are put in place monitoring would be aligned with the existing management of the SAC; providing long term efficiency. The Applicant could therefore provide funding for a proportion of the Common Standards Monitoring and/or initiatives to achieve favourable condition, proportionate to the area affected by the compensation or could seek to answer specific questions relating to the compensation measures. Details on monitoring could only be determined once the scale and nature of the compensation was determined (i.e., following the outcome of the Appropriate Assessment and agreement on the option(s) taken forward for the compensation measures).</p>

**Table 1.2 Comments raised by Natural England during the examination**

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
Main letter 2.2.1. Annex 1 Point 5	<p><b>Cable protection</b></p> <p>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</p>	<p>The Applicant has worked with Natural England and other stakeholders to reduce the scale of effect of any cable protection which may be placed as far as possible. Mitigation goes far beyond the reduction in number of export cables and includes: reducing the worst case area of cable protection from 10% to 5%, committing to not placing cable protection in the areas identified by Natural England and the JNCC as priority areas to be managed as Sabellaria reef<sup>1</sup>, commitment to not placing rock as cable protection, commitment to cut all existing out of service cables and the commitment to only placing</p>

<sup>1</sup> The Applicant understands that Natural England would prefer these to be known as areas for management of reef due to the good evidence base and likelihood for reef to recover, however the term "priority areas" has been used in previous documents so to avoid confusion the term is retained here.

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	<p>conservation objectives of the site. Annex I Sandbanks and Reefs features within the site are both in unfavourable condition. Consequently, Natural England could not be certain that cable protection will not adversely affect the integrity of the site.</p>	<p>cable protection which can be decommissioned as well as decommissioning that cable protection at the end of the project. During the examination Natural England welcomed these measures and agreed that they had significantly reduced the risk of AEoI to the HHW SAC [REP16-10]. It is noted that these mitigation measures are acknowledged elsewhere in the submission but not in relation to these points where they are directly relevant.</p> <p>The Applicant's position is that the maximum area of cable protection that <u>could</u> be required within the HHW SAC is extremely small, occupying no more than 0.0016% of the HHW SAC. Significant work has been done to minimise the area which could be occupied by cable protection and following that work the effect would be so small as to be able to conclude there would be no AEoI.</p> <p>As stated in the Applicant's response to the SoS's request for information submitted on 25 June 2021 [document reference ExA.PD.D19.V1] the maximum worst case area that could be impacted would, when read in the context of the Applicant's submissions on de minimis set out in that document, and in accordance with Natural England's advice on small scale impacts [REP1-057] be of such small scale as to not cause AEoI. This is in keeping with various precedent, for example:</p> <ol style="list-style-type: none"> <li>1. Walney Extension - habitat loss of intertidal mudflats and sand flats due to cable installation and rock armour. 0.41% of overall 600ha of feature was affected and the appropriate assessment concluded no AEoI.</li> <li>2. Hinkley Point C - habitat loss of a small area of potential Sabellaria reef within the rock armour barge berthing and unloading area. This area equated to less than 0.05% of the SAC reef feature and was not considered significant.</li> <li>3. Kentish Flats Extension - habitat loss of 0.003% of Special Protection Area (SPA). The Secretary of State (SoS) and NE agreed this loss to be negligible.</li> </ol> <p>Furthermore, the commitment to decommission the cable protection (which was developed in consultation with and welcomed by Natural England REP9-043) means that the impact would not be permanent. The Applicant also has high confidence that cable burial will be possible throughout the HHW SAC ((see version 2 of document 8.25 of the Norfolk Boreas Application (In Principle Habitats Regulations Derogation, Provision of Evidence Appendix 3 Haisborough, Hammond and Winterton SAC In Principle Compensation) and Appendix 2 of the Applicant's response to request for information</p>

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		<p>for the 25 June 2021 Deadline (ExA.PD.D19.V1)) and therefore that no cable protection would be required (apart from at the single pipeline crossing). Therefore, given the extremely small maximum area of impact, the temporary nature of the impact and the very small likelihood of there being an impact at all, an AEoI can be ruled out.</p> <p>It should be noted that the SoS concluded in the original decision for Norfolk Vanguard, which would have an almost identical effect on the HHW SAC as Norfolk Boreas, that:</p> <p><i>“no AEoI as the Applicant has demonstrated that the area of the site affected will be relatively small (in the case of reef, kept to a minimum through micrositing), any affected features are able to recover, and all cable protection will be removed at the time of decommissioning. The Secretary of State notes that the decommissioning of cable protection will be secured in the DCO to ensure that any effects are lasting (for the duration of the project) but temporary (repairable effect)”.</i></p> <p>And whilst considering all measures proposed by Norfolk Vanguard, which are virtually identical to Norfolk Boreas, (noting that some measures went beyond those made by Norfolk Vanguard at the time of the original SoS decision):</p> <p><i>“The Secretary of State considers that it provides sufficient detail on potential mitigation measures at this stage, whilst granting the Applicant a flexible approach until the extent and nature of mitigation becomes clear.”</i></p> <p>The most recent discussions on cable protection within the HHW SAC held during the Norfolk Boreas examination can be found within: REP16-004, section 2; REP13-013 R17.1.24 (where evidence is provided that habitats will recover following cable protection removal); REP13-038 (in which Natural England acknowledge that the Applicant has addressed concerns as far as possible); and REP6-019 and REP5-057 (where the Applicant sets out all parties' positions on possible effects on the HHW SAC).</p>
Main letter 2.2.3	<p><b>Sediment disposal</b></p> <p>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 provide the</p>	<p>The Applicant's position is that rather than attempting to agree a condition which endeavoured to ensure that 95% similar sediment grain size would be achieved, it is far more beneficial to the designated features of the HHW SAC to commit to mitigation measures that would result in any disposed sediment returning to the same area of the SAC from which it was dredged. The mitigation measures proposed by the Applicant to limit effects and promote recovery of the sandbank system are to:</p>



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	<p>best chance for recovery and avoid impacts to the Annex 1 Reef feature. However, the issue of changes to sediment composition at the disposal locations had not been resolved (i.e. the 95% similar sediment grain size condition).</p>	<ul style="list-style-type: none"> <li>• Dispose of any material dredged from the seabed for sandwave levelling (also referred to as pre-sweeping) in a linear “strip” along the cable route.</li> <li>• Dispose of material close to the seabed. This will be achieved through the use of a fall pipe (also referred to as a down pipe) employed by the dredging vessel.</li> <li>• Always attempt to bury any exposed cable within the HHW SAC prior to installing additional cable protection (placement of cable protection in new areas would be subject to a separate marine licence, see the Outline Operation and Maintenance Plan (document reference 8.11) for further details).</li> <li>• Not use Jack up vessels within the HHW SAC.</li> </ul> <p>When determining the location of disposal areas within the SAC the following criteria would be used:</p> <ul style="list-style-type: none"> <li>• Priority 1 – material to be disposed of no closer than 50m to any S.spinulosa reef (see section 5.4).</li> <li>• Priority 2- Dispose of material up drift of the cable route, to allow infill to occur as quickly as possible following cable installation.</li> <li>• Priority 3 - Dispose of material as close as possible to cable route.</li> </ul> <p>This would achieve Natural England’s desired effect of limiting disturbance to the Annex I sandbanks far more effectively than imposing a condition which would be extremely difficult to draft, implement, monitor and to enforce.</p> <p>Natural England and the Applicant’s positions on this subject are provided in the final SoCG [REP16-010] Table 2 and Table 7. Other documents where this subject is discussed include: REP13-013, R17.1.22; REP10-033, section 1.9 line 6; AS-024 (comments on Relevant Representations); REP4-014 (record of discussion during ISH4). Further reasoning has been provided on the Applicant's position when commenting on the MMO's response to question Q3.2.0.2 [REP8-015].</p>
Main letter 2.2.4	<p><b>Micro-Siting</b> Natural England could not be certain that avoidance of Annex I Reef habitats through micro-siting the cable was achievable, and therefore that it would not hinder the management measures put in place to restore Annex I Reef from fisheries pressures, particularly if cable protection was needed.</p>	<p>Sabellaria reef is ephemeral and will move around from year to year and therefore the Applicant has committed to undertaking Annex I surveys no earlier than one year prior to construction. The results of that survey will be used to undertake the final micro-siting of the export cables to avoid Annex I reef. However, as is recognised by the Applicant, should the results of that survey show that Sabellaria reefs are so prevalent that they span the entire 2km (or more) width of the cable corridor it would not be possible for the export cables to completely avoid it in all locations. In this scenario, due</p>

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		<p>to the extensive nature for the reef the effect of an up to 30m wide area of effect, associated with cable installation would be negligible on the reef feature and following installation the reef would rapidly recover. It is due to the uncertain nature of the extent and precise location of reef at the time of construction that the Applicant has maintained the commitment to avoid reef "where possible". Therefore, whilst it cannot be certain that all reef could be avoided in all locations, any potential for impact on reef will be negligible.</p> <p>The Applicant has however committed not to place cable protection in reef priority areas. REP8-014 section 1.12, REP8-017, Table 3.1 and Table 2.1 and REP6-019 provide more information on this issue. This substantial commitment was made based on a study of seabed conditions [Appendix 3 of the HHW SAC control documents 8.20] which identified that the higher risk areas for not achieving cable burial to the optimum depth do not overlap with the area's priority areas for management of Sabellaria reef.</p> <p>Therefore, the Applicant will avoid any permanent impacts on reef features by not placing cable protection in the priority areas and will avoid temporary impacts on the reef where possible. Due to the ephemeral nature of Sabellaria reef it is simply not possible to provide certainty of avoidance until immediately prior to construction, but irrespective of this the SoS can be satisfied that any impacts will be negligible for the reasons explained above.</p>
Main letter 2.3 and Annex 1 Point 3.	<p><b>Extension of SAC</b> Natural England are supportive of extending the HHW SAC as a compensation measure as there is suitable confidence, based on best available evidence, in the presence of Annex I Sandbanks and Reefs in the area proposed by the Applicant.</p>	The Applicant sets out its justification for proposing an extension of the HHW SAC within the HHW SAC compensation document (document reference 8.25). Further discussion around how this compensation package was agreed with Natural England is provided in [REP15-004].
Main letter 2.5 (iv)	<p><b>Removal of out of service cables/Anthropogenic structures</b> We acknowledge that delivery may not be achievable prior to impacts occurring, but if it can be demonstrated that the compensation is fully secured and that there would be an overall ecological benefit to the SAC over the lifetime of the project [and where appropriate beyond</p>	The Applicant understood this to be Natural England's position previously and this was reflected in version 2 of the HHW SAC compensation document submitted on 25 June 2021 (document reference 8.25). The Applicant is grateful for Natural England's most recent submission which confirms this to be the case and supports the Applicant's position that it is appropriate for compensation to be delivered after the event in certain circumstances (which is dealt with further below in this table).

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	forming a lasting legacy], Natural England would remain supportive of this proposal.	<p>The Applicant is firmly of the opinion that providing compensation before the impact occurs should only be required in cases where it is known that an adverse effect will occur – this is not known in the Norfolk Boreas case and, in fact, evidence has been submitted that cable protection is highly unlikely to be required. It is not therefore proportionate to require delivery of compensation in advance of establishing whether compensation is in fact necessary.</p> <p>Given the confidence in the success of the measures and the overall ecological benefit (i.e., Natural England's comments regarding a lasting legacy) for all of the compensation options that the Applicant has proposed, there will be no additional adverse impacts of providing compensation after the event and the SoS can be confident that doing so would still ensure overall coherence of Natura 2000 is protected.</p>
Main letter 2.5 vii Annex 1 Point 8, Point 13, Point 14, Point 15	<b>Removal of marine debris [Strand 2] and awareness campaign [Strand 3]</b>	The Applicant understands that Natural England do not fully support these measures as compensation and this was reflected in version 2 of the HHW SAC compensation document submitted on 25 June 2021 (and also carried through in version 3) (document reference 8.25). However, other stakeholders do support these measures and further discussions on this point are recorded in section 2 of the Applicant's Response to the Request for further information (ExA.PD.D19.V1) submitted on 25 June 2021.
Main letter 2.5 ii, Annex 1 Point 1, Annex 4 point 18 and Annex 5 d)	<b>Compensation must be provided before the impact occurs</b>	<p>Natural England state that the SoS is making a determination on the worst case envelope and not the final installed project, and that compensation should be determined on the same basis.</p> <p>Whilst this may be correct in so far as the SoS must determine whether there would be AEoI based on the worst case envelope, the SoS has a discretion on the nature and form of compensation measures to be delivered, provided that the SoS is satisfied that they ensure 'the overall coherence of Natura 2000 is protected'. Therefore, if the SoS concludes that AEoI will only arise as a result of cable protection, and there is a question as to whether cable protection will or will not be deployed, it would be entirely reasonable and within the SoS's discretion to determine that compensation would not be 'necessary' to ensure the overall coherence of Natura 2000 in the event that cable protection is not deployed, and also that compensation delivered after cable protection is deployed can still ensure the overall coherence of Natura 2000 is protected.</p> <p>This is not something previous projects have opted for because its appropriateness will depend on the circumstances of the particular case in question. In the case of Norfolk</p>

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		<p>Boreas, the scale of the potential impact is very small (and negligible in the Applicant's submission). In addition, evidence has been submitted which demonstrates that there is a low likelihood that cable protection will in fact be required, both in the form of surveys on ground conditions and confirmation of this being the case from cable suppliers and installers. Given these circumstances it would be entirely lawful and reasonable for the SoS to take this approach and would not necessarily set any wider precedent.</p> <p>Natural England has, in fact, accepted this is an appropriate approach in certain circumstances. For removal of surface laid structures, Natural England state they would be <i>“open to consideration of secured compensation not necessarily delivering prior to works starting, if i) confidence in the delivery and the effectiveness of the measure is provided and ii) it can be demonstrated that there would be an overall ecological benefit to the SAC over the lifetime of the project”</i> (Annex 1 Point 12 of Natural England's submission).</p> <p>The strategy document would provide this information for which ever (or combination of) compensation was being delivered and therefore the concept of not delivering compensation prior to works starting should be applied to all proposed compensation measures and not just removal of surface laid infrastructure.</p>
Annex 1 Point 3.	<p><b>Compensation ratios</b> The ratio of compensation must be more than 1:1</p>	<p>The Applicant outlines its justification for proposing ratios for the different compensation options within the HHW SAC compensation document Version 2 submitted on 25 June 2021 (and maintained in Version 3 submitted on 21 October 2021) (document reference 8.25). The Applicant's firm position is that, where like for like compensation is being provided, such as removal of linear infrastructure (for example oil and gas pipelines) to compensate for the installation of linear structures such as cable protection within the same site, a 1:1 ratio is appropriate. In fact, a 1:1 ratio may provide overcompensation if oil and gas pipelines are elevated higher from the seabed and therefore have a greater area of influence than the low-profile cable protection to which the Applicant has committed, or where there is a requirement to decommission cable protection at the end of the wind farm's operation as explained above.</p>
Main letter 2.5 (i) and vii) Annex 1 Point 7 and 8	<p><b>Using Hornsea P3 as an example of compensation</b> Natural England does not support the Hornsea Project 3 compensation as an example to follow</p>	<p>As outlined in version 2 of the HHW SAC compensation document submitted on 25 June 2021 (and carried into version 3 submitted at the current deadline of 21 October 2021) (document reference 8.25), although the Applicant does not rely on the same compensation measures secured for Hornsea Project Three, and indeed is not comparable with that project due to Norfolk Boreas' significantly lower scale of effect,</p>

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Annex 1 Point 2	<p><b>Fisheries Management as compensation</b> Natural England advises that compensation measures which reduce/remove anthropogenic pressures impacting upon the favourable conservation status of the SAC features such as fisheries should not be wholesale discounted. Our view is fisheries management measures could have significant ecological benefit. Although it is acknowledged that this is currently challenging from a project specific perspective, and that mechanisms are required to enable delivery.</p>	<p>the Hornsea Project Three compensatory measures do remain the most relevant example of compensation measures to the Norfolk Boreas project to date.</p> <p>The HHW SAC compensation document (document reference 8.25) considers fisheries management (and specifically reduction in intrusive fishing methods such as bottom-towed trawling) as a possible compensation measure, however in consultation with Natural England this was ruled out on the basis that no authority has the jurisdiction to be able to control this on behalf of an offshore wind farm developer. Due to Natural England's agreement on the original proposals put forward during the examination [REP9-048] this option has not been explored further. From Natural England's recent submission, it appears that their position has altered slightly on this, but they still make clear that this would need to be a strategic form of compensation that would not be possible for a single project to deliver. The Applicant agrees with this position and considers this would require a change in policy and legislation to allow the implementation of fisheries measures as a form of compensation, which would not be possible in the timescales for the Norfolk Boreas project.</p>
Annex 1 Point 10	<p><b>Extension of the HHW SAC</b></p>	<p>The Applicant notes Natural England's support for this option and agrees with the reasoning for this. This option was developed in consultation with Natural England and presented in the HHW SAC compensation document (document reference 8.25). The Applicant is continuing to discuss matters with Defra to provide comfort on the mechanism which would address their concerns on this as an approach.</p>
Annex 1 Point 11	<p><b>Compensation strategy should be provided prior to determination and Natural England question how the process will be "transparent"</b></p>	<p>Whilst the HHW SAC Compensation has been proposed 'in-principle' and without prejudice to the Applicant's position that there is no risk of AEoI, it has now been developed over a significant period of time and advanced to a significant level of detail, in consultation with Natural England and many other stakeholders.</p> <p>Where it is accepted that AEoI arises, routes to compensation are clear and previous relevant examples can be followed, it may be appropriate for full compensation strategies to be provided in advance of a decision on whether to grant consent. However, this is not the case for this particular project, where there has been no determination of AEoI, it is not yet known whether cable protection will even be required, and evidence has been presented to demonstrate this is in fact highly unlikely to be required. It is not proportionate to expect the Applicant to secure compensation measures to the same level of detail in advance of consent and prior to a determination being made on whether there is AEoI, or in advance of a determination of the scale of the compensation which may be required. It would also be premature to so, as those</p>

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		<p>decisions are likely to influence the approach to be taken to compensation options and any agreements entered into with asset owners.</p> <p>Furthermore, as mentioned above, through the development of the HHW SAC compensation proposals with stakeholders, it became evident that there would not be one single compensation measure that would meet all stakeholders' requirements. Therefore, the Applicant has put forward a range of compensation measures for consideration by the Secretary of State, which will be developed further if required. Given the range of options put forward, it is not proportionate to expect all of these measures to be developed to the stage expected by Natural England. Many stakeholders are not prepared to invest the resources required to reach agreements or provide information for proposals being made on a without prejudice basis, where it is not yet known whether compensation will be required, or if it is, which option(s) would be taken forward.</p> <p>At the end of the examination, Natural England had not requested any further detail on the HHW SAC Compensation to be provided, and accepted that the compensation proposed could be secured and was deliverable. It is therefore disappointing that Natural England has since, and at a late stage in the process, requested additional detail which has the potential to delay delivery of nationally significant infrastructure required to meet Government targets and reduce climate change.</p> <p>The Applicant has engaged with a large range of stakeholders to date and has been open and transparent with all on its proposals and has taken onboard all comments on the proposals. However due to the fact there is disagreement between stakeholders it has not been possible to address all opposing concerns raised.</p> <p>In the event that compensation is required the Applicant would ensure that the development of compensatory measures is transparent to all relevant statutory and non-statutory stakeholders through updates issued on project pages, newsletters and update meetings as appropriate. Any marine licences or other mechanisms for implementation would be subject to consultation in accordance with the relevant regime. In addition, it is expected that the SoS may wish to upload relevant documents to the project page of the Planning Inspectorate's website so that the compensation scheme proposed and approved is made publicly available.</p>

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Annex 4	<b>Comments on the Applicant's proposed wording for the HHW Compensation condition</b>	
17	<p><i>However, considering the ongoing uncertainty regarding the effectiveness and deliverability of any of the compensation measures, Natural England now questions if the mitigation of decommissioning the rock protection within the HHW SAC should be removed in the event of a determination of Adverse Effect on Integrity (AEoI).</i></p>	<p>As set out above, if an effect has been mitigated then it should not require compensation and vice versa, or, if the mitigation does not fully remove the effect, then compensation should be scaled back accordingly.</p>
18	<p><i>Natural England considers that the plan should be provided, agreed and the compensation functioning prior to, or as soon as possible after, any impact. The conditions should be written to ensure this.</i></p> <p><i>We also note the three-months timing previously included has been replaced with 'as soon as is reasonably practicable'..... a specified timeframe would be preferable.</i></p> <p><i>Furthermore, the approach taken raises several practical issues regarding which we consider require clarification: What happens if further cable protection is determined to be required after the first notification?</i></p> <ul style="list-style-type: none"> <li><i>• Is the notification to be given once all cable protection has been deployed or just the first instance? Noting this could mean that some impact occurs a significant period before triggering any need for notification. However, the alternative could mean multiple compensation plans need to be produced and agreed.</i></li> <li><i>• Does this notification serve as a notice that no further cable protection can be deployed in the SAC under this consent?</i></li> <li><i>• If so where is this secured? If not how does this condition deal with the potential for multiple compensation plans/updates to the plan? Is this only through condition 7?</i></li> </ul>	<p>Natural England's comments are not based on the version of the conditions submitted on 20 August 2021, which has already been amended to reflect the request to include a specified timeframe and to provide clarity in respect of the practical issues raised by Natural England.</p> <p>The conditions submitted on 20 August 2021 have also been updated to address the practical issues raised by Natural England. In particular, the conditions would operate so that notification is given for installation of each export cable within the HHW SAC (i.e., up to two notifications) and a separate compensation plan would be provided for each notification. The definition of 'bundled export cable' has been updated in the version of the conditions submitted on 21 October 2021 to make this clearer (document reference ExA.AS-1.D22.V1).</p> <p>Significant engagement has been undertaken with Natural England since the close of the examination on the form that the draft conditions should take. Where possible, Natural England's comments and proposed amendments have been accommodated in the revised draft submitted on 20 August 2021, and where disagreements remain, the Applicant has provided reasons for this.</p>

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19	<p><i>As noted above, Natural England does not support the delivery of compensatory measures after the impacts have occurred.</i></p> <p><i>We also note that the timing requirement in previous versions has been removed. The condition simply requires that a plan must be submitted.....Thus, this does not in our view act to sufficiently secure the plans are submitted as soon as possible following the notification.</i></p> <p><i>We also note that within the condition the SoS has the ability to waive the requirement for the plan to be submitted prior to generation.</i></p> <p><i>Again, no timing requirement has been included for how long Natural England will be given for consultation on these plans.</i></p>	<p>As explained above, delivery of compensation measures after the impacts have occurred is entirely lawful and a reasonable approach to take given the specific circumstances of the Norfolk Boreas project. Natural England has also acknowledged that they are “open to consideration of secured compensation not necessarily delivering prior to works starting, if i) confidence in the delivery and the effectiveness of the measure is provided and ii) it can be demonstrated that there would be an overall ecological benefit to the SAC over the lifetime of the project” (Annex 1 Point 12 of Natural England’s submission).</p> <p>Condition 3 requires that the compensation strategy is submitted to the SoS for approval prior to the transmission of electricity via the relevant export cable, unless otherwise agreed in writing with the SoS. It is appropriate for the SoS to retain some flexibility here given the potential for the compensation to provide a significant overall ecological benefit.</p> <p>In relation to including express reference to timescales for consultation with Natural England and the MMO in the dDCO conditions, this is not considered appropriate as it will be for the SoS to set any timetable for consultation on the compensation plan once it has been submitted for approval. Both Natural England and the MMO have been fully engaged throughout the development of the compensation measures to date and the Applicant can see no reason why this would not continue.</p>
20	<p><i>We recommend alternative wording is used, or a short description of each of the compensation strands could be added.</i></p> <p><i>We also offer the following comments:</i></p> <ul style="list-style-type: none"> <li><i>• The condition provides for no monitoring of the success of these measures;</i></li> <li><i>• The condition provides for no adaptation subject to the results of monitoring. I.e. if the measures are not compensating there is no requirement to address their failure.</i></li> <li><i>• There is no provision within the schedule for the ‘end of life’ for these measures. While there will be no structures to decommission, the ending of the proposed measures</i></li> </ul>	<p>Natural England's comments are not based on the version of the conditions submitted on 20 August 2021, which has already been amended to reflect the request to include a definition of 'removal of anthropogenic material' which refers to Strands 1 to 3.</p> <p>In addition, the version of the conditions submitted on 20 August 2021 also include:</p> <ul style="list-style-type: none"> <li>• Monitoring (condition 5(e) and condition 6(c));</li> <li>• Adaptation (through the adoption of Strands 1, 2 and 3 – as explained further below in responses to Natural England's checklist); and</li> <li>• End of life measures (condition 9).</li> </ul>



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	<p><i>should be subject to the approval of the SoS in consultation with Natural England. This may be especially important for these measures if compensation is delivered after impact as there may be a need for compensation to run longer than the project life.</i></p>	
Annex 5	<p><b>Natural England's checklist and overview appraisal of in principle compensation measures for the HHW SAC</b></p>	
a)	<p>What, where, when: clear and detailed statements regarding the location and design of the proposal. Natural England comments that <i>"Natural England believes this has been provided in sufficient detail for extending the SAC, but not for Strands 1-3"</i></p>	<p>Due to the nature of Strands 1-3 and the fact OPRED and Oil and Gas owners are not prepared to invest the resources required to reach agreements or provide information in respect of proposals that have been submitted on a without prejudice basis it has not been possible for the Applicant to fully address this item for Strands 1-3. Once a determination on AEoI has been made, this would be addressed post consent (if so required). In any event, as recognised by Natural England, this has already been provided for the extension to the HHW SAC.</p>
b)	<p>Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations. Natural England comments that <i>"NE believes that this has been provided for Extending the SAC. However, whilst the Applicant has demonstrated in theory strands 1-3 could be delivered the ecological evidence for strands 2 and 3 is not sufficient for NE to advise that compensation will be delivered"</i></p>	<p>Due to the fact that Strands 2 and 3 would be new and novel forms of compensation there are no previous examples to draw from (except in the case of strand 3 where evidence of success from similar schemes implemented in the United States of America has been included within the proposals (Document 8.25)). With any new or novel approach such as that required for offshore wind farm compensation packages the evidence cannot be made available until they are first implemented. However as recognised by Natural England evidence for why and how has been provided for the HHW SAC extension option and for Strand 1.</p>
c)	<p>Demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO i.e. landowner agreement is in place. Natural England comments that <i>"This is not secured for the compensation measures for extending the SAC and/or Strand 1. And is not applicable for Strand 2 and 3"</i>.</p>	<p>The Applicant is of the firm opinion that without a determination on AEoI from the Secretary of State it is not possible to secure asset owner agreements for (potentially very large) areas of seabed. In order to do so, the scale of compensation required will need to be agreed or approved, following a decision on whether AEoI arises.</p>
d)	<p>Policy/legislative mechanism for delivering the compensation (where needed) and Natural England comments that <i>"This is not agreed for all compensation measures as the Applicant wishes to retrospectively implement"</i>. In addition Natural England comment that <i>"there are policy, legislation and liability complexities associated with removal of surface laid redundant infrastructure that requires several regulators to work together to identify and enable mechanisms to remove constraints"</i></p>	<p>Given that the form of compensation being proposed, which has been developed and agreed previously with Natural England, is new and for which no precedent exists, neither policy nor legislation has been developed or tested for this type of proposal. This is true regardless of whether the Applicant would be required to implement the compensation prior to it being known whether an effect would occur or not. For the reasons set out above, it is an entirely lawful approach to implement compensation measures after an effect has occurred, and one which Natural England recognise in their own submissions as acceptable in certain circumstances.</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<p>With regards to the comment of “policy, legislation and liability complexities associated with removal of surface laid redundant infrastructure” the Applicant consider that this would be true of any compensation delivered in the offshore environment and is not specific to the compensation proposals being proposed by the Applicant.</p>
e) Agreed DCO/DML conditions		<p>As set out above, the Applicant has sought to address Natural England’s and the MMO’s comments on the wording of conditions as far as possible. At the end of the examination Natural England broadly agreed with the conditions proposed by the Applicant to secure the compensatory measures. However, since the close of the examination Natural England has requested that a number of new matters are dealt with by the conditions.</p> <p>Whilst Natural England state that the conditions are not agreed, Natural England's comments are not based on the version of the conditions submitted on 20 August 2021. Significant engagement has been undertaken with Natural England since the close of the examination on the form that the draft conditions should take. Where possible, Natural England's comments and proposed amendments have been accommodated in the revised draft submitted on 20 August 2021. It is also disappointing that Natural England's comments on the draft conditions only reflect areas which are not agreed, rather than giving credit for the many aspects of the conditions where matters have been agreed. It is perhaps unrealistic to expect that all draft conditions would be agreed between the parties, but the Applicant considers that the draft conditions are in a form which is substantially agreed, and in the few areas where these are not agreed, clear reasons for this have been provided by the Applicant.</p>
f) Clear aims and objectives of the compensation. Natural England comment that “The broad aim of the compensation is to ensure no overall loss of the impacted habitats to the national marine protected area network.”		<p>The Applicant agrees with this statement from Natural England and believe that the aims and objectives of each measure are set out in the HHW SAC Compensation document (8.25)</p>
g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management” and comment that “there is no commitment to adaptive management for strands 1-3”		<p>The Applicant has provided information on how adaptive management would be applied to Strands 1 to 3. The document states: “The Applicant has proposed a three-strand approach as this will allow an adaptive management principle to be applied whereby if one strand is not demonstrating delivery the other two strands would provide sufficient contingency to ensure that the compensation is delivered. The SoS may conclude that a single strand (or two of the strands) is appropriate to deliver all necessary compensation and the Applicant would support this decision.” And “The timeline presented in Plate 4.4 demonstrates how all strands of compensation could be delivered. Noting that adaptive management could be applied, for example Strand 2 would only be pursued past stage 3</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
		<p><i>if it was agreed that Strands 1 and 3 were not delivering and, therefore, that Strand 2 was also required.</i>" Section 4.5.1 "Road map for adaptive" management highlights how adaptive management could be followed to ensure successful delivery. The Applicant considers that the above is a clear commitment to adaptive management and this was originally added to the document to address Natural England's concerns.</p>
	<p>h) <i>Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient" and comments that "NE remains concerned that a similar approach to that of Hornsea Project Three (HP3) to leaving determining the governance to post consent is still being followed."</i></p>	<p>Furthermore, as explained above, it must be remembered that compensatory measures have been proposed without prejudice to the Applicant's case that there is no risk of AEol. It is not appropriate to set governance proposals until it is known whether compensation will, in fact, be required and if so in what respect because the governance arrangements will need to reflect the nature of the compensation required and how this is intended to be delivered.</p>
	<p>i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available and comments that <i>"NE remains concerned about the open and transparent nature of the proposed approach"</i>.</p>	<p>The Applicant highlights the level of engagement which has been undertaken to develop the proposals as set out in section 1.3 of the HHW SAC compensation (document 8.25). However, it is clear that it is not possible to identify compensation proposals that would be supported by all parties, so although the Applicant has and will continue to engage with all relevant stakeholders it may not be possible to accommodate all requests.</p> <p>In the event that compensation is required the Applicant would ensure that the development of compensatory measures is transparent to all relevant statutory and non-statutory stakeholders. Any marine licence applications or other mechanisms for implementation would be subject to consultation in accordance with the relevant planning process. In addition, it is expected that the SoS may wish to upload relevant documents to the project page of the PINS website so that the compensation scheme proposed and approved is made publicly available.</p>
	<p>j) Timescales for implementation esp. where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development and comments that <i>"Natural England is concerned that the proposals by the Applicant are not Habitat Regulations compliant in relation to benthic compensation"</i>.</p>	<p>A detailed response to this concern is provided in Table 1.2 where it is explained that this is an entirely lawful approach. The SoS has discretion as to the compensatory measures to be employed and the timing of their delivery provided that the SoS is satisfied that the compensatory measures would ensure that the overall coherence of Natura 2000 is protected.</p>
	<p>k) Commitments to monitoring specified success criteria and comment that <i>Natural England is concerned that whilst there is a commitment to monitoring there are no specific requirements included as part of any</i></p>	<p>The Applicant notes that Natural England have proposed a number of possible research question which monitoring could address (see table response to Annex 1 point 16 above) however these all focus around how Annex I features would recover/ be changed</p>

NE Ref Number	Applicant's Summary of NE comments	Applicant's Comments
	<i>compensation package as the details of the compensation are not fully known.</i>	by rock protection within the HHW SAC. As the Applicant, at the request of Natural England, has committed to not placing rock protection within the HHW SAC (apart from at cable crossings) and is unlikely to require any cable protection (see Applicant's Response to the Request for further information submitted on 25 June 2021 (document reference: ExA.PD.D19.V1), including Appendix 2 of that document) the Applicant is not able to make commitments to undertake the monitoring requested by Natural England (see response to Annex 1 point 16 above for further detail).
	i) Proposals for ongoing 'sign off' procedure for implementing compensation measures throughout the lifetime of the project. Including implementing feedback loops from monitoring".	The Applicant maintains that by ensuring that the SoS is required to "sign off" the compensation strategy this part of the checklist has been satisfied. At the point of approval of the compensation strategy document further measures could be put in place including implementing feedback loops from monitoring.
	m) Continued annual management of the compensation area and ensure other factors are not hindering the success of the compensation e.g. changes in habitat, increased disturbance as a result of subsequent plans/projects.	The Applicant considers that generally it is not possible for a project developer to be able to implement this type of management in the offshore environment given the scale and location of the compensation that has been proposed, however the Applicant has sought to address this issue by proposing contributions to support the ongoing site management and site condition monitoring of the HHW SAC (as stated in the compensation document 8.25) and with regards to Strands 1 and 2 that they are supported by Strand 3 to reduce further adverse effects on the HHW SAC caused by the fishing industry.

## 1.6 Comments on Natural England's advice regarding ornithological compensation

11. The Applicant has reviewed Natural England's submission dated 20<sup>th</sup> August 2021. Much of the submission made by Natural England appears to repeat issues which Natural England has raised in previous submissions and relate to matters which have been dealt with as far as reasonably possible by the Applicant during examination or in subsequent submissions as part of the Secretary of State led consultation. The Applicant welcomes Natural England's recognition of the '*significant efforts*' made by the Applicant to date to minimise and avoid ornithological impacts and notes that this process is expected to continue through the ongoing development of the project and the adoption of further advances likely to be available with the rapid development of offshore wind technology.
12. The Applicant welcomes Natural England's agreement on the in-combination total impacts to be assessed and the contribution to these made by Norfolk Boreas, and Natural England's support for the proposed in-principle compensation for both kittiwake and lesser black-backed gull, including their acknowledgement that these have the potential to provide the necessary levels of compensation should it be required, and thereby the measures will ensure the coherence of the Natura 2000 network. The Applicant also welcomes Natural England's support for proposals to collaborate with the developer of the East Anglia ONE North and East Anglia TWO wind farms, where similar in-principle compensation has been proposed. The two developers are continuing to discuss options for joint delivery of compensation should this be required of both.
13. The Applicant also notes that Natural England is now in agreement that there will be no adverse effects on the integrity of the Flamborough and Filey Coast SPA as a result of the project alone or in-combination with other projects on gannet, guillemot and razorbill (for all wind farms including Hornsea Project Three, Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO), and that this therefore means the Applicant and Natural England agree there is no requirement for compensation for these SPA features.
14. One key concern appears to be the level of detail provided for the compensatory measures to date and whether sufficient detail has been afforded to enable the SoS to have confidence that the measures can be delivered and are secured. This is responded to in detail below but, in summary, the degree of detail which can be provided can only be commensurate with the level of agreement on whether AEoI arises and, if it does, the nature and scale of the compensation to be provided. It is not reasonable or practicable to expect the Applicant to progress significantly beyond in principle discussions with landowners or to secure separate consents for the measures

(where this would be required). In any event, doing so would not necessarily provide evidence of deliverability because of the need to reflect the nature and scale of the compensation required in the agreements and consents sought. Indeed, the SoS appeared to recognise these practical issues in the consent award for Hornsea Project Three which did not require compensation proposals to be developed to the extent Natural England is now requesting. Nevertheless, the Applicant has continued to progress the compensation proposals as far as possible, to give all interested parties confidence that these could be delivered in the event they are required by the SoS. Finally, Norfolk Boreas was issued a Generation Licence on 26th July 2021 and therefore now has the ability to acquire land using compulsory powers as a last resort.

Summary of Submission	Applicant's Comments
<b>Natural England Cover Letter</b>	
<p>3.3.1 Kittiwake at Flamborough and Filey Coast SPA</p> <p><i>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 focusing 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 FFC SPA kittiwake population, would provide the most confidence in deliverability.</i></p> <p><i>Though this wasn't Natural England's preferred option, we agreed 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 from which the FFC SPA population draws its recruits. Whilst this measure would not directly benefit the FFC SPA population, this would potentially ensure the coherence of the Natura 2000 network (N2K), particularly if considered as a phased approach that also includes more medium-term measures on prey availability.</i></p>	<p>The Applicant acknowledges that Natural England's preferred option for kittiwake compensation is improving availability of forage fish (e.g. sandeel) through fisheries management. At a number of points during the examination and subsequent submissions the Applicant has confirmed a willingness to engage in the implementation of such measures (e.g. REP16-004) if they are available within the timescales required to deliver the Project. However, as consistently noted throughout these submissions the principal mechanism by which this could be implemented (management of the dogger bank commercial sandeel fishery) is not within the control of Vattenfall or other developers and would require a strategic approach led by Government. These challenges of deliverability are acknowledged by Natural England who accept that there is no mechanism to adopt this as a compensatory measure, including in their most recent submission to the SoS.</p> <p>With this consideration in mind, the Applicant went through a process to identify the most feasible method for delivery of suitable compensation measures within the necessary timeframes and control of the Applicant. In consultation with Natural England (which has continued throughout) the conclusion reached was that the only deliverable measure was artificial nesting structures and this has been accepted and agreed by Natural England as an appropriate measure capable of delivering any compensation required and that it has the potential to ensure the coherence of the Natura 2000 network is maintained.</p> <p>Given, fisheries management is not a measure which a developer can deliver and requires Government intervention, it is not correct to suggest that the Applicant</p>

Summary of Submission	Applicant's Comments
	<p>'decided' to pursue a different option, when the reality is fisheries management is not currently a feasible option for any developer, and this is accepted by Natural England.</p> <p>Natural England also suggest that fisheries management should be expressly referred to as adaptive management within the conditions of the dDCO. However, given the acknowledged limitations on delivery of the measure it is clearly not appropriate or reasonable to do so, especially in light of Natural England's recent comments which say that the SoS should have confidence that measures secured are deliverable. Neither is this necessary given (1) the dDCO conditions (Schedule 19, Part 1, paragraph 4(f)) require the Applicant to put forward adaptive management measures as part of the compensation strategy to be approved by the Secretary of State, and (2) the reference to the Applicant's willingness to participate in fisheries management (should this be available within the timescales required to deliver the Project) is expressly set out in Appendix 1 of the In Principle Habitats Regulations Derogation Provision of Evidence (Version 3) (Document Reference 8.26) submitted on 21 October 2021.</p>
<p>3.3.2 Lesser black-backed gull at Alde-Ore Estuary SPA</p> <p><i>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 their preferred compensation option. Depending on the outcome of this review, a trial might be undertaken to test options, before a final measure (or suite of measures) was taken forward for implementation, which could include predator control at nesting sites.</i></p>	<p>It is concerning that at this late stage Natural England's statement refers to the original submissions on this topic and does not reflect subsequent revisions to this proposal. Natural England has made it clear that their preferred option is installation of predator exclusion fencing, and in collaboration with Vattenfall (on behalf of the Project and Norfolk Vanguard), ScottishPower Renewables (SPR) and Defra, Natural England was actively engaged in efforts to deliver this particular measure as a strategic compensation option. As outlined in document 8.26. Vattenfall and SPR are now pursuing delivery of this measure separately. The Applicant considers the use of the word 'ultimately' in this context to be particularly misleading as the proposal to fund a coordinator was in fact a component of the original submission. For the avoidance of doubt, throughout the Applicant's recent submissions on compensation at the Alde-Ore Estuary SPA, and since Deadline 10 (REP10-033) on 6 May 2020, installation of predator exclusion fencing has been the preferred option. The Applicant is currently actively progressing this option in the event that it is necessary to implement compensation for the lesser black gull feature of the AoE SPA.</p>

Summary of Submission	Applicant's Comments
<p>3.4.1 Flamborough &amp; Filey Coast SPA</p> <p>3.4.1.2 Gannet – <i>Natural England can now rule out an AEOL in-combination for all projects up to and including Hornsea 3 (i.e. all submitted projects). However, we are not in a position to rule out an AEOL in-combination when Hornsea Project 4 and Dudgeon &amp; Sheringham Extensions are included. This is due to the uncertainty regarding the impacts for these pre-submission projects.</i></p> <p>3.4.1.3 Guillemot and razorbill - <i>Natural England can now rule out an AEOL in-combination for all projects up to and including Hornsea Project 3 (i.e. all submitted projects). However, we are not in a position to rule out an AEOL in-combination when Hornsea Project 4 and Dudgeon and Sheringham Extensions are included, due to the uncertainty regarding the impacts for these pre-submission projects, and with respect to the significant numbers of guillemot and razorbill encountered in the Hornsea 4 array area.</i></p>	<p>The Applicant welcomes Natural England's updated position that AEOL can be ruled out for the gannet, guillemot and razorbill features of the Flamborough and Filey Coast SPA for all projects up to and including Hornsea Project Three (i.e. including Norfolk Boreas, Norfolk Vanguard, East Anglia ONE North and East Anglia TWO). It clearly follows from this that, in the absence of AEOL there is no requirement to provide compensation.</p>
<p>3.5.1 Flamborough &amp; Filey Coast SPA compensation</p> <p>Natural England consider there to be remaining uncertainties regarding implementation and quantification of the proposed kittiwake compensation.</p>	<p>Natural England make various comments on the Applicant's compensation proposal to provide an artificial structure for kittiwake to use for breeding. These focus on specific details where the outcome is inevitably subject to a degree of uncertainty. For example, the size of the structure depends on the final agreed magnitude of impact, which in turn affects the design, and these ultimately influence the specific location for installation. Therefore it would be premature to settle on a final location and design at this stage when this could ultimately prove to be unsuitable for the impact to be compensated. It is important for the Applicant to retain flexibility in these aspects, to allow for the most appropriate solutions to be selected. Natural England's position that the location and design must be agreed prior to consent award fails to recognise the fact that the compensation proposals are without prejudice (and notably, Hornsea Project Three received consent on the basis of without prejudice in-principle compensation proposals). Nonetheless, the Applicant has pursued agreements with landowners and identified suitable location options and structural designs, which have been shared with Natural England, and Natural England has not raised any fundamental concerns on these proposals which the Applicant has been unable to address. There is also a considerable degree of over-compensation baked into the proposals, explicitly to accommodate these uncertainties.</p>



Summary of Submission	Applicant's Comments
	<p>With respect to ecological aspects of the proposal, such as initial recruitment and subsequent growth of the colony and the projected productivity of the birds, are inevitably subject to uncertainty when wild populations are involved. The Applicant has drawn on available evidence and has already undertaken field studies, as outlined below, to address these aspects as far as reasonably possible (and a preliminary summary of the results from this study have been shared with Natural England).</p> <p>The fieldwork consisted of a study of kittiwake colonies on artificial structures, spanning the North Sea coast from Dunbar to Lowestoft, and comprised repeat visits to track individual nest site's breeding success through the season in relation to various attributes (e.g. aspect, protection from rain, protection from mammalian and avian predators, etc.). This study has therefore provided valuable information which will allow the Applicant to design and locate an artificial structure to ensure it has a very high probability of successfully delivering the required compensation.</p>
<p><i>Natural England is particularly concerned that the Project's DCO/dML only requires them to submit a compensation plan to the Secretary of State prior to the operation of any wind turbine. This means that there is no requirement for the compensation to be in place or functional prior to impact. Natural England considers this significantly reduces the confidence that the measures will be implemented to the timescales set out. We highlight that the Hornsea Project 3 DCO/dML compensation schedule for kittiwake required the artificial structures to be in place four full breeding seasons prior to operation, providing the required certainty that the measures would be in place at an appropriate point in time.</i></p>	<p>At the outset, it should be noted that Natural England's comments do not reflect the most recent version of the draft conditions submitted to the Secretary of State on 20 August 2021.</p> <p>In addition, the Applicant amended this condition, which Natural England now say they have concerns with, as a result of a direct request from Natural England to do so on the basis that Natural England were concerned that the timescales previously agreed would not allow sufficient time for the Applicant to engage Natural England on the compensation plan before submitting it to the SoS for approval.</p> <p>Following further engagement with Natural England in advance of the Applicant's submission on 20 August 2021, the condition was in fact amended to require the Applicant to submit relevant compensation plans (save for compensation in respect of the HHW SAC) to the SoS for approval no later than 18 months prior to operation of turbines. It was agreed with Natural England that this struck a balance between allowing the compensation plan to be developed in consultation with Natural England, whilst ensuring sufficient time to allow for formal consultation on and approval of the plan and subsequent implementation of the compensation measures as early as possible. The conditions of the dDCO also</p>

Summary of Submission	Applicant's Comments
	<p>require the compensation plan submitted for approval to include an implementation programme for delivery of the measures (Schedule 19, paragraph 4(d) of all Parts, save for Part 3 dealing with the HHW SAC). This will ensure that the SoS is clear, at the point the plan is approved, when the measures would be implemented and how this relates to the point at which any impact would occur. (Please note that matters in relation to the HHW SAC dDCO conditions are dealt with separately in this document (Section 1.5).</p> <p>Natural England highlight that for Hornsea Project Three the artificial structures were required four years prior to operation. However, this reflected the fact that, since the predicted mortality for Hornsea Project Three was over five times higher than at Norfolk Boreas, the degree of required compensation was also much higher, and this generated a greater degree of uncertainty. Furthermore, the Applicant modelled the scale of the project's predicted impact through time against the likely payback of mortality delivered by the colony nesting on the proposed artificial structure. Across a range of colony growth scenarios, from precautionary to realistic (document 8.26), these demonstrated that the colony would be capable of paying off any early shortfall, or 'mortality debt', within a short span of years, even under the precautionary scenarios. Thus, the requirement for the compensation to be in place four years in advance of the impact is not supported by the evidence, and the example of Hornsea Project Three is not applicable.</p> <p>Natural England has noted that installation of multiple structures to achieve the necessary compensation would reduce the risk that any individual one might prove less successful (e.g. at attracting birds to nest). The Applicant agrees there may be benefits to such an approach and confirms this has not been ruled out.</p> <p>Accordingly, the SoS can be entirely confident that the compensatory measures would be appropriately secured through the dDCO and that the dDCO would require timely delivery of the compensatory measures in order to ensure that the overall coherence of Natura 2000 is protected.</p>
<p>2.5.2 Alde-Ore Estuary SPA compensation</p> <p><i>2.5.2.1 Lesser Black-backed Gull – Natural England broadly supports the principle of using New Zealand-style predator exclusion fencing to create safe nesting</i></p>	<p>The Applicant welcomes Natural England's support for the proposed in-principle compensation for lesser black-backed gulls at the Alde-Ore Estuary SPA.</p>

Summary of Submission	Applicant's Comments
<p><i>conditions for nesting lesser black-backed gull. The exclusion of mammalian predators such as foxes from the fenced area is likely to result in increased nesting success. We assume the proposed compensation pathway is to produce sufficient fledglings to reach adulthood and replace those lost from the SPA due to collision, which given that some lesser black-backed gulls will return to breed at the site from which they fledged, is likely to directly benefit the impacted SPA. We consider that this measure has potential merit either within or on land adjacent to the SPA, provided that a suitable site can be identified. The Project proposes to compensate for the upper confidence limit value for collision impacts, which Natural England supports, and to 'over-compensate' beyond that value to address uncertainties regarding the effectiveness of the measures.</i></p> <p><i>Natural England's main concern is that to date the Project has been unable to identify a specific location with landowner participation to install the New Zealand style predator exclusion fencing, meaning that this may not be achieved until the post-consent period, if at all. This can only reduce the level of confidence that this measure can be secured.</i></p>	<p>Notwithstanding the without prejudice nature of the Applicant's case that there is no risk of AEoI and therefore no requirement for compensatory measures, the Applicant has undertaken considerable work to progress delivery of compensation measures for lesser black-backed gull in the AOE SPA. The Applicant has continued to engage with landowners and has identified a specific site for fence installation with Cobra Mist Ltd, who were in fact identified by Defra and Natural England during initial investigations into the delivery of this compensation as a strategic measure. Further details are provided in The Applicant's Response to the Request for Further Information (document reference ExA.PDR.D22.V1) submitted on 21 October 2021.</p> <p>In short, following a site visit by an ornithologist, a specific location suitable for installation of the fencing has been identified, with active and willing landowner participation, such that the SoS can be satisfied that this can be appropriately secured in the DCO, and further, there can therefore be high confidence in the delivery of this measure post consent should compensatory measures be required.</p> <p>It should also be noted that Natural England has agreed that, given the relative scales of the proposed compensation and the predicted impact, the predator exclusion fence is only required to be in place one full year prior to turbine operation. Therefore, notwithstanding that the Applicant has demonstrated the compensation would rapidly pay off any mortality debt even under precautionary assumptions, there is more than sufficient time to finalise landowner negotiations, secure planning permission and install the fence and meet the deadline of installation one year prior to operation.</p>
<p><b>Natural England, Advice on the Proposed DCO Conditions regarding Compensatory Measures (FFC SPA and AOE SPA)</b></p>	
<p><i>Natural England note from condition 2 that the timing of submission of the plan is now limited to before operation of any wind turbine. We do not consider this an appropriate condition as it provides no certainty that the plan will be provided within sufficient time for it to be approved and for the compensatory measures to be deployed and take effect prior to the impact occurring.</i></p> <p><i>Additionally, we note that there is no requirement for compensation to be in place or functional prior to impact, just for the plan to be approved prior to generation.</i></p>	<p>At the outset, it should be noted that Natural England's comments do not reflect the most recent version of the draft conditions submitted to the Secretary of State on 20 August 2021.</p> <p>In addition, the Applicant amended this condition, which Natural England now say they have concerns with, as a result of a direct request from Natural England to do so on the basis that Natural England were concerned that the timescales previously agreed would not allow sufficient time for the Applicant to engage Natural England on the compensation plan before submitting it to the SoS.</p>

Summary of Submission	Applicant's Comments
<p><i>In our view this significantly reduces the confidence that the measures will be implemented in a timely fashion.</i></p> <p><i>Natural England would also request that this condition secure an appropriate consultation period on the compensation plan. These plans are likely to be highly technical and to required detailed review and expert feedback to support our response. A period of 6 weeks for Natural England and the MMO to respond would give all parties more certainty on the timeframes.</i></p>	<p>Following further engagement with Natural England in advance of the Applicant's submission on 20 August 2021, the condition was in fact amended to require the Applicant to submit relevant compensation plans (save for compensation in respect of the HHW SAC) to the SoS for approval no later than 18 months prior to operation of turbines. It was agreed with Natural England that this struck a balance between allowing the compensation plan to be developed in consultation with Natural England, whilst ensuring sufficient time to allow for formal consultation on and approval of the plan and subsequent implementation of the compensation measures as early as possible. The conditions of the dDCO also require the compensation plan submitted for approval to include an implementation programme for delivery of the measures (Schedule 19, paragraph 4(d) of all Parts, save for Part 3 dealing with the HHW SAC). This will ensure that the SoS is clear, at the point the plan is approved, when the measures would be implemented and how this relates to the point at which any impact would occur. (Please note that matters in relation to the HHW SAC dDCO conditions are dealt with separately in this document (Section 1.5))</p> <p>With respect to Natural England's concerns that the compensatory measures will not take effect prior to the impact occurring, the Applicant provided projections of the time a new colony would take to 'pay back' any mortality 'debt' that might be accrued in the submission Updated PVA FFC SPA (doc ref ExA.AS-2.D21.V1) submitted on 20 August 2021. This demonstrated that even under precautionary assumptions about initial colony size and growth the new colony would pay back its debt within a maximum of around 10 years of the impact first occurring, and probably much sooner under more realistic assumptions of colony growth. It should also be noted that these calculations were based on the upper 95% confidence interval of collision mortality, which is double the mean estimate. Even the most precautionary projection predicted payback of the mean mortality within 2 years.</p> <p>Accordingly, the SoS can be entirely confident that the compensatory measures would be appropriately secured through the dDCO and that the dDCO would require timely delivery of the compensatory measures in order to ensure that the overall coherence of Natura 2000 is protected.</p>

Summary of Submission	Applicant's Comments
	<p>In relation to including express reference to timescales for consultation with Natural England and the MMO in the dDCO conditions, this is not considered appropriate as it will be for the SoS to set any timetable for consultation on the compensation plan once it has been submitted for approval. Both Natural England and the MMO have been fully engaged throughout the development of the compensation measures to date and the Applicant can see no reason why this would not continue. In fact, allowing sufficient time for this engagement and to enable the plan to be developed in consultation with Natural England was the reason why condition 2 has been amended as explained above.</p>
<p><i>This Condition states that the strategy must adhere to the principles of the In-Principle Compensation plan.</i></p> <p><i>However, there is no definitive list of principles within the compensation plan. The applicant has included a list of compensation requirements, provided by Natural England, in the plan. We are pleased that the Applicant will use the list of key compensatory as developed by Natural England. However, Natural England notes that this list was compiled with a view to informing submission of appropriately well-developed compensatory measures into the Examination (or as is the case with current projects, prior to determination), rather than to inform the development of compensatory measures in the post-consent period. It is Natural England's view that sufficient clarify on all these matters is needed prior to determination.</i></p> <p><i>We advise that if this list of compensation requirements is being proposed as the Plan's principles, and was re-labelled as such, this would be satisfactory from a drafting perspective and without prejudice to our concerns regarding the sufficiency of the compensation plans. However, they are currently described as the proposed content of the Plan.</i></p>	<p>The intention of the condition was to tie the strategy for the delivery of compensation measures to be submitted and approved by the SoS post consent, to the In Principle Compensation document already submitted (and updated) during the course of the examination and determination of the application for development consent for the Project. There was no intention to limit this to specific 'principles' (whether or not expressly identified) within the In Principle Compensation document, but rather to refer to the entirety of the In Principle Compensation document (as relevant to the measures taken forward) more generally.</p> <p>Following engagement with Natural England in advance of the submission of 20 August 2021, the conditions were updated to refer expressly to the need to contain (and therefore address) the matters identified in the Natural England checklist. As explained below, the Applicant considers these matters are already fully addressed in the In Principle Compensation documents.</p> <p>In addition, an update of the Schedule 19 Extract (document reference ExA.AS-1.D22.V1) was submitted on 21 October 2021 which removes the reference to 'principles' and makes minor amendments to give effect to the intention of the Applicant as explained above.</p>
<p><i>No timing requirement on how long Natural England will be given for consultation on the monitoring reports has been included. As with the final comment on condition 2 above, Natural England considers that a consultation period of not less than 6 weeks should be stated within the condition.</i></p>	<p>It is not considered appropriate to include specific timescales for consultation in condition 5 of Schedule 19 because these timescales will be a matter for the SoS to determine at the point at which a specific request is made under condition 5.</p>

Summary of Submission	Applicant's Comments
<p><i>Natural England considers an additional condition is needed to ensure that the onshore site/s chosen for compensation are fit for purpose i.e. for locations with designated sites, that the location is already receiving the appropriate level of site management (the landowner is meeting their SSSI requirements which underpin the N2K sites); and that for other locations the site is not going to be subject to modifications which may affect the effectiveness of compensation both initially and over the life time of the project.</i></p>	<p>Following engagement with Natural England, this concern was addressed in the version of the conditions submitted on 20 August 2021, where a requirement for the strategy to include details of the suitability of the site to deliver the measures has been included at condition 4(a).</p>
<p><i>[In relation to Guillemot and Razorbill only]</i></p> <p><i>There is no requirement for decommissioning, which seems appropriate as there is no structure to decommission. However, there is no requirement to consider and seek approval for the end of the programme of compensatory measures. Given that the compensation plan might need to run longer than the works, we recommend that a condition requiring approval for the end of the programme should be included.</i></p>	<p>Following engagement with Natural England, this concern was addressed in the version of the conditions submitted on 20 August 2021, with the inclusion of condition 8 requiring the submission of a report to demonstrate completion of the programme required to deliver the compensation measures for the SoS's approval.</p>
<p><b>Natural England, Advice on Natural England's advice on the Alde-Ore Estuary Special Protection Area (AOE SPA) in principle compensation measures</b></p>	
<p>3.1 Cook (2021) Avoidance rate review.</p>	<p>The Applicant has reviewed the data and analysis used in Cook (2021) and considers aspects of the analysis to be flawed (specifically, the inclusion of a statistical outlier of highly questionable data quality) with the consequence that erroneous conclusions are reached.</p> <p>Details of the Applicant's review of Cook (2021) and the basis for this assessment is summarised in provided in The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1) and detailed in Appendix 2 of the document.</p> <p>For the reasons set out in the above documents, the Applicant considers it is premature for Natural England to propose the use of the Cook (2021) avoidance rate recommendations, and also note that Natural England guidance has not currently been updated. Therefore, while the Applicant has provided collision estimates for Norfolk Boreas using the Cook (2021) recommended avoidance rates, this is only to ensure the SoS has all the information available to complete an appropriate assessment and should not be taken as agreement that these rates are appropriate.</p>

Summary of Submission	Applicant's Comments
	<p>It should also be noted that, due to the way Cook (2021) calculated avoidance rates, it is not possible to apply a straightforward adjustment to the collision predictions for other wind farms included in the cumulative and in-combination assessments. Therefore the total collisions for all other projects remain the same.</p> <p>Importantly, having undertaken additional assessment using the alternative avoidance rates recommended by Cook (2021), the Applicant has been able to establish that there is no material difference to the assessment conclusions.</p> <p>The collision risk at Norfolk Boreas for the AOE SPA lesser black-backed gulls, taking into account the alternative avoidance rate and lower nocturnal activity rate, increases from 2.15 to 5.3 individuals when Cook (2021) rates are applied. Using the Natural England PVA tool, this increase in mortality would not lead to a decline in the current population and would only reduce the population growth rate by 0.2% above that predicted in the absence of Norfolk Boreas, and the total in-combination reduction in the population growth would be no more than 1.94%. It is clear therefore that, the above concerns about Cook (2021) notwithstanding, there is still no risk of AEoI as a result of in-combination impacts, and the Applicant's previous conclusions on AEoI remain completely unaffected by the proposed changes (see Alde Ore Estuary SPA CRM and PVA (document reference ExA.AS-2.D22.V1) submitted on 21 October 2021).</p>
<p><i>NE Ref 3.15; Section ref 4.4.3/72</i></p> <p><i>We agree that a collaborative approach between multiple OWF developers resulting in a single exclusion fence rather than multiple fences would be ecologically and logistically preferable and reduce the potential for other impacts e.g. on landscape receptors. An approach where individual developers make a proportionate contribution is also sensible.</i></p> <p><i>It is not currently clear whether the proposed 4ha exclusion area would be sufficient for all those projects currently awaiting determination, or indeed those as-yet-unsubmitted projects likely to require compensation in the future.</i></p>	<p>The Applicant welcomes Natural England's support for the collaborative approach being taken by Vattenfall and ScottishPower Renewables in the development of these in-principle compensation measures. The fenced area (4ha) proposed would provide more than enough space to accommodate all of the breeding pairs required to offset the worst case impacts from all of the projects for which these developers have been requested to provide in-principle compensation (i.e. Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO). Even at the extremely low nesting density suggested by Natural England (0.002 pairs/m<sup>2</sup>), the area could support 800 pairs, and this size of colony would deliver a very considerable degree of over-compensation for the combined impacts of the four projects.</p>
<p><i>NE Ref 3.20; Section ref 4.4.4/83</i></p>	<p>As outlined in The Applicant's Response to the Request for Further Information (doc ref ExA.PDR.D22.V1) and explained above, the Applicant has continued to make progress with Cobra Mist Ltd and is currently negotiating Heads of Terms in</p>

### Summary of Submission

*We note that ‘it is recognised that there may be constraints to delivering the compensation which could delay its implementation, including agreeing an appropriate location and ensuring that the area chosen can be appropriately managed’. Natural England is concerned that to date a suitable location with at least in-principle landowner agreement has not been identified and considers that this lack of security presents a real risk to the delivery of this compensatory measure. This to our mind reinforces the requirement to secure the installation of the compensatory measure prior to the impacts occurring. In addition to this, before any compensation measures could be installed the site would need to be managed and/or in favourable condition for LBBG, which may take several years to achieve.*

### Applicant’s Comments

respect of an identified site for delivery of the compensation measures should they be required.

In addition, in order to progress land negotiations as far as possible for a without prejudice case, the Applicant has undertaken a site visit with an experienced ornithologist who has confirmed that the habitat in the proposed area is suitable to provide any compensation which may be required by the SoS. The habitat was noted as being similar to that recorded in studies of breeding success in this species (Ross-Smith et al. 2015), and that vegetation management in the nonbreeding season would also readily maintain and enhance its suitability. Evidence of lesser black-backed gull breeding on the roof of an adjacent building was observed, from which colonisation of the site would readily occur. It is anticipated that any habitat management required to enhance the site’s suitability for lesser black-backed gull breeding (which it should be noted is not expected to be essential, but could further improve conditions) could be rapidly undertaken and would not require the ‘several years’ suggested by Natural England.

As a consequence of these positive findings the Applicant is progressing negotiations of the Heads of Terms but it is not expected that these will be entered into until the requirement for compensation has been fixed and agreed for the reasons already explained.

In terms of the timing of delivery, Natural England’s position is that installation of the fence one year prior to turbine operation would be sufficient, while the Applicant has demonstrated (Appendix 2 of the In Principle Habitats Regulations Derogation AOE SPA (V3) (document reference 8.24)) that even if this date is not met, the proposed compensation would over-compensate the project’s mortality to such an extent that it would repay any accrued mortality debt within a very small number of years. Consequently, the SoS can have a high degree of confidence that the proposed compensation, if required, can be delivered in the necessary timeframes.

Ross-Smith, V., Johnston, A. and Ferns, P.N. (2015) Hatching success in Lesser Black-backed Gulls *Larus fuscus* - an island case study of the effects of egg and nest site quality. *Seabird*, 28, 1-16.



### Summary of Submission

*Natural England is concerned that the Project's DCO/dML only requires them to submit a compensation strategy to the Secretary of State prior to the operation of any wind turbine. This means that there is no requirement for the compensation to be in place or functional prior to impact. Natural England considers this significantly reduces the confidence that the measures will be implemented to the timescales set out. Please see our cover letter and comments on the DCO wording for more detail.*

### Applicant's Comments

At the outset, it should be noted that Natural England's comments do not reflect the most recent version of the draft conditions submitted to the Secretary of State on 20 August 2021.

In addition, the Applicant amended this condition, which Natural England now say they have concerns with, as a result of a direct request from Natural England to do so on the basis that Natural England were concerned that the timescales previously agreed would not allow sufficient time for the Applicant to engage Natural England on the compensation plan before submitting it to the SoS.

Following further engagement with Natural England in advance of the Applicant's submission on 20 August 2021, the condition was in fact amended to require the Applicant to submit relevant compensation plans (save for compensation in respect of the HHW SAC) to the SoS for approval no later than 18 months prior to operation of turbines. It was agreed with Natural England that this struck a balance between allowing the compensation plan to be developed in consultation with Natural England, whilst ensuring sufficient time to allow for formal consultation on and approval of the plan and subsequent implementation of the compensation measures as early as possible. The conditions of the dDCO also require the compensation plan submitted for approval to include an implementation programme for delivery of the measures (Schedule 19, paragraph 4(d) of all Parts, save for Part 3 dealing with the HHW SAC). This will ensure that the SoS is clear, at the point the plan is approved, when the measures would be implemented and how this relates to the point at which any impact would occur. (Please note that matters in relation to the HHW SAC dDCO conditions are dealt with separately in this document (Section 1.5)).

Furthermore, the Applicant has provided worked examples for the time the new colony would be expected to take to achieve mortality payback (8.24 Appendix 2 AOE SPA In Principle Compensation submitted 25 June 2021).

This demonstrated that even under precautionary assumptions about initial colony size and growth the new colony would pay back its debt within a maximum of around 5 years of the impact first occurring, and probably much sooner under more realistic assumptions of colony growth. It should also be noted that these calculations were based on the upper 95% confidence interval of collision

Summary of Submission	Applicant's Comments
	<p>mortality, which is double the mean estimate. Even the most precautionary projection predicted payback of the mean mortality within 1-2 years.</p> <p>Natural England considers these model predictions to be '<i>unduly optimistic</i>' due to the demographic rates used for productivity and recruitment. However, the productivity value proposed by Natural England is only very slightly lower than that used by the Applicant (0.45 compared to 0.5), a difference which has a barely detectable effect on the time taken to repay mortality (this adds less than 1 year to the predicted time taken). Natural England also suggest that half the birds produced by the colony would disperse away and recruit to other colonies. However, the same rate and effect applies to other colonies, in other words emigration and immigration would be balanced, with birds hatched elsewhere expected to move to the new site. It was for this reason that the modelling in document 8.24 did not include this aspect (it can be assumed to be balanced). It is also important to remember that these projections are based on delivery of compensation for the upper 95% confidence interval collision mortality estimate, which is more than double the mean estimate. Thus, Natural England's suggestion that these projections are '<i>unduly optimistic</i>' are unfounded and in fact infer an additional layer of precaution on top of the precaution in the assessment itself (see REP2-035 page 322 for discussion on precaution in offshore wind farm ornithological assessment).</p> <p>Accordingly, the SoS can be entirely confident that the compensatory measures would be appropriately secured through the dDCO and that the dDCO would require timely delivery of the compensatory measures in order to ensure that the overall coherence of Natura 2000 is protected.</p>
<p><b>Natural England, Overview appraisal of in principle compensation measures</b></p>	
Summary of Submission	Applicant's Comments
<p>Natural England has developed a checklist of those aspects of compensatory measures that need to be described in detail when developers are submitting or updating applications where impacts on MPAs are anticipated. Whilst not exhaustive, it lists key areas where sufficient detail is needed to provide the Secretary of State with appropriate confidence that compensatory measures can be secured. The checklist was also developed to provide detailed advice to</p>	<p>The Applicant welcomes Natural England's summary of the aspects they consider need to be included in compensation proposals. However, the Applicant considers that, within the confines that the compensation proposals are in-principle and provided without prejudice to the Applicant's assessment conclusions that there are no risks of AEoI, all of these aspects have already been addressed in the submissions made on compensation as far as is currently possible.</p>

Summary of Submission	Applicant's Comments
<p>decision-makers regarding Natural England's position on the measures, which follows overleaf.</p>	
<p>a) What, where, when: clear and detailed statements regarding the location and design of the proposal.</p>	<p>FFC SPA kittiwake, FFC SPA guillemot and razorbill, AOE SPA lesser black-backed gull</p> <p>The Applicant considers that the compensation measures for each species have been clearly identified and the timing of when the measures would be implemented and expected to have achieved the necessary levels of compensation (e.g. to have paid back any mortality debt) have been set out in detail in the relevant submissions (e.g. document reference 8.24 &amp; 8.26).</p> <p>In identifying the compensation measures the Applicant has reviewed and presented the evidence for alternatives (where available) before setting out the details of the preferred options. In developing these proposals the Applicant has consulted regularly with Natural England and taken onboard any feedback that has been provided by Natural England.</p> <p>These consultations have included considerations of locations for both the kittiwake artificial colony and the predator exclusion fencing for lesser black-backed gull, designs for the structures to be installed and details of studies undertaken to inform the designs.</p> <p>In respect of compensation for kittiwake and lesser black-backed gull, the Applicant considers that the extent of discussion and agreement reached with relevant landowners has in fact demonstrated a high level of willingness to engage with this process which Natural England has not taken into account. In particular, Heads of Terms for compensation in respect of kittiwake and lesser black-backed gull are now being negotiated. As explained previously, it is not appropriate to enter into detailed land arrangements for without prejudice proposals. Until the requirement for compensation is known and matters such as the scale and precise siting and nature of the compensation required has been agreed or established, the land documentation cannot be finalised as these factors will need to be reflected in the documentation to be entered into. The Applicant has gone above and beyond previous precedents for offshore wind in developing the compensation proposals to the level of detail that has been submitted to date, and on which Natural England have been engaged at this pre-consent stage.</p>

Summary of Submission	Applicant's Comments
	<p>In short, from the submissions to date the SoS will already have a clear understanding of what is proposed, where it is proposed and when it is proposed to be delivered, even though the Applicant's compensation proposals are without prejudice to the Applicant's primary position that there is no risk of AEoI, and this necessarily limits the level of detail which the Applicant can submit at this stage.</p>
<p>b) Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations</p>	<p>The Applicant welcomes Natural England's support for the ecological evidence in support of the kittiwake and lesser black-backed gull proposals and agreement that the compensation measures proposed for those species will ensure the coherence of the Natura 2000 network. It is noted that Natural England retain a few concerns over some of the details of the proposals, but the Applicant considers these can be readily addressed should the compensation be required by the SoS.</p> <p>The Applicant notes Natural England's comments on the in-principle compensation proposals for guillemot and razorbill, but notes that since the Applicant and Natural England are now in agreement that an in-combination AEoI can be ruled out for these features of the Flamborough and Filey Coast SPA (for all projects up to and including Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North, East Anglia TWO and Hornsea Project Three) there is no requirement for the project to further develop these proposals.</p>
<p>c) Demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO i.e. landowner agreement is in place</p>	<p>The Applicant has identified specific sites to deliver the kittiwake and lesser black-backed gull compensation measures and is currently negotiating Heads of Terms with willing landowners in respect of these sites. Designs of the structures required to deliver the compensation have also been shared with Natural England, with a view to reaching agreement on these designs before any application for planning permission is submitted. Therefore the Applicant has proposed compensation measures which have been developed to a high level of detail, and which exceed the level of detail that the SoS found acceptable for Hornsea Project Three, the only offshore wind farm to require delivery of compensation measures to date.</p> <p>As previously explained, the compensation proposals have been put forward entirely without prejudice to the Applicant's case that there is no risk of AEoI. This necessarily limits the level of detail to which the compensatory measures can be progressed prior to the SoS's determination on whether AEoI does in fact arise. In</p>

Summary of Submission	Applicant's Comments
	<p>particular, precise matters relating to scale of impact and the design of compensation measures need to either be agreed with Natural England or approved by the SoS so these details can be reflected in the land arrangements entered into and any application for planning permission submitted. To progress land arrangements and planning applications before these matters are either agreed with Natural England or approved by the SoS would be to do so at the Applicant's and landowner's risk and could result in compensation measures being taken forward which do not fully reflect or align with the ultimate compensation scheme, which is approved by the SoS if, indeed, any compensatory measures are required at all. For this reason, it is not considered appropriate for the Applicant to progress the compensation measures to any further level of detail at this stage.</p> <p>In addition, a statement confirming how the necessary land and/or rights will or have been secured to deliver the compensation measures must also be included in the compensation strategy to be submitted for approval to the SoS, as secured under condition 4(b) of the relevant Parts to Schedule 19 of the dDCO.</p> <p>With respect to guillemot and razorbill, while Natural England is correct to state that the proposals did not identify which of the potential islands would be taken forward for rate eradication, this approach is appropriate to the without prejudice in-principle status of the compensation for these species. Indeed, since the Applicant and Natural England are now in agreement that there will be no AEoI for these species, this approach can be seen to be entirely appropriate. Entering into detailed negotiations with landowners would have been premature and unnecessary at this stage.</p>
d) Policy/legislative mechanism for delivering the compensation (where needed)	<p>FFC SPA kittiwake</p> <p>Natural England are correct to state that Lowestoft port will be undergoing development over the coming 18 months, however the Applicant does not consider this will prevent the proposed structure from being colonised for that period. There is ample evidence (which the Applicant has presented, e.g. In Principle HRA Derogation Appx 1 FFC SPA (V3), document 8.24) that kittiwakes are not sensitive to disturbance from anthropogenic sources and that the port works will have a negligible effect on the uptake of the new structure or on subsequent breeding.</p>

Summary of Submission	Applicant's Comments
	<p>AOE SPA lesser black-backed gull</p> <p>As noted above, the Applicant has identified a site to deliver the compensatory measures and is currently negotiating Heads of Terms with the landowner, Cobra Mist Ltd. At this stage, it is not appropriate to enter into land arrangements beyond agreeing Heads of Terms or to seek planning permission for compensatory measures because they are proposed without prejudice to the Applicant's primary case that there is no risk of AEoI. This is especially so where the scale of impact and precise design of the measures has not been agreed. These details will influence the precise terms of the land arrangements to be entered into and the details of the planning permission to be sought, and if progressed in advance of either agreement being reached or approval by the SoS there is a risk that the land rights secured would be insufficient or the planning permission obtained would not be suitable to deliver the subsequently approved measures.</p> <p>FFC SPA guillemot and razorbill</p> <p>The fact that the Applicant and Natural England are in agreement that an in-combination AEoI can be ruled out for these species notwithstanding, the Applicant does not consider it appropriate to enter into discussions with landowners prior to consent award and a determination of whether compensation will be required. The same arguments about the scale of impact made for lesser black-backed gull are also relevant to these species, since these would affect island selection.</p>
e) Agreed DCO/DML conditions	<p>At the end of the examination Natural England broadly agreed with the conditions proposed by the Applicant to secure the compensatory measures (REP17-010). However, since the close of the examination Natural England has requested that a number of new matters are dealt with by the conditions.</p> <p>Whilst Natural England state that the conditions are not agreed, Natural England's comments are not based on the version of the conditions submitted on 20 August 2021. Significant engagement has been undertaken with Natural England since the close of the examination on the form that the draft conditions should take. Where possible, Natural England's comments and proposed amendments have been accommodated in the revised draft submitted on 20 August 2021. It is also disappointing that Natural England's comments on the draft conditions only reflect</p>

Summary of Submission	Applicant's Comments
	<p>areas which are not agreed, rather than giving credit for the many aspects of the conditions where matters have been agreed. It is perhaps unrealistic to expect that all draft conditions would be agreed between the parties, but the Applicant considers that the draft conditions are in a form which is substantially agreed, and in the few areas where these are not agreed, clear reasons for this have been provided by the Applicant.</p>
<p>f) Clear aims and objectives of the compensation</p>	<p>Clear aims and objectives of the compensation are already set out in the in-principle compensation submissions. See section 4.4 of document 8.24 and 4.5 of document 8.26 for details of the aims and objectives of the proposed compensation.</p>
<p>g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management</p>	<p>Monitoring and adaptive management are a key component of the compensation proposals. Kittiwakes and lesser black-backed gull would be monitored through the use of colour ringing and observations, to permit recording of breeding success and survival rates. If this monitoring indicated a need for further interventions to enhance the status of the colonies then this management would be discussed with stakeholders and implemented as necessary (i.e. adaptive management). As such management is necessarily reactive it is not possible to state what form it would take, but it could include providing supplementary food, modifying nest platforms, etc. These are discussed in section 4.5.3 of document 8.26 and section 4.4.5 of document 8.24. As Natural England recognise, proposals for adaptive management must also be included in the compensation strategy to be submitted for approval to the SoS, as secured under condition 4(f) of the relevant Parts to Schedule 19 of the dDCO.</p>
<p>h) Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient</p>	<p>As explained above, it must be remembered that compensatory measures have been proposed without prejudice to the Applicant's case that there is no risk of AEoI. It is not appropriate to set governance proposals until it is known whether compensation will, in fact, be required and if so in what respect because the governance arrangements will need to reflect the nature of the compensation required and how this is intended to be delivered. Natural England note that the Applicant is taking a similar approach to that adopted for Hornsea Project Three, which further supports the Applicant's position that the SoS does not require details of governance at the decision making stage in order to grant development consent and adequately secure compensatory measures.</p>

Summary of Submission	Applicant's Comments
<p>i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available</p>	<p>In the event that compensation is required the Applicant would ensure that the development of compensatory measures is transparent to all relevant statutory and non-statutory stakeholders through updates issued on project pages, newsletters and update meetings as appropriate. Any planning applications or other mechanisms for implementation would be subject to consultation in accordance with the relevant planning regime. In addition, it is expected that the SoS may wish to upload relevant documents to the project page of the Planning Inspectorates website so that the compensation scheme proposed and approved is made publicly available.</p>
<p>j) Timescales for implementation esp. where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development</p>	<p>The Applicant has demonstrated that the proposed compensation would achieve and then exceed the requirements within a short period of years and therefore disagrees that the timing as currently proposed to be secured in the DCO needs to be brought forward. This is based on projections for the time taken for the compensation to payback any mortality debt, and has been set out using a range of precautionary assumptions in Appendix 1 of both the FFC SPA proposals (document 8.26) and the AOE SPA proposals (document 8.24).</p> <p>Even under the most precautionary assumptions (including the use of upper 95% confidence interval collision mortality values) the Applicant's compensation would pay off kittiwake mortality debt after approximately 10 years and lesser black-backed gull mortality within approximately 5 years. Under more realistic assumptions the time to payback is expected to take less than half of these periods. As discussed elsewhere in this document (reference to the Applicant's comments on section 3.5.1 Flamborough &amp; Filey Coast SPA compensation and 2.5.2 Alde-Ore Estuary SPA compensation respectively), Natural England has suggested that the Applicant's calculations are 'unduly optimistic' and suggest alternative parameter values should be used. However, consideration of the alternative parameters suggested by Natural England indicates these would actually make very little difference to the key prediction of how long it would take for any mortality debt to be repaid. Furthermore, the projected mortality used in these calculations was the upper 95% confidence interval, which was at least twice as high as the mean. Thus, the Applicant's predictions already contain a large element of precaution, and Natural England's suggestions would simply add yet another layer of precaution to an already highly over-precautionary assessment.</p>



Summary of Submission	Applicant's Comments
<p>k) Commitments to monitoring specified success criteria</p>	<p>Natural England propose that colour-ringing should be undertaken as an addition to the proposed lesser black-backed gull monitoring and the Applicant agrees that this is appropriate and would be included if this compensation is required.</p> <p>However, at this stage, this is considered to be a level of detail which it is not necessary to specify and does not represent a key consideration to demonstrate that the Applicant has committed to monitoring the success of the compensatory measures. In addition, condition 4(f) of the relevant parts of Schedule 19 to the dDCO proposed by the Applicant requires that the compensation strategy to be approved by the SoS includes proposals for monitoring and reporting on the effectiveness of the measures.</p>
<p>l) Proposals for ongoing 'sign off' procedure for implementing compensation measures throughout the lifetime of the project. Including implementing feedback loops from monitoring</p>	<p>The Applicant anticipates that its relevant updates on the progress of the Project to statutory and non-statutory stakeholders would include information on the delivery and success of compensation measures. In addition, this can be adequately dealt with through the submission and approval of documents by the SoS who may wish to upload relevant documents to the project page of the PINS website (as explained above). Accordingly, and particularly given that the SoS has the ability to manage any wider consultation and public scrutiny considered appropriate, the Applicant does not consider it necessary for this to be secured in the conditions proposed for Schedule 19 of the dDCO.</p>
<p>m) Continued annual management of the compensation area and ensure other factors are not hindering the success of the compensation e.g. changes in habitat, increased disturbance as a result of subsequent plans/projects</p>	<p>The requirement for ongoing management of the compensation area is recognised and secured under condition 4(e) of the relevant Parts of the Schedule 19 Extract to the dDCO.</p> <p>Ongoing habitat management would be undertaken in line with the requirements of the results of monitoring and any adaptive management thereby identified.</p> <p>The responsibility to manage external factors such that they do not hinder the success of the compensation measures is outside of the Applicant's control and therefore not appropriate to secure as part of the compensation measures. In any event, this is not considered necessary because guidance requires that any plan or project which has the potential to affect the performance of compensatory measures required for a European site should itself be subject to Habitats Regulations Assessment. For example, paragraph 181 of the NPPF advises that</p>

Summary of Submission	Applicant's Comments
	sites identified or required as compensatory measures for adverse effects on European sites should be given the same protection as European sites.
<b>Natural England, Advice on the Flamborough and Filey Coast Special Protection Area (FFC SPA) in principle compensation measures</b>	
2.6 Cook (2021) Avoidance rate review.	<p>The Applicant has reviewed the data and analysis used in Cook (2021) and considers these to be flawed. Details of the Applicant's review of Cook (2021) and the basis for this assessment is summarised in provided in The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1) and detailed in Appendix 2 of the document.</p> <p>For the reasons set out in the above documents the Applicant considers it is premature for Natural England to propose the use of the Cook (2021) avoidance rate recommendations, and also note that Natural England guidance has not currently been updated. Therefore, while the Applicant has provided collision estimates for Norfolk Boreas using the Cook (2021) recommended avoidance rates, this is only to ensure the SoS has all the information available to complete their appropriate assessment and should not be taken as agreement that these rates are appropriate.</p> <p>It should also be noted that, due to the way Cook (2021) calculated avoidance rates, it is not possible to apply a straightforward adjustment to the collision predictions for other wind farms included in the cumulative and in-combination assessments. Therefore the total collisions for all other projects remain the same.</p> <p>The collision risk at Norfolk Boreas for FFC SPA kittiwakes is reduced from 14.0 to 13.9 individuals when Cook (2021) rates are applied. Using the Natural England PVA tool, this level of mortality would reduce the population growth rate by 0.016% above that predicted in the absence of Norfolk Boreas and the total in-combination reduction in the population growth would be no more than 0.4%. It is clear therefore that, the above concerns about Cook (2021) notwithstanding, the Applicant's original conclusions are unaffected and there remains no risk of an AEoI since the population growth rate will, at most, be reduced by an undetectable amount (see Flamborough and Filey Coast SPA CRM and PVA (doc ref ExA.AS-3.D22.V1) submitted on 21 October 2021).</p>
2.18 <i>We agree with the Applicant that improving sandeel availability to kittiwakes has significant ecological benefit/value as a long-term, strategic measure. Whilst</i>	The Applicant notes that Natural England has acknowledged that there is no mechanism by which a developer can deliver this measure. Given the degree of

Summary of Submission	Applicant's Comments
<p><i>there is currently no mechanism available for developers to adopt this as a compensatory measure, such a mechanism should not be discounted. We also consider that prey availability could form the basis of adaptive management measures for the compensatory measure in the longer term, which we consider should be incorporated into the proposals.</i></p>	<p>scrutiny which Natural England has subjected the Applicant's measures for which delivery is possible (i.e. provision of artificial nesting habitat) the Applicant is surprised by Natural England's suggestion that a measure which cannot currently be delivered '<i>should not be discounted</i>'. Nonetheless, if initiatives are developed by the relevant authorities in the future with a view to enabling fishery management to be undertaken as strategic compensation then Vattenfall would be willing to participate in their delivery, on the basis that these were within acceptable timeframes for the Project.</p>
<p>2.24 1. Annual colony growth rate</p>	<p>Natural England's concern is that while the initial colony growth rate may be relatively rapid, this will not be expected to last for the lifetime of the compensation. However, this rate of growth is not in fact required once the mortality payback has been achieved (i.e. around 15 years even under the more precautionary scenarios), because once the break-even point is reached ongoing colony growth is not necessary to maintain the necessary level of annual compensation levels required. Indeed, in all the scenarios the colony actually stops growing (i.e. a growth rate of 1) once the artificial site is full (assumed to be 300 pairs) which is predicted to occur after around 15 years.</p>
<p>2.24 2. Initial population size of artificial colony</p>	<p>The purpose of the different scenarios presented in document 8.26 was to explore differences in relation to various assumptions. Thus, while Natural England has questioned the initial population sizes used, these were provided in order to understand how changing this parameter affected the results. Furthermore, it was assumed by the Applicant that Natural England would prefer the most precautionary scenario presented (initial size: 25 pairs), since that corresponds with their approach to such assessments, and this was the basis for the predictions discussed in the report.</p>
<p>2.24 3. Excess productivity</p>	<p>Natural England state, with reference to the FFC SPA kittiwake productivity rate, '<i>It is not clear how the 0.6 value FFC SPA is derived</i>'. This figure is taken from Natural England's submissions on the FFC SPA kittiwake population status (e.g. Norfolk Boreas [REP4-040], Figure 1, page 48).</p> <p>Natural England also state that '<i>We advised the Examination that this 1.2 productivity rate is overly optimistic [REP17-010] particularly over a 30-year period</i>'. As with the above comment regarding the colony growth rate, this level of productivity is not required for the entire duration of the artificial colony, and once</p>

Summary of Submission	Applicant's Comments
	the payback mortality level has been achieved (i.e. after around 15 years) the annual mortality to be offset would be readily achieved even at much lower productivity rates. Therefore, this aspect has little bearing on the ability of the colony to deliver the necessary compensation.
2.24 4. Overall conclusions	On the basis of the individual elements noted above Natural England has concluded that the scenarios for mortality payback are ' <i>insufficiently precautionary</i> '. However, as explained above, Natural England has not taken into account the fact that the predicted growth rates and productivity do not need to be maintained for the duration of the compensation but rather only until the colony is approaching the point at which any accrued mortality 'debt' (an estimate which it should also be remembered contains considerable levels of precaution) has been repaid. Therefore, the Applicant considers these projected outputs provide a useful guide, as intended.
2.35 DCO/dML	As explained elsewhere in this submission, Natural England's comments do not reflect the latest version of the conditions submitted by the Applicant on 20 August 2021, in which Natural England's comments have been addressed as far as possible. In particular, the condition requires submission of the compensation strategy at least 18 months prior to operation of the turbines. The rationale for this approach was discussed with Natural England and is explained above. The Applicant has also demonstrated through the projections of mortality and compensation scenarios, that any accrued mortality debt that might occur with a delay of one or two years would be rapidly repaid through the over-compensation incorporated into the in-principle proposals.
2.36 Natural England's list of key compensatory matters	Please refer to the Applicant's response to the individual points raised on Natural England's list of key compensatory matters in Table 1.9.
2.38 Guillemot assessment 2.54 Razorbill assessment	The Applicant welcomes Natural England's confirmation that an in-combination AEoI can be ruled out for both guillemot and razorbill (including Hornsea Project Three, Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO). The Applicant considers that this provides further justification why the SoS can have confidence that there would be no in-combination AEoI as a result of the Project in respect of these SPA features.

Summary of Submission	Applicant's Comments
	<p>The Applicant notes that there was no intention to misrepresent Natural England's assessment for these species, however it remains unclear to the Applicant how Natural England has arrived at its impact predictions without applying the combination of displacement rates and mortality rates noted by the Applicant, as these are needed in order to avoid exceeding the reduction in growth rate of 0.5% that Natural England has predicted.</p> <p>The Applicant notes that Natural England's advice was that it should not be <i>assumed</i> that their approach to the displacement assessment for Norfolk Boreas will apply to future projects. There was no intention by the Applicant to imply a change of advice for future projects on Natural England's behalf and the Applicant recognises that Natural England will assess each project on a case-by-case basis.</p>

## 1.7 Marine Management Organisation (MMO)

15. The Applicant notes the MMO's request for certainty of timescales to be retained in the proposed wording of the HHW SAC compensation condition. This was in fact addressed in the version of the draft conditions submitted on 20 August 2021 (*Extract of Schedule 19 to the Draft DCO, Compensation to protect the coherence of the Natura 2000 Network*) at condition 2 of Part 3 as follows:

“As soon as reasonably practicable **and no later than 3 months** following completion of the installation of that part of each bundled export cable which is situated within the HHW SAC....”

Therefore, providing the MMO with a set timescale for provision of the document.

## 1.8 Royal Society for the Protection of Birds

Summary of Submission	Applicant's Comments
<b>Royal Society for the Protection of Birds, Overview and Summary</b>	
<p>2.5 Proposed DCO wording</p> <p><i>Critically, the key legal mechanism comprises the proposed DCO wording for each compensation proposal. The Applicant relies on essentially the same structure and approach in setting out its DCO wording, with minor adjustments related to the species. Below, we set out our understanding of the logic of the DCO wording's approach and why we consider it is seriously flawed.</i></p> <p><i>Therefore, we conclude that it is not possible to be certain what each species' compensation plan actually comprises. This makes it impossible to evaluate and understand how the legal requirement set out in the DCO condition should be implemented and to comment accordingly.</i></p> <p><i>We would further argue it makes it very difficult for the Secretary of State to be confident what the overarching framework is that will govern each species' compensation measures.</i></p> <p><i>This serious flaw in the proposed approach is exacerbated by the provision in condition 3 in each DCO wording that expressly countenances an alternative compensation measure being put forward post-consent. This means that the public can have no confidence what compensation measure will be implemented for each species given that the proposed DCO wording allows for it to be changed post-consent. This means it is not possible at this time to be confident the coherence of the National Sites Network would be protected should consent be granted.</i></p> <p><i>As we summarise in sections 4 and 5 below (and in detail in RSPB annexes 1 and 2), this is compounded by the lack of any substantive compensation proposals being put forward by the Applicant for any of the seabird species of concern. No tangible and secured proposal is put forward in either Appendix 1 or Appendix 2.</i></p>	<p>The intention of the condition was to tie the strategy for the delivery of compensation measures to be submitted and approved by the SoS post consent, to the In Principle Compensation document already submitted (and updated) during the course of the examination and determination of the application for development consent for the Project. There was no intention to limit this to specific 'principles' (whether or not expressly identified) within the In Principle Compensation document, but rather to refer to the entirety of the In Principle Compensation document (as relevant to the measures taken forward) more generally.</p> <p>Following engagement with Natural England in advance of the submission of 20 August 2021, the conditions were updated to refer expressly to the need to contain (and therefore address) the matters identified in the Natural England checklist. As explained above, the Applicant considers these matters are already fully addressed in the In Principle Compensation documents.</p> <p>In addition, an update of the Schedule 19 Extract (doc ref ExA.AS-1.D22.V1) was submitted 21 October 2021 which removes the reference to 'principles' and makes minor amendments to give effect to the intention of the Applicant as explained above.</p> <p>In relation to public scrutiny of the compensation measures, to date the public has had full opportunity to comment on the development of the compensatory measures during the examination process and through the SoS's consultation on requests for further information. Going forward, and in the event that development consent is granted, it is expected that the SoS may wish to upload relevant documents to the project page of the PINS website so that the compensation scheme proposed and approved is made publicly available along with any ongoing monitoring reports. In any event, the Applicant anticipates providing relevant updates on the progress of the Project to statutory and non-statutory stakeholders, and this would include information on the delivery and success of any compensation measures required.</p>

Summary of Submission	Applicant's Comments
	<p>Finally, whilst it is not anticipated that compensation measures other than those specifically identified in the conditions will be brought forward (if required by the SoS), flexibility in the conditions which secures compensatory measures has been included to address a direct comment from Natural England. In [REP17-10] Natural England stated:</p> <p><i>"We also welcome the Applicant's amendment of the draft DCO/DML condition wording to provide flexibility regarding the potential nature of compensatory/adaptive measures, rather than referring solely to artificial structures. This ensures that the compensatory measures/adaptive management can extend to the delivery of other possible options. This should include addressing any issues identified with prey availability, which may well prove to be a limiting factor in the medium-long term, should measures such as e.g. improved management of sand-eel stocks become a more readily deliverable compensatory measure within the timeframes required."</i></p> <p>The Applicant's willingness to engage in any strategic approach to provide compensation through addressing prey availability, if available within the timescales required to deliver the Project, has also been confirmed (e.g. REP16-004).</p>
<p>2.12 An alternative approach to the "compensation plan"</p>	<p>The RSPB suggests that the Applicant's approach to developing compensation plans is one in which <i>'all the critical issues would be addressed post-consent'</i>. This greatly mischaracterises the Applicant's compensation proposals and inaccurately dismisses the considerable amount of work which has gone into their development.</p> <p>The RSPB consider Natural England's list of key compensatory matters should be the basis for proposed compensation. As can be seen in Table 1.9, the Applicant has in fact addressed the majority of these matters, with the only outstanding issues being matters of detail which can be readily resolved should compensation become a requirement. On the matter of land rights, the Applicant has made as much progress as is reasonably feasible, given the critically important fact that the compensation is presented without prejudice to the Applicant's primary case that no AEoI arises, and it is therefore inappropriate for the Applicant to enter into binding land access or ownership arrangements at this point in time. Notwithstanding this, the Applicant has in fact made considerable progress in securing land to deliver the compensatory measures, having now identified suitable sites for kittiwake nesting structures and an area to be fenced for lesser black-backed gulls, and currently in the process of</p>

Summary of Submission	Applicant's Comments
	negotiating Heads of Terms for land agreements with landowners should compensatory measures be required.
Without prejudice comments on amendments to current DCO wording	The Applicant is broadly in agreement with the RSPB's proposals for the stages in agreeing and implementing compensation should it be required. However, a key aspect which the RSPB has not taken into account is the magnitude of impact and how that should be taken into consideration in terms of the sequence of when compensation should be implemented in relation to wind farm operation. The Applicant considers this to be very relevant, since the RSPB's proposal that the timetable should match that agreed for Hornsea Project Three fails to take account of the fact that the latter wind farm had a kittiwake collision impact more than 5 times as large as that for Norfolk Boreas, which the Applicant considers to be a material factor, since the requirements for compensation are commensurately much greater, as will be the practical and logistical challenges. Since the requirements for the Norfolk Boreas scheme are much smaller it will also be much easier to ensure the compensation is delivered in a timely manner. The Applicant has also demonstrated that the time for mortality payback, even under precautionary assumptions, will at most be around 10 years.
<b>Royal Society for the Protection of Birds, RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 1 – Flamborough and Filey Coast SPA In Principle Compensation</b>	
Consideration of changes to avoidance rates in Cook (2021)	<p>The RSPB note that the collision assessment does not consider the collision avoidance rates in a recent review commissioned by Natural England (Cook 2021). Since this report was not made available until the 20<sup>th</sup> August 2021, the deadline for the last Norfolk Boreas submission, this would not have been possible to achieve.</p> <p>The Applicant has undertaken a detailed review of this work, facilitated by the provision of the dataset and analysis scripts by the BTO. The Applicant has submitted a detailed note on the findings of this review (see Appendix 2 of The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1)). and also summarised this in Table 1.8. In summary, the Applicant does not agree with the findings of Cook (2021) as presented and the RSPB's description of this as '<i>the most up to date and thorough review of evidence of avoidance and collision available</i>' is considered to be based on a flawed appreciation of how the work was conducted and the inherent assumptions about the data.</p>



Summary of Submission	Applicant's Comments
	<p>The RSPB present what they consider to be revised in-combination collision estimates using the alternative kittiwake avoidance rate in Cook (2021) which suggest the total collisions will be 14% higher than previously assessed. However, owing to the methods used in Cook (2021), which include a lower nocturnal activity rate (of 25%) than that used in the majority of wind farm collision risk assessments (of 50%), it is not possible to simply adjust the mortality in the manner used by the RSPB here. In fact, when the Norfolk Boreas collision model is re-run for kittiwake using both the alternative avoidance rate and the reduced nocturnal activity rate, the collision estimate obtained is reduced by 10%, and similar reductions would be obtained for other wind farms where the previous avoidance rate (98.9%) and higher nocturnal rate (50%) have been used (i.e. the cumulative and in-combination totals would be expected to reduce by 10%). Furthermore, the Applicant's review and reanalysis of Cook (2021) indicates that when the methodological flaws identified (Appendix 2 of The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1)) are addressed and the lower nocturnal activity rate is applied, a reduction in kittiwake collisions of 35% would be obtained, and this would apply to the majority of wind farms. On this basis, the RSPB's presumption of an in-combination AEol for kittiwake from FFC SPA should be reconsidered.</p>
<p>4. RSPB detailed comments on the Applicant's kittiwake compensation proposals</p> <p>4.3 The submitted compensation proposals were, as set out in the RSPB's Deadline 10 submission, essentially identical to those submitted to the Secretary of State by the Applicant for its sister project, Norfolk Vanguard. For that reason, we provided the Examining Authority with a copy of the RSPB's response to the Secretary of State on those proposals. For the same reason, we have included a copy of that response at Annex 3 of this submission.</p> <p>4.4 Overall, the RSPB's comments on the original Norfolk Vanguard compensation proposals for kittiwake continue to apply to the latest Norfolk Boreas proposals. For that reason, we have provided signposting to the relevant sections that set out our primary concerns. They should be read alongside the comments set out in the rest of this section.</p>	<p>The Applicant considers the RSPB's assertion that the latest Norfolk Boreas kittiwake compensation proposals are '<i>essentially identical</i>' to those submitted for Norfolk Vanguard 18 months earlier is a gross simplification which fails to recognise the considerable additional work that has gone into their development since and is therefore an inaccurate and unnecessarily dismissive characterisation.</p> <p>In summary, over the period in question the in principle kittiwake compensation proposals have changed from being focussed on an offshore nesting structure to an onshore one, a preferred location has been identified (with agreement in principle with the landowner), details of the scale required, timing and projections of the delivery of compensation are much more developed, a study of artificial sites has been conducted to inform the detailed structural design and monitoring plans are now much more detailed. Therefore, notwithstanding the Applicant's primary position is that AEol can be ruled out and the compensation measures have been provided without prejudice to that position, the level of detail is more than sufficient for the SoS to reach a determination on its deliverability if required.</p>

Summary of Submission	Applicant's Comments
	<p>With respect to the remaining points raised by the RSPB, these have all been raised in their previous submissions, and a summary response to these was provided by the Applicant in [REP18-026].</p> <p>The RSPB's main criticism appears to be that no precise location for delivery of the compensatory measures has been provided. The Applicant has repeatedly responded to this specific point to make it clear that it is not appropriate for the Applicant, or realistic for landowners, to enter into arrangements over land access, leasing rights or ownership or to submit planning applications for structures, when there is disagreement between the parties as to whether compensatory measures are in fact required and, if they are required, the precise scale and nature that the compensation measures are to take has yet to be approved by the Secretary of State. Land agreements cannot be concluded and applications for planning permission cannot be sought until these details are either agreed or approved by the Secretary of State so that sufficient land rights in the correct location can be secured and planning permission is obtained for the structure so agreed or approved. If this is done in advance, there is a risk that the land rights secured would be insufficient or the planning permission obtained would not be suitable to deliver the subsequently approved measures. In any event, the compensatory measures have been proposed without prejudice and may not be required at all if the Applicant's primary position that AEoI can be ruled out is accepted by the SoS. The RSPB's submission fails to acknowledge that the compensatory measures are proposed without prejudice or justify why it is appropriate to secure land rights and planning permission in advance of a determination by the Secretary of State given the disagreement between the parties on these fundamental points.</p>
<p>Paragraphs 130-133 – design of artificial nesting structure</p>	<p>The RSPB notes there <i>'is an intrinsic relationship between the selected location, the design options that are feasible in that location and an assessment of whether or not the design is likely to work in respect of the compensation measure's objectives'</i>. The Applicant agrees with this statement, and also notes that this highlights the difficulties facing proposers of in-principle compensation, since the above factors must be considered together, but it is wholly unreasonable to expect that this can be done prior to a determination having been made about the need for the compensation and either agreement on, or approval of, the precise proposals to be taken forward as compensation. Nevertheless, to ensure as much flexibility as</p>

Summary of Submission	Applicant's Comments
	possible the Applicant has commissioned multiple design options, with a core ethos that these should be modular, to provide as much flexibility as possible.
Paragraph 134 – study of kittiwake breeding success at existing artificial colonies	The RSPB states <i>'It is clear that the Applicant currently only intend to share such information with Natural England as part of post-consent discussions'</i> . The Applicant would like to clarify that to date only a high-level summary has been shared with Natural England, simply because the work had not been completed. For the avoidance of doubt, the study report will be made publicly available in due course.
Paragraph 136 – timescale to install structure	The Applicant has made considerable progress in identifying sites, designing nesting structures and engaging with the landowner and Natural England to progress towards delivery of this compensation measure. Subject to agreement on the detail and scale of the site and without prejudice to the Applicant's primary position that there is no AEoI, the Applicant would be able to submit a planning application prior to a decision from the SoS, with a view to then submitting the compensation strategy as soon as possible in the event that consent is granted. However, as the RSPB will appreciate, the timescales for the implementation of the compensation measures are under constant review and may be subject to change.
Paragraphs 136-138 and Figure 1- predicted colony growth	The projections provided by the Applicant considered alternative assumptions about colony growth, initial size etc. specifically to investigate these points. It is acknowledged that there remains uncertainty in these projections, but the same is true of the predicted impact magnitude: as noted above, based on analysis of the data used in Cook (2021) the FFC SPA kittiwake mortality attributed to the Norfolk Boreas wind farm would be 35% lower (i.e. <10 individuals), which would further reduce the predicted time taken for the colony to achieve mortality payback.
Section 4.5.4: spatial scale	The RSPB cite Cook (2021) as evidence that the Norfolk Boreas assessment is not overly precautionary and that <i>'this independent review of the evidence, commissioned by Natural England, demonstrated that a lower avoidance rate is more appropriate, resulting in higher predicted mortalities'</i> . However, as set out in detail in Appendix 2 of The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1), there are potentially serious flaws in the analysis and assumptions in Cook (2021), and a re-analysis indicates that in fact the collision mortality would be reduced by 35%, rather than increased as suggested by the RSPB.

Summary of Submission	Applicant's Comments
<p>5 RSPB detailed comments on the Applicant's guillemot and razorbill compensation proposals</p>	<p>The Applicant acknowledges the detailed summary of island restoration presented by the RSPB, which draws on their experience of this topic, and their review of previous studies (e.g. Stanbury et al. 2017) reaches the same conclusions as the Applicant's, namely that the list of possible islands represented a valuable starting point from which further work would be required to narrow down the selection. Indeed, the Stanbury et al. (2017) review provides comfort that there are options for rat eradication as a compensation option. Thus, as with the other compensation strategies which have been requested by the SoS, the level of detail the RSPB suggest is required before the compensation has been made a requirement, is considered to be wholly disproportionate. Furthermore, Natural England has now agreed that an AEol can be ruled out for these species for all projects up to and including Hornsea Project Three, Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO and therefore there is no requirement to provide compensation.</p>
<p><b>Royal Society for the Protection of Birds, RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 2 - Alde-Ore Estuary SPA In Principle Compensation</b></p>	
<p>Consideration of changes to avoidance rates in Cook (2021)</p>	<p>The RSPB note that the collision assessment does not consider the collision avoidance rates in a recent review commissioned by Natural England (Cook 2021). Since this report was not made available until the 20<sup>th</sup> August 2021, the deadline for the last Norfolk Boreas submission, this is hardly surprising.</p> <p>However, the Applicant has now undertaken a detailed review of this work, facilitated by the provision of the dataset and analysis scripts by the BTO. The Applicant has submitted a detailed note on the findings of this review in Appendix 2 of The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1), and also summarised this in Table 1.8. In summary, the Applicant does not agree with the findings of Cook (2021) as presented and the RSPB's description of this as <i>'the most up to date and thorough review of evidence of avoidance and collision available'</i> is considered to be based on a flawed appreciation of how the work was conducted and the inherent assumptions about the data.</p> <p>The RSPB present what they consider to be revised in-combination collision estimates using the alternative kittiwake avoidance rate in Cook (2021) which suggest the total collisions will be 2.8 times higher than previously assessed. However, owing to the methods used in Cook (2021), which include a lower nocturnal activity rate (of 25%) than that used in the majority of wind farm collision</p>

Summary of Submission	Applicant's Comments
	<p>risk assessments (of 50%), it is not possible to simply adjust the mortality in the manner used by the RSPB here. Furthermore, the Applicant's review and reanalysis of Cook (2021) indicates that when the methodological flaws identified in Appendix 2 of The Applicant's Response to the Request for Further Information (ExA.PDR.D22.V1), are addressed and the lower nocturnal activity rate is applied, the lesser black-backed gull collisions would in fact only increase by around 3%, and this would apply to the majority of wind farms (thus the in-combination total would increase from 54 to 55.5). Furthermore, preliminary results from a detailed camera and radar based study which is ongoing at the European Offshore Wind Development Centre, have recorded <i>'the absence of any observed collisions in the more than 6,000 analysed videos despite the high densities of the target species'</i> (the latter include large gull species; Tjornlov et al. 2021). Consequently, following the Applicant's re-analysis in Appendix 2 (ExA.PDR.D22.V1), and other emerging evidence, the avoidance rate analysis (Cook 2021) does not, as the RSPB states, <i>'contradict the Applicant's continual assertion that the approach they have taken is overly precautionary'</i>, but rather indicates that the current avoidance rate advised for lesser black-backed gull (99.5%) is appropriate. This aspect therefore has no bearing on the Applicant's position that ornithological assessment for offshore wind farms has become highly over-precautionary (see REP2-035 for details).</p>
<p>5. RSPB detailed comments on the Applicant's lesser black-backed gull compensation proposals</p> <p>5.3 The submitted compensation proposals were, as set out in the RSPB's Deadline 10 submission, essentially identical to those submitted to the Secretary of State by the Applicant for its sister project, Norfolk Vanguard. For that reason, we provided the Examining Authority with a copy of the RSPB's response to the Secretary of State on those proposals. For the same reason, we have included a copy of that response at Annex 3.</p> <p>5.4 Overall, the RSPB's comments on the original Norfolk Vanguard compensation proposals for lesser black-backed gull continue to apply to the latest Norfolk Boreas proposals. For that reason, we have provided signposting to the relevant sections that set out our primary concerns. They should be read alongside the comments set out in the rest of this section.</p>	<p>The Applicant considers the RSPB's assertion that the latest Norfolk Boreas lesser black-backed gull compensation proposals are <i>'essentially identical'</i> to those submitted for Norfolk Vanguard 18 months earlier is a simplification which fails to recognise the considerable additional work that has gone into their development since, and is therefore an inaccurate and unnecessarily dismissive characterisation.</p> <p>In summary, over the period in question the in principle lesser black-backed gull compensation proposals have been developed to prioritise installation of predator proof fencing, of a specification which Natural England agrees to be appropriate, a preferred location has been identified (with agreement in principle with the landowner), details of the scale required, timing and projections of the delivery of compensation are much more developed, and monitoring plans are now much more detailed. Therefore, notwithstanding the Applicant's primary position is that AEoI can be ruled out and the compensation measures have been provided without prejudice</p>

Summary of Submission	Applicant's Comments
	<p>to that position, the level of detail is more than sufficient for the SoS to reach a determination on its deliverability if required.</p> <p>With respect to the remaining points raised by the RSPB, these have all been raised in their previous submissions, and a summary response to these was provided by the Applicant in [REP18-026].</p>
Section 4.4.3 Spatial scale	<p>The projections provided by the Applicant considered alternative assumptions about colony growth, initial size etc. specifically to investigate the points raised by the RSPB. It is acknowledged that there remains uncertainty in these projections, however, through modelling such as this the sensitivity of these assumptions can be explored. The RSPB data on breeding success, when years with fox recorded as present are omitted, yields an average productivity of 0.54, therefore the use of a value of 0.5 in these projections does not appear to be at odds with these data as implied by the RSPB.</p> <p>The RSPB's main criticism appears to be that no precise location for delivery of the compensatory measures has been provided. The Applicant has repeatedly responded to this specific point to make it clear that it is not appropriate for the Applicant, or realistic for landowners, to enter into arrangements over land access, leasing rights or ownership or to submit planning applications for fencing, when there is disagreement between the parties as to whether compensatory measures are in fact required and, if they are required, the precise scale and nature that the compensation measures are to take has yet to be agreed or approved by the SoS. Land agreements cannot be concluded and applications for planning permission cannot be sought until these details are either agreed or approved by the SoS so that sufficient land rights in the correct location can be secured and planning permission is obtained for the structure so approved. If this is done in advance, there is a risk that the land rights secured would be insufficient or the planning permission obtained would not be suitable to deliver the subsequently approved measures. In any event, the compensatory measures have been proposed without prejudice and may not be required at all if the Applicant's primary position that AEoI can be ruled out is accepted by the SoS. The RSPB's submission fails to acknowledge that the compensatory measures are proposed without prejudice or justify why it is appropriate to secure land rights and planning permission in advance of a</p>

Summary of Submission	Applicant's Comments
	determination by the SoS given the disagreement between the parties on these fundamental points.
<b>Royal Society for the Protection of Birds, Extract from REP11-127 East Anglia One North and East Anglia Two examination</b>	
This presents RSPB's submissions to the East Anglia ONE North and East Anglia TWO examination.	<p>The Applicant does not consider it appropriate to provide comments on these submissions.</p> <p>However, these submissions largely repeat the same points made in the RSPB's submissions on the Norfolk Boreas project, and as such, where relevant these have been addressed in previous submissions by the Applicant and in the responses above (reference to the Applicant's comments on Sections "Overview and Summary", "RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 1 – Flamborough and Filey Coast SPA In Principle Compensation" and "RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 2 - Alde-Ore Estuary SPA In Principle Compensation").</p>
<b>Royal Society for the Protection of Birds, Copy of the RSPB's combined response to the SoS BEIS's consultation on Hornsea Three and Norfolk Vanguard offshore wind farm schemes</b>	
This presents RSPB's submissions to the Norfolk Vanguard and Hornsea Project Three examinations.	<p>The Applicant does not consider it appropriate to provide comments on these submissions.</p> <p>However, these submissions largely repeat the same points made in the RSPB's submissions on the Norfolk Boreas project, and as such, where relevant these have been addressed in previous submissions by the Applicant and in the responses above (reference to the Applicant's comments on Section "Overview and Summary", "RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 1 – Flamborough and Filey Coast SPA In Principle Compensation" and "RSPB comments on In Principle Habitats Regulations Derogation Provision of Evidence - Appendix 2 - Alde-Ore Estuary SPA In Principle Compensation).</p>

## 1.9 The Wildlife Trusts

16. TWT's submission focusses on compensation for Haisborough Hammond and Winterton SAC. The Applicant responded in detail to TWT's concerns regarding offshore wind farm projects, engagement, design and mitigation, compensation, AEoI and potential impacts to the HHW SAC in the Applicant's Comments on Deadline 16 Submissions [REP17-003] and many of the issues raised by TWT during their submission at deadline 16 [REP16-031] are repeated or expanded upon in their recent submission of the 20 August 2021. Therefore, rather than respond to each single point raised by TWT in turn, the Applicant has only addressed new issues or those which TWT have expressed in more detail within Table 1.3 below.
17. Whilst the Applicant welcomes TWT's continued engagement on the compensation proposals, the Applicant has been clear that these are provided on a 'without prejudice' basis. The Applicant has clearly demonstrated why it is possible to rule out any risk of an adverse effect on integrity, and that in any case cable protection may not be required within the HHW SAC at all. Compensation measures cannot be finalised until it is known whether compensation is required (following the Secretary of State's Appropriate Assessment) and it is known which compensation measure(s) the Secretary of State considers should be delivered. This is particularly important given that consensus has not been reached by all stakeholders on which measures are appropriate. TWT maintains the position that compensation for cable protection in the Haisborough, Hammond and Winterton SAC is required despite this and that detailed plans should be provided prior to determination.
18. There is a need to ensure that any requests for the inclusion of details prior to determination of the Norfolk Boreas project remain proportionate and reasonable. Notwithstanding the Applicant's 'without prejudice' position, the HHW SAC compensation document (document 8.25) contains sufficient detail to demonstrate that the compensation options proposed are deliverable and can be secured, should they be required, and that further detail including much of which TWT have requested will be included and agreed in the HHW SAC compensation strategy once it is known whether compensation is required, and if so the nature and scale of that compensation.



Table 1.3 New issues or those which TWT have expressed in more detail

Ref Number	Applicant's Summary of TWT's comments	Applicant's Comments
2.1.2, 3.2, 3.3.2, 4, Appendix B and C	<p><b>Engagement and early opportunities</b></p> <p>TWT have requested that the SoS ask the Applicant for further information whether engaging in the early opportunities could avoid the need for cables to be located within the HHW SAC. Furthermore, TWT highlight the need for wider engagement and transparency when developing the compensation measures now and post consent.</p>	<p>As explained by the Applicant in its Offshore Transmission Network Review submission on 25 August 2021 (document reference ExA.AS-4.D21.V1), the Project is an advanced stage of development and therefore there is limited scope for major changes to the project such as those which would be required to completely avoid the HHW SAC. However, the Applicant did undertake considerable consultation through the evidence plan process to identify early opportunities for avoiding all possible constraints and this included avoidance of Marine Protected Areas [APP-039]. Due to concerns raised by members of the public and a number of statutory authorities (including Natural England and TWT) about impacts on the Cromer Shoal Marine Conservation Zone potential landfall locations and cable routes were ruled out in order to avoid the MCZ.</p> <p>As stated in REP17-003 TWT has had every opportunity over the last five years to engage on benthic and HRA issues including through the evidence plan process mentioned above. TWT only raised concerns at Deadline 16 (2 weeks prior to the close of examination) and again at the last possible stage of consultation for the determination. This lack of engagement on benthic related issues (despite the Applicant providing TWT numerous opportunities and invites to benthic ecology expert topic group meetings which were declined) may be a factor in why concerns regarding the HHW SAC were not raised during a stage in the project where cable route optioneering was being undertaken. It should also be noted that during the early part of the Evidence Plan Process, when cable route optioneering could be influenced for both, no stakeholders raised significant concerns regarding the HHW SAC and the main focus was on avoiding the MCZ which was achieved by the Applicant.</p> <p>The Applicant did undertake work as part of its application [APP-217] and further work during the examination [REP7-024] to investigate if the HHW SAC could be avoided however it was concluded that there is no feasible alternative export cable route that would avoid the HHW SAC. This is due to the fact that if cables were routed to the north of the HHW SAC they would encounter other designated sites (both SACs and MCZs) and if routed to the south they would encounter licensed aggregate dredging areas and further designated sites.</p> <p>The Applicant agreed a Memorandum of Understanding (MoU) with TWT in May 2020, which Vattenfall Wind Power Ltd entered into in good faith and in the spirit of cooperation. The MoU advocates the use of open and regular engagement between the two parties. The</p>

Ref Number	Applicant's Summary of TWT's comments	Applicant's Comments
		<p>submissions made at deadline 16 and on 20 August 2021 were made without any prior communication with the Applicant.</p>
2, 3	<p><b>Fisheries management as compensation</b></p> <p>TWT advocate the use of fisheries management as a compensation measure</p>	<p>This measure has been investigated, in consultation with Natural England (see the HHW SAC compensation document (document reference 8.25) for the assessment of feasibility) and was ruled out on the basis that one marine industry cannot, and should not, have powers to regulate another. The Applicant understands that TWT are advocating that a separate body (Defra is TWTs suggested body) could be responsible for implementing such measures strategically, however the timescales involved with setting up such a function and making the relevant changes to legislation are not compatible with the timescales for Norfolk Boreas and would seriously compromise the government targets to address climate change mentioned below.</p> <p>The Applicant has also made the case in its position paper on the HHW SAC [REP5-057] that there is currently very little fishing activity of the type that would damage Sandbanks or Sabellaria reef currently occurring within the HHW SAC, and therefore this may not deliver the required level of compensation. Furthermore, the concerns raised by TWT and Natural England about how the existing proposals could be demonstrated to provide measurable and direct compensation (see TWT and Natural England comments on Strands 2 and 3) apply with even greater effect to fisheries management. Given the features of the HHW SAC it would be very difficult to demonstrate that removal of fishing pressure had been directly responsible for compensating the effects of the project.</p> <p>Therefore, the Applicant maintains that fisheries management as a compensation measure for the HHW SAC is not a favourable option.</p>
2.2, Appendix B	<p><b>Setting a precedent vs Norfolk Boreas being a special case</b></p> <p>TWT are on the one hand, very concerned that the compensation provided by Norfolk Boreas (if required) could set unwelcome precedents, but on the other that Norfolk Boreas is a “a unique and one-off example” and thus they are happy to consider removal of oil and gas infrastructure.</p>	<p>The Applicant notes the contradictory nature of these opposing opinions. However, given the very small scale of potential impact and that documentary evidence has been submitted to demonstrate that it is highly likely that cable protection will <u>not</u> be placed, even if the SoS concluded that AEoI could not be ruled out on the basis of the worst case, it would still be reasonable for the SoS to conclude that compensation would not be 'necessary' for the as-built project unless and until cable protection was deployed, and that delivering compensation after cable protection had been deployed would still ensure that the overall coherence of Natura 2000 is protected. In this respect, Norfolk Boreas and Norfolk Vanguard</p>

Ref Number	Applicant's Summary of TWT's comments	Applicant's Comments
		would be unlike any compensation which has been delivered previously and would not set any precedent in this regard.
2.2	<p><b>Site extension of the HHW SAC</b></p> <p>TWT state that <i>“By extending or designating new sites, it allows for the chipping away and deterioration of existing sites. This is not an acceptable nor sustainable mechanism</i></p> <p>Furthermore, TWT state that <i>Site extension does not support the ambitions of the Marine and Coastal Access Act to achieve a coherent network of MPAs</i></p>	<p>The Applicant disagrees with both of these statements. As highlighted by Natural England (see section 1.5 of this document) data acquired since the HHW SAC was designated show that good Annex I habitat for both Sandbanks and Sabellaria reef exists in close proximity to the HHW SAC. Had the site been designated today it may well have included this area. Therefore including this currently unprotected area is not chipping away and deteriorating the HHW SAC but is in fact adding to the coherent network of MPAs.</p>
3, Appendix B	<p><b>Further work required-</b></p> <p>TWT request that significant further work is required to provide it and the SoS with more detail on all of the compensation measure options. TWT state that this will allow <i>“for consensus to be built between stakeholders, which will reduce the chance of any legal challenge once consent is granted.”</i></p>	<p>As discussed in the introduction to this section any detail requested must be proportionate and reasonable to a without prejudice case. The Applicant maintains that the HHW SAC compensation (document 8.25) strikes the right balance to give confidence to the SoS that the compensation measures would be deliverable and can be secured without providing so much detail that the further development of the measures, as more information becomes available, would be prohibited. This approach enables the Applicant to ensure that compensation is delivered in the best possible way.</p> <p>The Applicant has undertaken significant consultation with stakeholders and as stated in the HHW SAC compensation (document 8.25) and in the Applicant's Response to the Request for further information submitted on 25 June 2021 (document reference ExA.PD.D19.V1) it is clear that a consensus between stakeholders is not possible. Therefore, the Applicant does not consider that providing further detail at this stage will achieve consensus. A decision is required from the SoS on which measure(s) should be taken forward before a consensus on how these measures will be taken forward can be reached.</p>
Appendix A	TWTs Principles for compensation	<p>The Applicant appreciates that TWT has provided these principles to the SoS led consultation, however given the extensive nature of these principles it is unlikely that any compensation measures proposed by offshore wind farm projects would be able to satisfy all 16 of the principles whilst also satisfying all 13 points on Natural England's check list, and at the same time stay on track to meet the governments targets on climate change and renewable energy production as stated above. Notwithstanding this, the proposed options put forward by the Applicant have been developed based on similar principles and therefore do satisfy many of the principles put forward by TWT.</p>

## 2 References

Cook, A.S.C.P. (2021) Additional analysis to inform SNCB recommendations regarding collision risk modelling. BTO Research Report 739, BTO, Thetford, UK.

Ross-Smith, V., Johnston, A. and Ferns, P.N. (2015) Hatching success in Lesser Black-backed Gulls *Larus fuscus* - an island case study of the effects of egg and nest site quality. *Seabird*, 28, 1-16.

Tjørnløv, R.S., Skov, H., Armitage, M., Barker, M., Cuttat, F. and Thomas, K. (2021). AOWFL: Resolving Key Uncertainties of Seabird Flight and Avoidance Behaviours at Offshore Wind Farms. Annual report for April 2020 – October 2020

Stanbury, A., Thomas, S., Aegerter, J., Brown, A., Bullock, D., Eaton, M., Lock, L., Luxmoore, R., Roy, S., Whitaker, S. and Opper, S. (2017). Prioritising islands in the United Kingdom and crown dependencies for the eradication of invasive alien vertebrates and rodent biosecurity. *European Journal of Wildlife Research* 63: 31.

## Appendix 2 Norfolk Boreas note on Optimising cable routeing through the HHW SAC

# Norfolk Boreas Offshore Wind Farm Clarification Note Optimising cable routeing through the HHW SAC

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.AS-8.D4.V1  
Deadline 4

Date: January 2020  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
29/01/2020	01D	First draft for Deadline 4	DT	JL/VR	JL
30/01/2020	01F	Final draft for Deadline 4	DT	VR	JL



## Table of Contents

1	Introduction .....	1
2	Plan showing seabed features of archaeological interest and Annex 1 reef features .	1
3	Optimising cable routeing through the HHW SAC to manage risks of potential additional archaeological constraints affecting the conservation objectives of the SAC. ....	3
3.1	Micrositing in constrained areas .....	3
4	Mechanisms for managing both interests .....	7
4.1	Archaeology and the WSI .....	7
4.2	Features of the HHW SAC and the HHW SAC SIP .....	7
5	Conclusion.....	7

## Table of Figures

Figure 1	Areas to be managed as <i>S.spinulosa</i> reef and AEZs.....	2
Figure 2	Areas to be managed as <i>S.spinulosa</i> reef AEZs and A2 Anomalies .....	6



## Glossary of Acronyms

AEZ	Archaeological Exclusion Zone
EIFCA	Eastern Inshore Fisheries and Conservation Area
HHW	Haisborough Hammond and Winterton
ISH	Issue Specific Hearing
Km	Kilometres
MMO	Marine Management Organisation
SAC	Special Area of Conservation
SIP	Site Integrity Plan
WSI	Written Scheme of Investigation

## 1 Introduction

1. This clarification note has been prepared in response to Hearing Action point 9 of the Norfolk Boreas Issue Specific Hearing (ISH) 4 - Offshore Effects including the draft Development Consent Order.

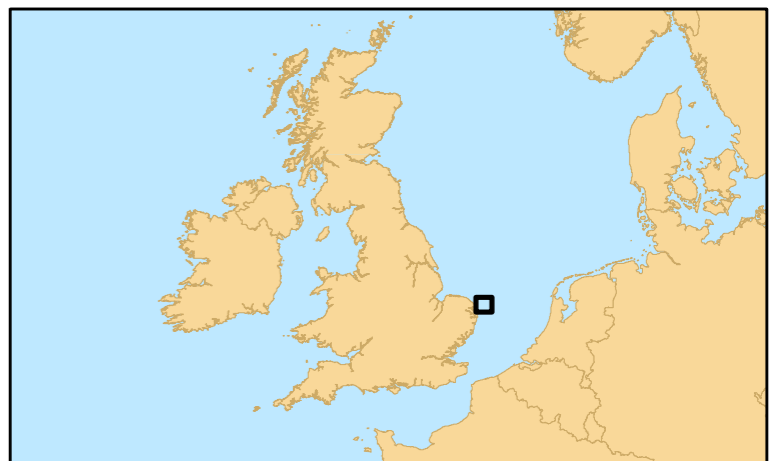
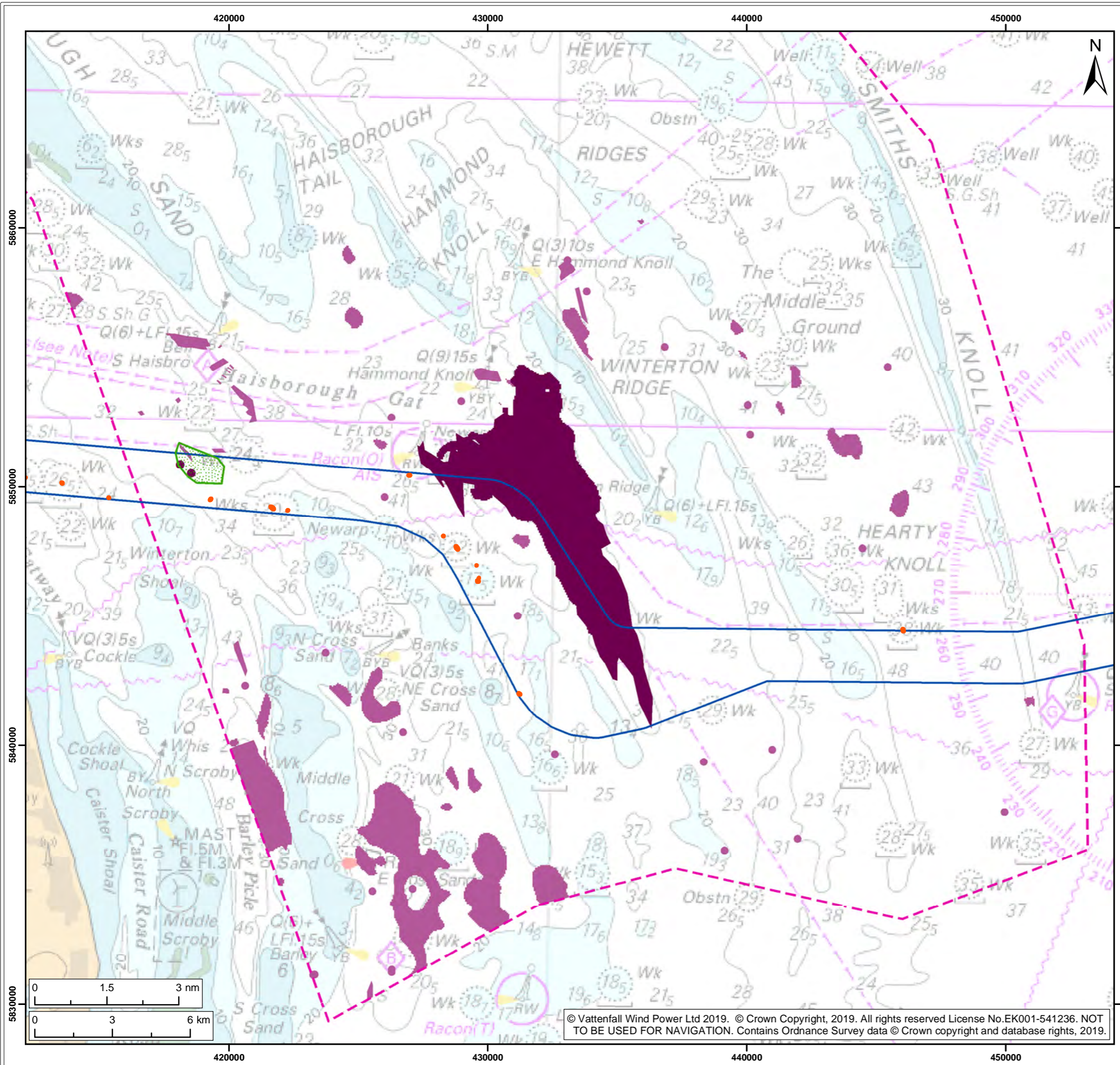
Action Point 9:

*“Submit plan showing the relationship between seabed features of archaeological interest and Annex 1 reef features and note on optimising cable routeing through the HHW SAC to manage risks of potential additional archaeological constraints affecting the conservation objectives of the SAC.”*

2. This clarification note contains both the plan (section 1) as requested and information on how the route will be optimised to manage risks (sections 3 and 4).

## 2 Plan showing seabed features of archaeological interest and Annex 1 reef features

3. Figure 1 shows areas to be managed as *S.spinulosa* reef (as defined by Natural England and JNCC) and Archaeological Exclusion Zones (AEZs). This figure was presented at Issue Specific Hearing 4 of the Norfolk Boreas Examination to allow discussions relating to the ability to microsite within the Haisborough Hammond and Winterton (HHW) Special Area of Conservation (SAC). For further detail on these discussions please see the Written Summary of the Applicant’s Oral Case at Issue Specific Hearing 4, Offshore effects, including the draft Development Consent Order (document ExA.ISH4.D4.V1).



- Legend:
- Offshore cable corridor
  - Archaeological Exclusion Zone (AEZ)
  - EIFCA Byelaw Area
  - Haisborough, Hammond and Winterton SAC<sup>1</sup>
  - Top priority areas to be managed as *S. spinulosa* reef<sup>2</sup>
  - Area to be managed as *S. spinulosa* reef (Natural England)<sup>2</sup>

<sup>1</sup> JNCC, 2019.  
<sup>2</sup> Natural England/MALSF, 2013/2011

Project: Norfolk Boreas	Report: Clarification Note: Optimising cable routeing through the HHW SAC
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Title:  
Areas to be managed as *S. spinulosa* reef and AEZs

Figure: 1	Drawing No: PB5640-008-004-002				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	16/01/2019	GC	DT	A3	1:145,000

Co-ordinate system: ETRS 1989 UTM Zone 31N EPSG: 25831

**VATTENFALL**

**Royal HaskoningDHV**  
Enhancing Society Together

### 3 Optimising cable routing through the HHW SAC to manage risks of potential additional archaeological constraints affecting the conservation objectives of the SAC.

4. The final cable route will need to be located to mitigate for many different constraints. For this reason, the offshore cable corridor has been designed to allow for flexibility to mitigate impacts through avoidance. The corridor is between 2km and 4.7km wide which offers flexibility to route the one or two export cables required for Norfolk Boreas and the two export cables required for Norfolk Vanguard to avoid all sensitivities (as demonstrated in section 3.1 below). As described in the Environmental Statement (Chapter 5 [APP-218]) the width of disturbance caused by the installation of each export cable would be up to 30m.
5. Within the HHW SAC and at the point which has been identified by Natural England as one of the Priority Areas to be managed as *S.spinulosa* reef (the large dark purple area in Figure 1), the offshore cable corridor is up to 4.7km wide. This will allow more flexibility for micrositing in what would otherwise be one of the more constrained sections of the corridor.
6. The most constrained area within the SAC when considering *S.spinulosa* reef and archaeological interest is where the proposed Eastern Inshore Fisheries and Conservation Authority (EIFCA) byelaw area is located (the green area shown in Figure 1). This much smaller Priority Area to be managed as *S.spinulosa* reef is identified by the smaller dark purple areas within the green byelaw area in Figure 1.

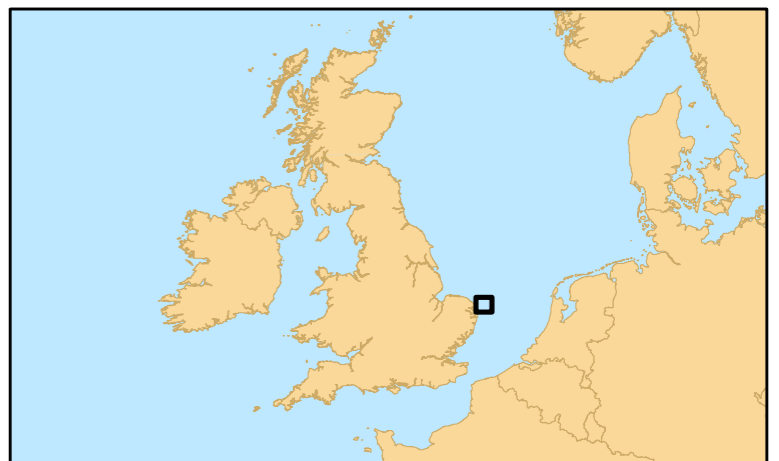
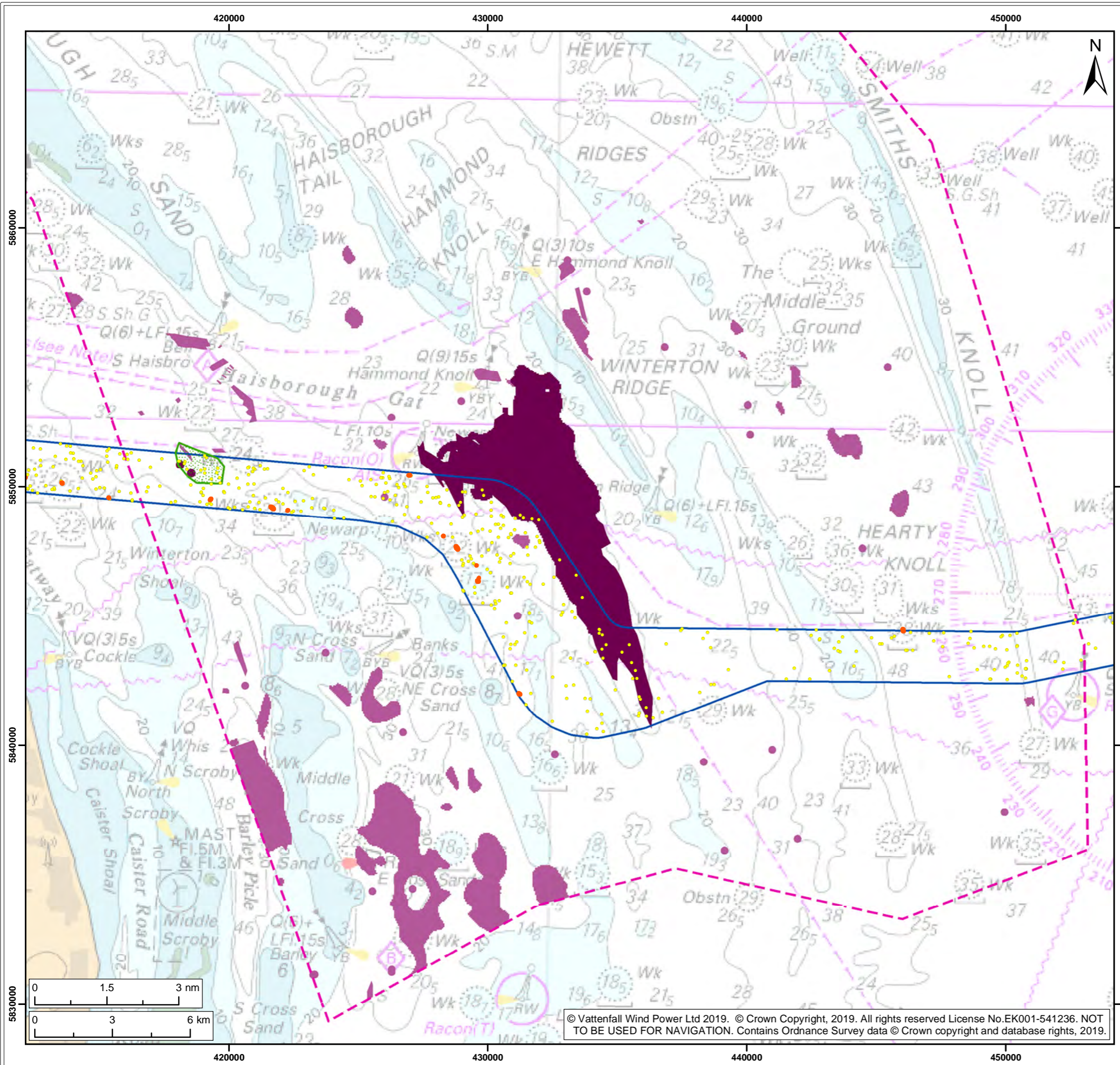
#### 3.1 Micrositing in constrained areas

7. There are nine locations where AEZs have been proposed within the HHW SAC. One of these is located to the south of the proposed EIFCA fisheries management byelaw area. The Applicant understands a proposal for this will be submitted in March/April 2020 and that it would then come into effect sometime in the Autumn of 2020 [WQ8.5.4. REP2-069].
8. Although at this location the AEZ and the Priority Areas to be managed as *S.spinulosa* reef may restrict the room available for micrositing the Applicant maintains that there is sufficient space (given the space required as described in paragraph 4) for a route to be identified between the two constraints.
9. It should be noted that the Applicant has now committed to not placing cable protection within the "Priority Areas" to be managed as *S.spinulosa* reef (dark purple areas in Figure 1) and although Priority Areas are located within the smaller EIFCA byelaw area they do not extend across its full extent. However, it should also be noted that the further study undertaken (Reported in Appendix 3 of the updated

outline HHW SAC SIP [REP1-033]) indicates that no cable protection would need to be placed within the EIFCA byelaw area.

10. As illustrated in Plate 5.2, section 5.2.1 of the outline HHW SAC SIP [REP1-033] the width required to install the four export cables required for Norfolk Boreas and Norfolk Vanguard would be up to 490m if cables were installed side by side in water depths of 48m. The equivalent width required to install Norfolk Boreas cables side by side is 250m. The proximity at which one cable can be installed to another is governed by water depth with deeper water meaning greater separation distances have to be maintained. 48m is the maximum water depth within the offshore cable corridor and hence 490m is the maximum possible width of the cable route should it combine all Norfolk Boreas and Norfolk Vanguard cables installed side by side.
11. As discussed above the most restricted part of the offshore cable corridor is likely to be between the smaller Priority Area located within the proposed EIFCA byelaw area and the AEZ to the south. The water depth here is around 35m and therefore the cables could be installed closer together in this area if required such that the space required to install all cables side by side would be reduced.
12. Alternatively cables may be routed separately to avoid impacts, for example, three cables may pass to the north of an AEZ and one cable may pass to the south or two cables may pass to the north and two to the south and so on. As stated above the space required to install a single cable while avoiding sensitive features would be up to 30m.
13. The area between the southern boundary of the EIFCA byelaw area and the AEZ is approximately 542m and therefore there would be adequate room for installing the Norfolk Boreas and Norfolk Vanguard cables side by side within this area as that would require an area of up to 490m. There is also an area between the AEZ and the southern boundary of the offshore cable corridor of 244m which would be enough space to install both Norfolk Boreas cables given the water depth at this location.
14. Therefore there are a number of options available for micro-siting both the Norfolk Vanguard and Norfolk Boreas cables to avoid both the AEZ, the areas to be managed as *S.spinulosa* reef and any additional *S.spinulosa* reef identified as part of the pre-construction surveys.
15. As set out above, it should be noted that the Applicant has committed to avoiding installing cable protection within the Priority Areas (shown as dark purple in Figure 1) which does not extend across the entire EIFCA byelaw area, and that the AEZs are not a hard constraint and can with the appropriate mitigation be modified or removed.

16. There are also numerous A2 anomalies within the SAC; as shown in Figure 2. As stated in the Written Scheme of investigation “*AEZs have not been proposed for the A2 anomalies. Additional work will be required to further investigate the nature and extent of anomalies, to establish the archaeological interest and to record them prior to removal, if they cannot be avoided through micro-siting of design*”.
17. It should also be noted that the A2 anomalies presented in Figure 2 are single data points and do not represent a geographical area on the map. Therefore, the map appears more congested than would be the case on the ground.
18. Through comparison with other offshore wind farm projects it is considered that following archaeological investigations, only a small percentage of A2 anomalies are likely to be confirmed as being of archaeological interest, with an even smaller number being given protection by AEZs. Thus the A2 anomalies presented in Figure 2 do not represent a hard constraint. In the event that an A2 anomaly could not be avoided then other mitigation, as agreed with Historic England, would still be possible.
19. There are a number of A2 anomalies to the south of the EIFCA byelaw area. Due to the reduced area for cable routeing in this area, it is likely that these will require further investigation as the cable route is likely to interact with these features. Further investigation will take the form of the pre-construction geophysical and drop down video surveys as outlined in the In Principle Monitoring Plan [REP1-029].
20. Given current available evidence, the Applicant considers that it will be possible to microsite to avoid both areas to be managed as *S.spinulosa* reef and AEZs. However should at the time of construction there have been a significant increase in the extent of *S.spinulosa* reef and a high number of A2 anomalies given AEZs, it would still be possible to proceed without significant impact for the following reasons:
  - As stated in the outline WSI [APP-697] “*where anomalies or AEZs cannot be avoided or where unexpected discoveries are encountered and reported through the protocol. This may include measures to further investigate the nature and extent of anomalies and/or discoveries, to establish the archaeological interest and to record them prior to removal.*”; and
  - As described in the HHW SAC SIP [REP1-033] the Applicant has committed to micrositing where possible. Should *S.spinulosa* reef be so extensive at the time of construction that micrositing to avoid reef completely is not possible, routeing will then be undertaken to minimise effects as far as possible (see Appendix 1 of the HHW SAC SIP) and in this situation the area of reef affected would be so small as to not cause an adverse effect on integrity



- Legend:
- Offshore cable corridor
  - Archaeological Exclusion Zone (AEZ)
  - EIFCA Byelaw Area
  - Haisborough, Hammond and Winterton SAC<sup>1</sup>
  - Top priority areas to be managed as *S. spinulosa* reef<sup>2</sup>
  - Area to be managed as *S. spinulosa* reef (Natural England)<sup>2</sup>
  - A2 Anomalies

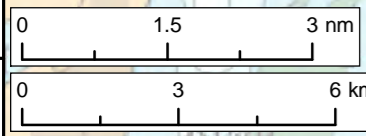
<sup>1</sup> JNCC, 2019.  
<sup>2</sup> Natural England/MALSF, 2013/2011

Project: Norfolk Boreas	Report: Clarification Note: Optimising cable routing through the HHW SAC
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Title:  
 Areas to be managed as *S. spinulosa* reef and AEZs  
 and A2 Anomalies.

Figure: 2	Drawing No: PB5640-008-004-003				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	16/01/2019	GC	DT	A3	1:145,000

Co-ordinate system: ETRS 1989 UTM Zone 31N EPSG: 25831



## 4 Mechanisms for managing both interests

21. Many offshore wind farm projects to date have had a commitment to microsite to avoid Annex 1 habitats where possible as well as a commitment to avoid AEZs. To date, the Applicant is not aware of any instances where it has not been possible to microsite so as to minimise impacts on both interests.

### 4.1 Archaeology and the WSI

22. As stated in the outline WSI [APP-697], prior to the acquisition of further survey data during the pre-construction phase it is recommended that a *“data review is undertaken by a suitability qualified and experienced archaeological contractor.”*
23. Furthermore, the WSI states that Historic England will be consulted on the scope of all further geophysical surveys undertaken for the project in order to ensure that the data generated are sufficiently robust to meet these archaeological objectives and to enable professional archaeological interpretation and analysis.
24. The final pre-construction WSI as secured in Condition 9 (2) of the Transmission DMLs (Schedules 11 and 12) will contain the detailed project design including the exact position of the export cables, all agreed AEZs and all final mitigation for avoiding these. This will have been agreed with Historic England and submitted to the MMO for approval.

### 4.2 Features of the HHW SAC and the HHW SAC SIP

25. The key document for agreeing how potential effects of the project on the HHW SAC will be managed is the HHW SAC SIP [an outline of which was submitted at deadline 1; REP1-033]. This is required under Condition 9 (1) (h) of the Transmission DMLs (Schedules 11 and 12). The document will contain the detailed project design including the exact position of the export cables, all agreed *S.spinulosa* reef and areas to be managed as *S.spinulosa* reef and all final mitigation for avoiding these areas where possible.
26. The SIP would be produced in parallel with the final preconstruction WSI and both documents would be submitted to the MMO at approximately the same time.

## 5 Conclusion

27. In conclusion the offshore cable corridor has been designed to allow sufficient room to microsite export cables to avoid impacts to both Annex 1 *S.spinulosa* reef and features of Archaeological interest. Areas of seabed have been identified where the space available is potentially limited, however even at these locations there is sufficient room to route export cables to avoid all sensitivities.



28. In the unlikely scenario where significantly more features of Archaeological interest are identified and Annex 1 *S.spinulosa* reef has increased to an extent to which it spans the entire 2 to 4.7km width of the offshore cable corridor, routeing will be undertaken to minimise effects as far as possible.

## Appendix 3 Wendling Beck NRP Concept Plan

# 6 Landowners - 1 Vision

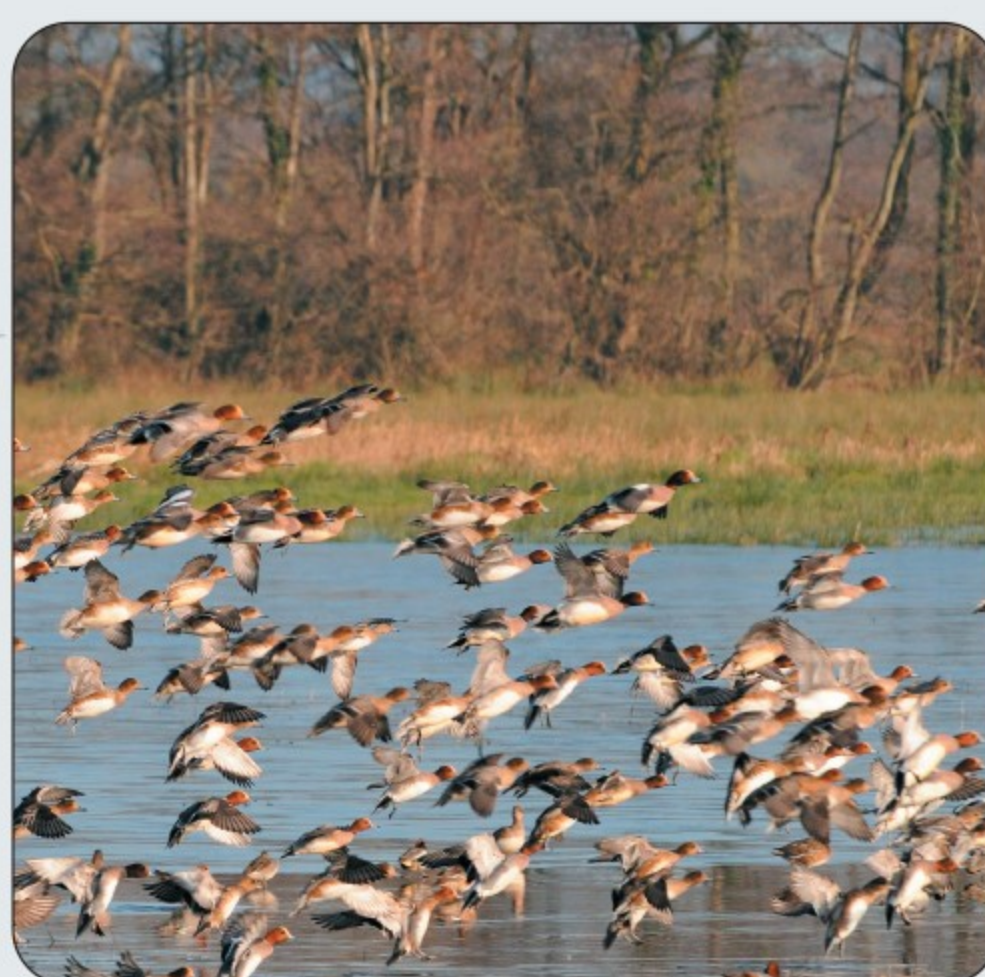
To create a groundbreaking natural farming & wildlife recovery project in the heart of Norfolk



NATIVE MEADOW RESTORATION



HERITAGE CATTLE



WETLAND RESTORATION



HEATHLAND RESTORATION



REGENERATIVE AGRICULTURE

## TREE NURSERY, TREE TRAIL & ARBORETUM

The project will merge with the visitor attractions of the Gressenhall farm and workhouse museum. A new tree trail will link a community tree nursery & climate inspired arboretum which explores the past, present and future of our woodland landscape

## HEATHLAND, SCRUB & ACID GRASSLAND

Restoration of existing grassland and regeneration of heathland & scrub. The valley bottom will be altered with stream re-profiling & wetland creation. Good potential for species reintroductions.

## BLACK POPLAR MEADOWS

A combination of river restoration, wetland creation and native floodplain tree planting. To support and enhance nationally significant plant communities within this area and re-wet the marshy ground adjacent to the river

## NEW NATURE RESERVES & BIRD HIDES



## GRESSENHALL VILLAGE

## BEETLEY VILLAGE

GRESSENHALL FARM AND WORKHOUSE MUSEUM OF NORFOLK LIFE

UNION FARM & COMMUNITY TREE NURSERY

GORGATE FARM

THE WHITE SWAN

HALL FARM

DILLINGTON HALL FARM

HILL FARM

DEREHAM SEWAGE WORKS

## REGENERATIVE FARMING EXPERIENCE

A demonstration farm aimed at showcasing the many facets of regenerative farming through innovation & trials. This will tie to the project's links with Gressenhall Farm & Museum of Norfolk Life as a way of promoting future methods of organic and agro-ecological stewardship set against the historically managed farm adjacent. The landscape will still mimic the grassland areas with interspersed trees and agroforestry as a way of stratifying the farmed ecosystem

## THE WILD CABLE ROUTE

The re-instatement of the Vattenfall offshore cable route will be put back as a wildlife highway.

## STANTON HEATH RESTORATION

Historic evidence to suggest a broad heathland area. This will be restored and enhanced and include pioneer birch woodland to the south. To the East of the B1146 (Holt Rd.) will be a public recreation area focused on education and connecting to nature.

## NATURAL FLOOD MANAGEMENT & WATER QUALITY

Dereham Sewage Works is under threat from peak flood levels and climate change. A series of natural infrastructure solutions will be engineered to alleviate flood risk and restore the natural flood plain processes. This will combine with water quality improvements through an integrated constructed wetland project built to bio-filter the sewage works' discharge and remove excess nutrient.

- REGENERATIVE AGRICULTURE AREAS
- WET MEADOWS, REED BEDS & RUSH PASTURE
- MARKET GARDEN & CARE FARM
- DISEASE RESISTANT ASH & ELM NURSERY
- HEATHLAND RESTORATION
- MIXED GRASSLAND & WOOD PASTURE
- EXISTING WATERCOURSES & PONDS
- PROPOSED WATERCOURSE ALTERATIONS & WETLANDS
- WILDFLOWER & NATIVE TREE NURSERY FIELDS
- NEW BRIDGE & FORD CROSSINGS
- FARM SHOP - CAFE - PYO
- QUIET PUBLIC RECREATION AREA
- E-BIKE RENTAL HUBS
- PUBLIC FOOTPATH
- BRIDLEWAY - Upgraded from footpath to carry E-bikes and Horses
- ✚ Religious Building
- ⌂ Contemporary shelters

TOWN CENTRE

E-bike Rental Hub

Dereham



1: 8500 @ A1