

**Norfolk Boreas Offshore Wind Farm**

# **Comments on Relevant Representations**

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*Photo: Ormonde Offshore Wind Farm*

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## Table of Contents

<b>1</b>	<b>Comments on Relevant Representations .....</b>	<b>1</b>
<b>1.1</b>	<b>Site Selection .....</b>	<b>2</b>
<b>1.2</b>	<b>Project Description .....</b>	<b>9</b>
<b>1.3</b>	<b>Marine Geology, Oceanography and Physical Processes .....</b>	<b>12</b>
<b>1.4</b>	<b>Marine Water and Sediment Quality .....</b>	<b>34</b>
<b>1.5</b>	<b>Benthic and Intertidal Ecology .....</b>	<b>36</b>
<b>1.6</b>	<b>Fish and Shellfish Ecology .....</b>	<b>73</b>
<b>1.7</b>	<b>Marine Mammal Ecology .....</b>	<b>80</b>
<b>1.8</b>	<b>Offshore Ornithology .....</b>	<b>88</b>
<b>1.9</b>	<b>Commercial Fisheries .....</b>	<b>111</b>
<b>1.10</b>	<b>Shipping and Navigation .....</b>	<b>114</b>
<b>1.11</b>	<b>Aviation &amp; Radar .....</b>	<b>116</b>
<b>1.12</b>	<b>Offshore Archaeology .....</b>	<b>117</b>
<b>1.13</b>	<b>Infrastructure and Other Users .....</b>	<b>119</b>
<b>1.14</b>	<b>Ground Conditions and Contamination .....</b>	<b>120</b>
<b>1.15</b>	<b>Water Resources and Flood Risk .....</b>	<b>124</b>
<b>1.16</b>	<b>Land Use and Agriculture .....</b>	<b>128</b>
<b>1.17</b>	<b>Onshore Ecology .....</b>	<b>131</b>
<b>1.18</b>	<b>Onshore Ornithology .....</b>	<b>139</b>
<b>1.19</b>	<b>Traffic and Transport .....</b>	<b>140</b>
<b>1.20</b>	<b>Noise .....</b>	<b>146</b>
<b>1.21</b>	<b>Air Quality .....</b>	<b>147</b>
<b>1.22</b>	<b>Human Health .....</b>	<b>148</b>
<b>1.23</b>	<b>Onshore Archaeology .....</b>	<b>150</b>
<b>1.24</b>	<b>Landscape and Visual .....</b>	<b>152</b>
<b>1.25</b>	<b>Socio-economics, Tourism &amp; Recreation .....</b>	<b>155</b>
<b>1.26</b>	<b>DML and DCO .....</b>	<b>157</b>
<b>1.27</b>	<b>Consultation .....</b>	<b>199</b>
<b>1.28</b>	<b>Other .....</b>	<b>202</b>

**Annex A Relevant Representation Numbers..... 207**

## **Appendices**

**Appendix 1 Vattenfall Project Information Sheets**

**Appendix 2 Norfolk Vanguard Onshore Ecology Clarification Notes**

**Appendix 3 Norfolk Vanguard Limited and Marine Management Organisation Joint  
Position Statement - Arbitration and Appeal Mechanisms**

**Appendix 4 Integrated Offshore Transmission Project Conclusions and Recommendations**

## Glossary of Acronyms

AA	Appropriate Assessment
AC	Alternating Current
AEoI	Adverse Effect on Integrity
CBS	Cement Bound Sand
CoCP	Code of Construction Practice
dBA	A-weighted decibel
DC	Direct Current
DCO	Development Consent Order
dDCO	draft Development Consent Order
DML	Deemed Marine Licence
DP	Dynamic Positioning
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EPP	Evidence Plan Process
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HHW	Haisborough Hammond and Winterton
HVAC	High Voltage Alternate Current
HVDC	High Voltage Direct Current
IDB	Internal Drainage Board
IEC	International Electrotechnical Commission
IPMP	Offshore In Principle Monitoring Plan
kJ	Kilojoule
LiDAR	Light Detection and Ranging
MCA	Maritime and Coastguard Agency
MCAA	Marine and Coastal Access Act
MW	Megawatt
NFU	National Farmers Union
NV	Norfolk Vanguard
NSIP	Nationally Significant Infrastructure Project
O&M	Operation and Maintenance
OCoCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Ecological Management Strategy
OOMP	Outline Operations and Maintenance Plan
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
SAC	Special Area of Conservation
SIP	Site Integrity Plan
SNCBs	Statutory Nature Conservation Bodies
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
TP	Transition Piece

## Glossary of Terminology

Array cables	Cables which link wind turbine to wind turbine, and wind turbine to offshore electrical platforms.
Cable logistics area	Existing hardstanding area to allow the storage of cable drums and associated materials and to accommodate a site office, welfare facilities and associated temporary infrastructure to support the cable pulling works.
Cable pulling	Installation of cables within pre-installed ducts from jointing pits located along the onshore cable route.
Ducts	A duct is a length of underground piping, which is used to house electrical and communications cables.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and information to support the HRA.
Interconnector cables	Offshore cables which link offshore electrical platforms within the Norfolk Boreas site.
Jointing pit	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	Where the offshore cables come ashore at Happisburgh South.
Landfall compound	Compound at landfall within which HDD drilling would take place.
Landfall compound zone	Area within which the landfall compounds would be located.
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing low voltage electrical earthing links.
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
Mobilisation zone	Area within which a mobilisation area would be located.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid overhead line temporary works	Area within which the work will be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension.
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction of the National Grid substation extension.
Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard.
Norfolk Boreas	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure
Norfolk Boreas site	The Norfolk Boreas wind farm boundary. Located offshore, this will contain all the wind farm array.
Norfolk Vanguard	Norfolk Vanguard offshore wind farm, sister project of Norfolk Boreas.

Offshore service platform	A platform to house workers offshore and/or provide helicopter refuelling facilities. An accommodation vessel may be used as an alternative for housing workers.
Offshore cable corridor	The corridor of seabed from the Norfolk Boreas site to the landfall site within which the offshore export cables will be located.
Offshore electrical platform	A fixed structure located within the Norfolk Boreas site, containing electrical equipment to aggregate the power from the wind turbines and convert it into a suitable form for export to shore.
Offshore export cables	The cables which transmit power from the offshore electrical platform to the landfall.
Offshore project area	The area including the Norfolk Boreas site, project interconnector search area and offshore cable corridor.
Onshore cable route	The up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore 400kV cable route	Buried high-voltage cables linking the onshore project substation to the Necton National Grid substation.
Onshore cables	The cables which take power and communications from landfall to the onshore project substation.
Onshore infrastructure	The combined name for all onshore infrastructure associated with the project from landfall to grid connection.
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Onshore project substation temporary construction compound	Land adjacent to the onshore project substation which would be temporarily required during construction of the onshore project substation.
Overhead Line	An existing 400kV power line suspended by towers.
Pre sweeping	The practice of dredging the seabed to prepare it for foundation or cable installation. It is either used to provide a level surface on which to place foundations or to allow cables to be installed at a sufficient depth to minimise the chance of them becoming exposed.
Project interconnector cable	Offshore cables which would link either turbines or an offshore electrical platform in the Norfolk Boreas site with an offshore electrical platform in one of the Norfolk Vanguard sites.
Project interconnector search area	The area within which the project interconnector cables would be installed.
Running track	The track along the onshore cable route which the construction traffic would use to access workfronts.
Safety zones	An area around a vessel which should be avoided during offshore construction.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
The Applicant	Norfolk Boreas Limited
The Norfolk Vanguard OWF sites	Term used exclusively to refer to the two distinct offshore wind farm areas, Norfolk Vanguard East and Norfolk Vanguard West (also termed



	NV East and NV West) which will contain the Norfolk Vanguard arrays.
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.
Transition pit	Underground structures that house the joints between the offshore export cables and the onshore cables.
Trenchless crossing compound	Pairs of compounds at each trenchless crossing zone to allow boring to take place from either side of the crossing.
Trenchless crossing zone	Areas within the onshore cable route which will house trenchless crossing entry and exit points.
Workfront	A length of onshore cable route within which duct installation works will occur, approximately 150m.



## 1 COMMENTS ON RELEVANT REPRESENTATIONS

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1. A total of 113 Relevant Representations were received by the Planning Inspectorate (PINs) in respect to Norfolk Boreas (hereby 'the project') during the statutory consultation period under Section 56 of the Planning Act 2008. An additional 5 Relevant Representations were received after the deadline and were accepted by the Examining Authority (ExA); these have also been considered in this document.
2. The 118 Relevant Representations comprise of the following:
  - 3 from local authorities;
  - 76 from members of the public;
  - 11 from non-statutory organisations;
  - 19 from statutory consultees; and
  - 7 from parish councils.
3. In addition, two responses were received from consultees of Transboundary consultation. These have also been considered within this document.
4. Norfolk Boreas Limited (the Applicant) has reviewed each of the Relevant Representations. A summary of the key topics raised by the relevant representations along with the Applicant's comments has been provided in sections 1.1 to 1.28 of this document. A reference number was allocated to each interested party that submitted a relevant representation, these are outlined in Annex A of this document.
5. The Relevant Representations can also be found in the Norfolk Boreas Examination Library on the PINs website [here](#).
6. The Norfolk Boreas Application documents that have been referred to throughout this document can also be found at the above link. The PINs library reference numbers given to each of the application documents have been referenced throughout this document for ease of reference.
7. It should be noted that the approach taken in the Relevant Representation submissions differs between the interested parties. For example, the representation provided by Natural England is designed to also cover their Written Representation and their submission therefore provides extensive and detailed comments. Other representations comprise simple statements outlining why a given party has an interest in the examination process. At this stage, the Applicant has therefore responded proportionally to the level of detail in each representation. Where appropriate the Applicant has grouped representations by topic in order to avoid unnecessary repetition in responses.

## 1.1 Site Selection

Table 1 Applicant responses to Relevant Representations in relation to Site Selection

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	The site south of Happisburgh village where the landfall takes place for both Vanguard and Boreas is in an area where there is ongoing and significant cliff erosion	RR-037, RR-101, RR-036, RR-039, RR-053, RR-107, RR-108, RR-048	<p>The Coastal Erosion Study (document 6.3.4.5, APP-541) takes account of various available data and information sources, including local knowledge and the Shoreline Management Plan; modelling of the longshore interactions; consideration of a range of coastal management scenarios, including a scenario that matches current intentions, both locally and in neighbouring frontages; and the most recent upper end estimate of sea level rise from the Environment Agency's Guidance (Environment Agency, 2011).</p> <p>Future erosion rates at Happisburgh are predicted to be between 50m to 110m by 2065 (ES Appendix 4.3 (document 6.3.4.3, APP-539). The Horizontal Directional Drilling (HDD) entry point will be set back from the existing cliff-line by at least 125m to ensure natural coastal erosion will not affect the drilled cable or transition pits within the conceivable lifetime of the project (approx. 30 years). Furthermore, the landfall compound zone extends a further 200m inland, to allow further flexibility in the siting of the landfall post consent, using the most up to date information and forecasts. This is considered embedded mitigation by design to ensure that the landfall cable ducts do not become exposed under a worst case scenario during the project lifetime. In addition, the Applicant has committed to a long HDD to avoid any interaction with intertidal areas.</p> <p>A SoCG has been prepared with Norfolk County Council and North Norfolk District Council which includes matters of agreement relating to coastal erosion.</p>
2	Landfall site selection	RR-053, RR-036	Sections 4.7 and 4.8 of ES Chapter 4 Site Selection and Assessment of alternatives (document 6.1.4, APP-217 ) provide details on the landfall site selection process. The offshore and onshore cable routes have been chosen to minimise environmental impacts associated with the project. The choice of location for landfall was a key part

**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>of this consideration and factors including the need to avoid designated sites offshore, such as the Marine Conservation Zone (MCZ), and onshore, such as The Broads National Park, influenced the decision-making process. Informal consultation responses, constraints mapping and engineering review were also taken into consideration to identify the preferred landfall location.</p> <p>These issues have been considered in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 4 Site Selection and Alternatives (document 6.1.4, APP-217)</li> <li>• Chapter 1.6 of the Consultation Report (document 5.1, APP-265) - Responses to feedback and Project decisions influenced by consultation</li> <li>• Chapter 3 of the Consultation Report - Introduction</li> <li>• Chapter 12 of the Consultation Report - Phase I non-statutory consultation (Project definition and agreement on data requirements and surveys)</li> <li>• Chapter 13 of the Consultation Report - Phase II non-statutory consultation period (refining the Project)</li> <li>• Chapter 17 of the Consultation Report - Overview of phase 0 - phase IIb non-statutory consultation and influence on the project</li> <li>• Chapter 18 of the Consultation Report - Phase III non-statutory consultation (having regard to Norfolk Vanguard statutory consultation)</li> <li>• Appendix 3.1 of the Consultation Report - Hearing Your Views I (document 5.1.3.1, APP-028)</li> <li>• Appendix 3.2 of the Consultation Report - Hearing Your Views II (document 5.1.3.2, APP-029)</li> <li>• Appendix 3.3 of the Consultation Report - Hearing Your Views III (document 5.1.3.3, APP-030)</li> <li>• Appendix 3.4 of the Consultation Report - Hearing Your Views IV (document 5.1.3.4, APP-031)</li> <li>• Appendix 4.2 of the Consultation Report - FAQ documents (document 5.1.4.2, APP-033)</li> </ul>

**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<ul style="list-style-type: none"> <li>• Appendix 12.7 of the Consultation Report - Phase I non-statutory public exhibition materials (document 5.1.12.7, APP-092)</li> <li>• Appendix 12.9 of the Consultation Report - Phase II non-statutory public exhibition materials (document 5.1.12.9, APP-094)</li> <li>• Appendix 13.2 of the Consultation Report - March 2017 newsletter (document 5.1.13.2, APP-114)</li> <li>• Appendix 18.3 of the Consultation Report - Phase III non-statutory public exhibition materials (document 5.1.18.3, APP-137)</li> <li>• Appendix 22.13 of the Consultation Report - Consultation Summary Document (document 5.1.22.13, APP-172)</li> <li>• Appendix 22.14 of the Consultation Report - Formal consultation exhibition boards (5.1.22.14, APP-173)</li> <li>• Appendix 25.1 of the Consultation Report - Section 47 responses (document 5.1.25.1, APP-181)</li> </ul>
3	Alternative sites (Onshore Project Substation)	RR-026, RR-031, RR-042, RR-103, RR-109, RR-111, RR-112, RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092,	<p>Issues raised regarding the suitability of the Necton location for the onshore project substation include: site selection and landscape and visual impacts. These issues have been considered in part or in full within the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 4 Site Selection and Assessment of Alternatives (document 6.1.4, APP-217) <ul style="list-style-type: none"> <li>○ Including application of the Horlock Rules;</li> </ul> </li> <li>• ES Appendix 4.3 Strategic Approach to Selecting a Grid Connection Point for Norfolk Boreas and Norfolk Vanguard (document 6.3.4.3, APP-539)</li> <li>• ES Chapter 29 Landscape and Visual Impact Assessment (document 6.1.29, APP-242) <ul style="list-style-type: none"> <li>○ Mitigation measures are detailed within the Outline Landscape and Ecological Management Strategy (OLEMS; document 8.7, APP- 698);</li> </ul> </li> </ul>

**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	<ul style="list-style-type: none"> <li>• Chapter 1.6.11 of the Consultation Report (document 5.1, APP-027) - Siting the onshore project substation away from as many homes as possible, while still within a practicable distance from the existing 400kV National Grid substation</li> <li>• Chapter 1.6.12 of the Consultation Report - Commitment to planting in key areas as early as possible</li> <li>• Chapter 3.5 of the Consultation Report - Early Project definition, site selection and refinement</li> <li>• Chapter 14 of the Consultation Report - Phase IIb non-statutory consultation workshops</li> <li>• Chapter 17 of the Consultation Report - Overview of phase 0 - phase IIb non-statutory consultation and influence on the project</li> <li>• Chapter 18.7 of the Consultation Report - Summary of responses to Norfolk Vanguard Section 47 and regard had by Vattenfall Wind Power Limited</li> <li>• Chapter 28.2.11 of the Consultation Report - Learnings from the Norfolk Vanguard examination process and community representations</li> <li>• Appendix 3.1 of the Consultation Report - Hearing Your Views I (document 5.1.3.1, APP-028)</li> <li>• Appendix 3.2 of the Consultation Report - Hearing Your Views II (document 5.1.3.2, APP-029)</li> <li>• Appendix 3.3 of the Consultation Report - Hearing Your Views III (document 5.1.3.3, APP-030)</li> <li>• Appendix 3.4 of the Consultation Report - Hearing Your Views IV (document 5.1.3.4, APP-031)</li> <li>• Appendix 4.2 of the Consultation Report - FAQ documents (document 5.1.4.2, APP-033)</li> <li>• Appendix 12.7 of the Consultation Report - Phase I non-statutory public exhibition materials (document 5.1.12.7, APP-092)</li> </ul>

**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<ul style="list-style-type: none"> <li>• Appendix 12.9 of the Consultation Report - Phase II non-statutory public exhibition materials (document 5.1.12.9, APP-094)</li> <li>• Appendix 13.2 of the Consultation Report - March 2017 newsletter (document 5.1.13.2, APP-096)</li> <li>• Appendix 14.2 of the Consultation Report - June 2017 newsletter (document 5.1.14.2, APP-126)</li> <li>• Appendix 14.8 of the Consultation Report - Necton substation workshop presentations (document 5.1.14.8, APP-132)</li> <li>• Appendix 18.3 of the Consultation Report - Phase III non-statutory public exhibition materials (document 5.1.18.3, APP-137)</li> <li>• Appendix 22.13 of the Consultation Report - Consultation Summary Document (document 5.1.22.13, APP-172)</li> <li>• Appendix 22.14 of the Consultation Report - Formal consultation exhibition boards (5.1.22.14, APP-173)</li> <li>• Appendix 24.1 of the Consultation Report - Section 42 responses (document 5.1.24.1, APP-180)</li> <li>• Appendix 25.1 of the Consultation Report - Section 47 responses (document 5.1.25.1, APP-181)</li> <li>• Appendix 28.4 of the Consultation Report - February 2019 newsletter (document 5.1.28.4, APP-195)</li> </ul> <p>Information is also available in the Vattenfall Substation Information Sheet provided in Appendix 1 of this document.</p>
4	Selection of grid connection point	RR-036, RR-109	<p>The report on the Strategic Approach to Selecting a Grid Connection Point for Norfolk Boreas and Norfolk Vanguard (ES Appendix 4.3, document 6.3.4.3, APP-539) provides a summary of the context and work carried out by National Grid and Vattenfall Wind Power Limited (parent company of the Applicant) to select an appropriate location to</p>

**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>connect to the National Electricity Transmission System. Further detail relating to the site selection process can be reviewed in ES Chapter 4 Site Selection (document 6.1.4, APP-217).</p> <p>The grid connection point decision undertaken with National Grid considered a range of alternative connection points. This included, for example, a new connection point to National Grid closer to the coast. However, to accommodate such a connection, National Grid would have to connect to an existing substation via overhead lines, due to the length of the 400kV AC connection that would be required. The decision was therefore taken to avoid overhead lines in order to minimise visual impacts and instead install underground cables to an existing National Grid substation with the required capacity.</p>
5	Cumulative impact of the Norfolk Boreas onshore project substation	RR-006, RR-014	<p>Where relevant, the application outlines how the Applicant and National Grid agreed on an appropriate connection point for the Project, adhering to National Grid's statutory duty to ensure a coordinated, efficient and economic solution to the maintenance and operation of the national grid network, as it develops and responds to the UK's changing supply and demand profile. ES Chapter 4 Site Selection and Assessment of Alternatives (document 6.1.4, APP-217) provides a description of the process to identify suitable locations for the Project infrastructure including the onshore substation and alternatives considered.</p> <p>An assessment of potential cumulative impacts at the onshore substation is provided in the ES for all onshore topics (ES Chapters 19 to 31) and a summary can be found on ES Chapter 33 Onshore Cumulative Impacts (document 6.1.33, APP-246).</p> <p>In addition, issues related to cumulative impacts have been considered in part or in full in the following submission documents:</p>



**Table 1 Applicant responses to Relevant Representations in relation to Site Selection**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<ul style="list-style-type: none"> <li>• Chapter 18.7 of the Consultation Report (document 5.1, APP-027) - Summary of responses to Norfolk Vanguard Section 47 and regard had by Vattenfall Wind Power Limited</li> <li>• Chapter 28.2.10 of the Consultation Report - Ongoing project refinements, post-formal consultation engagement</li> <li>• Chapter 28.2.11 of the Consultation Report - Learnings from the Norfolk Vanguard examination process and community representations</li> <li>• Appendix 14.4 of the Consultation Report - Cable Relay Station Workshop Presentation (document 5.1.14.4, APP-128)</li> <li>• Appendix 14.8 of the Consultation Report - Necton Substation Workshop Presentation (document 5.1.14.8, APP-132)</li> <li>• Appendix 25.1 of the Consultation Report - Section 47 responses (document 5.1.25.1, APP-181)</li> </ul>

## 1.2 Project Description

Table 2 Applicant responses to Relevant Representations in relation to Project Description and Order Limits

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Horizontal Directional Drilling (HDD) at Landfall	RR-048	<p>The landfall design will mitigate against impacts to the cliffs. Use of long HDD method prevents the requirement for surface excavations on the beach or at the existing cliff face. Landfall processes and construction methodology is also considered in the Vattenfall Landfall information sheet which can be found in Appendix 1 of this document.</p> <p>Please note, the term “Horizontal Directional Drilling” is used within the Norfolk Boreas DCO, and associated documents, however it remains the case that other methods of achieving landfall are not precluded. Other trenchless methods, such as direct pipe, can be accommodated within our current design envelope. Detailed design and tendering for the landfall works will take place following a positive consent decision. Ensuring compliance with the terms of the consent will be a key objective in this process. All drilling techniques will be considered, so long as their application is consistent with this objective.</p>
2	Two development scenarios	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093,	<p>As outlined in the OCoCP (document 8.1, APP-692) paragraph 1.2, there are two development scenarios that have been accounted for in the application;</p> <p>Scenario 1 – Norfolk Vanguard proceeds to construction and installs ducts and other shared enabling works for Norfolk Boreas.</p> <p>Scenario 2 – Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project.</p> <p>Under Scenario 1, the following onshore elements would therefore be undertaken by Norfolk Boreas; Installation of ducts and cables at the landfall; Cable pulling through pre-installed ducts, including reinstatement of up to approximately 12km of temporary running track; Construction of onshore project substation, including extension of the access road from the A47 (installed by Norfolk Vanguard); Extension of the Necton National Grid Substation in an easterly direction, with a footprint of approximately 135m by 150m; and Landscape mitigation planting.</p>

**Table 2 Applicant responses to Relevant Representations in relation to Project Description and Order Limits**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-094, RR-097, RR-098, RR-114, AS-015, RR-108	<p>Under Scenario 2, the following onshore elements would be undertaken by Norfolk Boreas; Installation of ducts and cables at the landfall; Duct installation via open trenching and trenchless crossings, including installation of 60km of temporary running track; Installation of mobilisation areas and trenchless crossing compounds; Cable pulling through pre-installed ducts, including retaining or reinstalling up to 12km of temporary running track; Construction of onshore project substation, including installation of new permanent access road from A47 and associated junction improvement works; Extension of the Necton National Grid Substation in a westerly direction, with a footprint of approximately 200m by 150m; Modifications to the existing National Grid overhead lines; and Landscape mitigation planting.</p> <p>Indicative construction programmes for the two alternative scenarios can be found in ES Chapter 5 Project Description (document 6.1.5, APP-218); Table 5.39 Scenario 1 onshore indicative project construction programme and Table 5.43 Scenario 2 onshore indicative project construction programme.</p> <p>Full details of the development scenarios are outlined in ES Chapter 5 Project Description (document 6.1.5, APP-218), including a further detailed comparison provided in Appendix 5.1 (document 6.3.5.1, APP-547).</p>
3	Link box locations	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088,	<p>The location and format of the Link Boxes has been discussed at length with the Land Interest Group (LIG), who are a collection of agents representing land interests and the National Farmers Union (NFU). Wording has been agreed in the final form of the Deed of Easement that: 'Prior to the installation of any Link Box, the Grantee shall consult with the Grantor (and if reasonably requested by the Grantor, any relevant Occupier) as to the location and level of said Link Box and where reasonably practicable (and subject to reasonable engineering requirements or construction requirements) the Grantee shall implement the Grantor's requirements as to location and level of the Link Box.'</p> <p>Unless there are reasonable engineering requirements, construction requirements or specific requirements by the Grantor the Link Box shall be located in or within 2 metres from a field boundary,</p>

Table 2 Applicant responses to Relevant Representations in relation to Project Description and Order Limits

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015, RR-108	hedge (measured from the centre of the hedge nearest to the Link Box) or other boundary structure and shall be laid level with or below the surface of the Easement Strip.
4	Development Scenarios - Offshore  The MMO recommends a table that highlights the worst case scenarios within each development consent option.	RR-069  (Comment 4.1.1)	The Applicant believe that the worst case scenarios across Norfolk Boreas and Norfolk Vanguard have been defined to a suitable degree to undertake the cumulative impact assessments within the ES. However, the Applicant is in discussions with the MMO as to what further information they require.
5	The MMO are unable to find the worst case scenario for drill arisings	RR-069  (Comment 2.2.3)	<p>The second row of Table 8.16 Summary of worst case scenario of Chapter 8 Marine Geology, Oceanography and Physical Processes (document 6.1.8, APP-221) confirms:</p> <p><i>"Therefore, the drill arisings would be as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>Meteorological masts - 2 x pin-pile quadropod = 1,131m<sup>3</sup>;</i></li> <li>• <i>Offshore electrical platform - 2 x six-legged with 18 pin-pile = 14,137m<sup>3</sup>;</i></li> <li>• <i>Offshore service platform - 1 x six-legged pin-pile = 848m<sup>3</sup></i></li> <li>• <i>Lidar - 2 x monopiles = 189m<sup>3</sup>"</i></li> </ul> <p>The overall figure is secured within the dDCO at Condition 1 and 3 of the Transmission DMLs (Schedule 11-12).</p>

### 1.3 Marine Geology, Oceanography and Physical Processes

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
1	Recovery of sandbanks	RR-099 <i>Appendix 2 (Summary)</i>	<p>The Applicant is unsure where the reference to a "new equilibrium" has been taken from; Appendix 7.1 of the Information to Support Habitats Regulation Assessment (HRA) (document 5.3.7.1, APP-206) concludes that "the form and function of the local Newarp Banks sandbank system and wider systems within the Haisborough Hammond and Winterton (HHW) Special Area of Conservation (SAC) are not likely to be affected" by the cable installation process. Therefore, it is anticipated that the biological communities will remain largely unchanged.</p> <p>As noted in the opening comments from Natural England to the Norfolk Vanguard Examination (para 2.1.1 [of NE's Norfolk Vanguard Deadline 1 submission (REP2-031)] "Natural England does not consider it likely that human activities taking place within the site have the potential to permanently impact on the large-scale topography." The Applicant has confirmed that sediment will be retained within the system and therefore the system will not be without the sediment composition. The biological communities of the site are relatively species poor, consisting primarily of hardy polychaetes and amphipods or other common and regularly occurring species associated with low diversity dynamic sand communities; and gravelly muddy sand communities, therefore cable installation works and the small scale of cable protection will not significantly alter the community and the site will not be without the biological communities expected from the designated feature.</p>
2	Sandwave levelling  Natural England are uncertain about what the impacts are from i.e. cable installation or cable repair - terminology seems to switch between	RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA)</i>	<p>The study assumed a nominal width of 7m per cable pair, with each cable pair being laid within the same trench, and a 75 m separation between the next cable pair for the same project. There is then a 250 m separation between the cable trenches for the two offshore wind farm projects. Therefore, we have assessed four dredge trenches each 7 m wide.</p>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
	the two with a lack of clarity. For example top of page 5 it is unclear whether the dredge corridor is 7m per cable – so 28m in total or 7m per pair so 14m in total.		
3	Net Gain	RR-099 <i>Appendix 2 (Summary)</i>	<p>In December 2018, Defra consulted on plans to introduce the principle of Net gain to the Planning System in England. Defra's response to consultation affirms their intention to bring forward legislation to mandate Net Gain within the Environment Bill but confirms their position that Nationally Significant Infrastructure Projects (NSIP) and marine developments will remain out of scope of the mandatory requirement in the Environment Bill:</p> <p><i>"Consultation proposals for a mandatory requirement did not include nationally significant infrastructure or marine projects. Whilst many respondents told us that these types of development should be in scope of the mandatory requirement, following careful consideration the government believes that further work and engagement with industry and conservation bodies is required to establish approaches to biodiversity net gain for both marine and nationally significant infrastructure projects, which can have fundamentally different characteristics to other development types. Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill"</i></p>
4	Mitigation of adverse impacts on sandbanks within the Haisborough	RR-099 <i>Appendix 2 (Summary)</i>	All proposed mitigation measures for the SAC are described in section 5 of the Outline Norfolk Boreas HHW SAC Site Integrity Plan (HHW SAC SIP) (document 8.17, APP-708). These are tabulated in Table 5.2 of that document with the status of each measure also included. The Applicant agrees that

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
	<p>Hammond and Winterton SAC</p> <p>Natural England propose it may prove helpful to provide a tabular summary of major mitigation actions that ameliorate impact on seabed. Examples of mitigation measures undertaken by other activities in HHW SAC include reduction of footprint associated with vessel stabilisation through use of alternative work vessels, provision of evidence to quantify footprint of rock armouring potentially needed for works and reuse of existing stabilisation material footprints.</p>		<p>the examples of additional mitigation provided by Natural England would lead to localised reductions of impact magnitude (e.g. the use, if practicable, of alternative work vessels such as dynamic positioning (DP)), however these reductions would only be very minimal.</p> <p>In response to Natural England's Relevant Representation, the Applicant is prepared to make a number of additional commitments which the Applicant feel would lead to a greater reduction in the magnitude of impacts within the HHW SAC. The Applicant is prepared to make the following additional and post application commitments:</p> <ol style="list-style-type: none"> <li>1. Commit to attempt to rebury any cables that become exposed within the SAC before applying for a Marine Licence to install cable protection to protect exposed cables;</li> <li>2. Commit to not using Jack up vessels within the SAC;</li> <li>3. Commit to disposing of material dredged for sand wave levelling along the cable route, and where possible up drift of the cable where possible, rather than in a discrete disposal site located within the SAC; and</li> <li>4. Disposing of material dredged for sand wave levelling at the seabed, using a fall pipe to ensure it remains more than 50m away from <i>S.spinulosa</i> reef</li> </ol>



Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
5	Natural England's comments on the lack of assessment on Sub optimal burial of cables and the subsequent need for cable protection within the Haisborough Hammond and Winterton Special Area of Conservation (HHW SAC).	RR-099 <i>Appendix 2 (Summary)</i>	<p>The Applicant considers preparation works such as sandwave levelling and disposal to be a component of the cable installation strategy, which is secured in DCO Schedules 9 and 10 Part 4 Condition 14(1)(g)(ii) "a detailed cable (including fibre optic cables) laying plan for the Order limits, incorporating a burial risk assessment to ascertain suitable burial depths and cable laying techniques, including cable protection". This also applies to the Transmission DMLs (Schedules 11 and 12, Part 4 condition 9(1)(g)(ii)).</p> <p>Further assessment of sandwave levelling within the HHW SAC would be undertaken as part of the Final HHW Site Integrity Plan (SIP) (further information is provided in the Outline HHW SAC Site Integrity Plan (SIP) (document 8.20, APP-711) once the detailed design of the cable route is known.</p>
6	Natural England comments that the assumption to date was that the levelling within HHW SAC would be over discrete waves / banks, not levelling across a larger number of smaller features, as shown in the clarification note. This situation may impact differently on the conservation objectives for the site.	RR-099 <i>Appendix 2 (Summary)</i>	<p>The worst case scenario assumptions are, as presented to Natural England previously, including in the Preliminary Environmental Information Report (PEIR), and the draft information to support HRA report.</p> <p>The extent of Sand wave levelling in the SAC has been informed by analysis which is reported in ES Appendix 5.2 (document 6.3.5.2, APP-548) Offshore Windfarm Export Cable Installation Study.</p> <p>The Applicant have sought further information on the clarification note as this was not submitted to Natural England by the Applicant. Natural England have confirmed that it was a note submitted in March 2018 by Norfolk Vanguard. The Applicant did not establish the worst case scenarios until later in 2018 and therefore believes that it Natural England comment has already been accounted for within the application, where relevant.</p> <p>Further assessment of the sandwave levelling within the SAC would be undertaken as part of the HHW SAC SIP once the detailed design of the cable route is known.</p>

**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
7	Natural England request for further information on Cable burial operations	RR-099 <i>Appendix 2 (Summary)</i>	<p>The Applicant is confident that the worst case scenarios set out in the assessment are sufficiently precautionary to ensure that the project design envelope will not be exceeded.</p> <p>The assessment is based upon a realistic worst case scenario which the Applicant is confident provides sufficient and appropriate precaution. The worst case scenario also includes contingency estimates and therefore post-consent increases in worst case scenarios are highly unlikely and would be subject to additional licensing or variation to the DCO. Where Natural England refers to "Marine Protected Areas" (MPAs), the Applicant reiterates that the only MPA of relevance to this assessment is Haisborough, Hammond and Winterton SAC. During the site selection phase the Applicant made the commitment to route around the Cromer Shoal and Chalk Beds Marine Conservation Zone at the request of Natural England and other stakeholders.</p> <p>As acknowledged by Natural England (during the Norfolk Vanguard Examination), additional information would be provided post consent. The Applicant is committed to providing further detail prior to construction through the Construction Method Statement (required under dDCO, Schedules 11 and 12, Part 4 Condition 9(1)(c)) and Cable Specification Installation and Monitoring Plan (required under dDCO Schedules 11 and 12, Part 4 Condition 9(1)(g)) and the HHW SAC SIP.</p>
8	Placement of seabed material being implemented upstream of site excavated as a licence condition	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, para. 182)</i>	<p>The placement of seabed material from cable installation within the HHW would be agreed through the HHW SAC SIP. The appropriate time to agree the strategy for sediment disposal is once the detailed design of the project is known. At this stage the exact cable route would be known and therefore a more accurate estimate of the quantities of seabed materials to be dredged from the seabed would be calculated, furthermore it would be known how many cables would be required to be installed within the SAC. The Applicant is prepared to make the commitment within the Outline HHW SAC SIP to dispose of material close to the seabed and in a strip that runs parallel to the cable route. The Applicant recognise that this may be in conflict with the commitment to avoid <i>S. spinulosa</i></p>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			<p>reef and would therefore propose a priority hierarchy approach to defining where the material would be deposited as follows:</p> <ul style="list-style-type: none"> <li>• First Priority- disposed of material at least 50m from any Annex 1 <i>S.spinulosa</i> reef</li> <li>• Second Priority- dispose of material "Upstream" of the cable route to promote infill</li> <li>• Third Priority – dispose of material as close to the final cable route as possible.</li> </ul> <p>The Applicant is in discussion with Natural England regarding this approach and would propose to secure these new commitments within the Outline HHW SAC SIP.</p>
9	Monitoring of Sandwave levelling within the HHW SAC	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, section 8.7.5, para. 180)</i>	<p>Condition 14 (b) of the DCO commits the Applicant to producing a monitoring plan which accords with the Offshore In Principle Monitoring Plan (IPMP) (document 8.12, APP-703). The IPMP makes the preconstruction commitment to undertake "a single survey within the agreed cable corridor survey areas using full sea floor coverage swath-bathymetric undertaken to IHO S44ed5 Order 1a standard and side-scan surveys of the area(s) within the order limits in which it is proposed to carry out construction works, including a 500m buffer area around the site of each works".</p> <p>The IPMP also makes a commitment to undertake a post construction survey covering the same specifications. This survey is secured through Condition 20(2)(b) of the Schedules 9 and 10, Condition 15(2)(b) of Schedules 11 and 12 and Condition 13 (3)(b) of Schedule 13.</p> <p>The IPMP also states that further surveys may be required at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years). If evidence of recovery is recorded and agreed with the MMO, monitoring will cease.</p> <p>Monitoring of the section of the offshore cable corridor which overlaps with the Haisborough, Hammond and Winterton Special Area of Conservation (SAC) would also need to be agreed through the</p>

**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
			HHW SAC SIP (required under Condition 9(1)(m) of Schedules 11 and 12 of the DCO in accordance with the Outline Haisborough, Hammond and Winterton SAC SIP (document 8.20, APP-711)).
10	Natural England comment that sandwave levelling does not ensure cables remain buried	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, para. 202)</i>	<p>The worst case scenario for the O&amp;M phase is based upon the potential for suboptimal burial in the absence of sandwave levelling. The assessment is therefore conservative, and should the sandwave levelling installation strategy be adopted, it is expected that suboptimal burial would be reduced and therefore O&amp;M impacts would be less than presented in the ES (document 6.1.8, APP-221) and Information to Support HRA report (document 5.3, APP-201).</p> <p>The Applicant has set out proposals in the HHW SAC SIP, to submit documentary evidence from other subsea cable projects (e.g. interconnectors and offshore wind), showing (i) the different installation strategies that have been used in areas of mobile sediment, and (ii) which of these strategies have been more (and less) successful in achieving and maintaining burial of cables over the longer term.</p>
11	Worst Case Scenario for dredging volumes within the HHW SAC	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, Table 8.16)</i>	<p>The EIA has used a precautionary approach and has assessed larger volumes of material than actually anticipated.</p> <p>Appendix 5.2 provides a detailed estimate of the maximum volume of sand wave levelling that would be required for both Norfolk Vanguard and Norfolk Boreas. The report concludes that a maximum of 847,441m<sup>3</sup> of material may require pre sweeping if 2 cables were installed for both projects, which would equate to 423,721m<sup>3</sup> of material for both projects.</p> <p>The EIA and HRA use the precautionary value of 500,000m<sup>3</sup> as a worst case. It should also be recognised that for two out of the three electrical solutions for the Norfolk Boreas project, only one export cable would be installed within the SAC which would halve the worst case scenario. Furthermore, the comparison with the aggregates industry is not relevant as for the aggregates industry the material would be dredged from a much smaller area and in a single discrete area. The</p>

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No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			material from the offshore cable corridor would be dredged from a 100km (40km within the HHW SAC) linear area of seabed and deposited back into the system whereas material dredged for aggregate would be removed.
12	Natural England advise that Dredged materials should be deposited within the HHW, <i>"immediately upstream of where it is removed to allow natural infill as soon as possible, rather than removal to another or central site"</i>	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, section 8.7.6.5.1, para. 270)</i>	The Applicant has made a commitment from an early stage (pre PEIR) to dispose within the SAC all sediment which is dredged from within the SAC. This commitment is included with the project design envelope, EIA and within the HHW SAC SIP. Within the SIP the commitment is also made to agree the disposal locations with the MMO and Natural England. Further to this the Applicant is prepared to commit to dispose of material in a strip along the cable route, located "upstream" where possible which would allow for infill where sandwaves have been dredged. For further information on this see response to comment row 8 of this table.
13	Natural England comments that they do not agree with the conclusions of assessment on impacts on the sandbank feature and relevant attributes	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes, para. 280)</i>	Construction Impacts 3 and 4 of ES Chapter 8 (document 5.3.9.2, APP- 221) have been assessed in four ways. Impact 3 looks at suspended sediment concentrations released during pre-sweeping. Then deposition from the generated plume is assessed in 4A. Impact 4B assessed changes in the seabed from disposal of pre-swept sediment, and 4C looked at potential changes to sediment transport processes due to pre-sweeping. Hence, negligible impact is associated with deposition from the plume and from disposal only. The assessment of site attributes and features is covered in Impact 4C. This is supported by Appendix 7.1 ABPmer Sandwave (document 5.3.7.1, APP-206) which demonstrated that the disposed sediment would have an initial thickness of 0.02-0.3m within a sand wave field where the bedforms are up to 3m high. So, the near-field scale is deemed to be low because the initial disposal is likely to be less than 10% of the height of the existing bedforms. All of the sediment pre-swept will be disposed back into the SAC so no sediment will be lost and the

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No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			<p>seabed would revert to close to its previous form within a year of being driven by tidal current processes. As described in row 11 of this table the large volume assessed is a precautionary worst case scenario and would be dredged over a large area, therefore the local impacts would be minimal. However following Natural England comments made to the Norfolk Vanguard examination it was agreed that the near field effects would be elevated to "High" in the offshore environment. They would remain as low in the nearshore as no dredging is proposed in this area.</p> <p><b>The Assessment on the specific attributes of the SAC is included within the HRA as follows:</b></p> <p><b>Volume</b></p> <p>Norfolk Boreas is committed to disposing of all the sediment excavated from the SAC during sand wave levelling back into the SAC, so that no sediment is lost from the sand bank system associated with the SAC. The total volume of sediment in the SAC would therefore not change. This meets the target in the Supplementary Advice which is to 'Maintain the existing or best-known volume of sediment in the sandbank, allowing for natural change'.</p> <p><b>Extent</b></p> <p>Even though dredging of sediment from the SAC would take place, the overall area of the sand bank habitat would not change. This is because the sea bed composition would not change and so the spatial distribution and integrity of the feature would be unaffected. This meets the target in the Supplementary Advice which is to 'Restore the total extent and spatial distribution of subtidal sandbanks to ensure no loss of integrity, while allowing for natural change and succession'.</p> <p><b>Morphology</b></p> <p>The Supplementary Advice indicates that the total sand bank volume within the SAC is likely to be at least 1,113 x 106m<sup>3</sup> (the combined volumes estimated for Hewitt Ridge, Winterton Ridge, Hammond</p>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			<p>Knoll, Haisborough Sand, North and Middle Cross Sand, South Cross Sand). The excavated sediment amounts to a volume of <math>0.5 \times 106\text{m}^3</math>, which is only 0.05% of the total sand bank volume.</p> <p>The sand wave study provided in Appendix 7.1 of the Information to Support HRA report concluded that, although the absolute changes in morphology of the sea bed due to disposal cannot be predicted with certainty, they are likely to be within the existing elevation range already at the disposal area (sand waves up to 3m high with wavelengths of about 100m). The technical assessment also indicated that any disposal mounds that may be created that are higher than the natural elevation variation would be re-distributed and lowered by tidal currents to levels like the existing bedforms, within a period of days to a year.</p> <p>The re-distribution of the disposal mounds to bedforms like those existing at present meets the target in the Supplementary Advice which is to 'Maintain the presence of topographic features, while allowing for natural responses to hydrodynamic regime, by preventing erosion or deposition through human-induced activity'.</p> <p><b>Summary</b></p> <p>The overall impact of sand wave levelling activities under a worst case scenario on bed level changes (volume, extent and morphology) in the SAC due to sediment disposal is considered to be negligible.</p>
14	Assessment of the impact of the dredging	RR-099 <i>Appendix 2 (ES Chapter 8 Physical Processes)</i>	<p>Given the Applicant's commitment to dispose of sediment arising from sandwave levelling (dredging) in the HHW SAC back into the SAC, the two activities of levelling and disposal are considered together as there would not be one without the other. With regards to the volume of the sandbank features this will not change as a result of sandwave levelling (dredging) due to the commitment to dispose of sediment back into the SAC.</p> <p>With regards to the extent of the sandbank feature, the seabed composition and spatial distribution of the feature would also not change for the same reason. With regards to morphology, the</p>



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No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			Applicant's response refers to the ABPmer Sandwave Study, provided in Appendix 7.1 of the Information to Support HRA report which considered the effects of sandwave levelling (dredging) and disposal on seabed morphology, sandwave morphology and form and function of the HHW SAC.
15	Natural England does not agree that near field effects are low in scale due to the large volume of proposed dredging and material released.	RR-099 <i>Appendix 2 (Chapter 8 Physical Processes)</i>	<p>The Applicant believe this to be a comment which has been copied from the Norfolk Vanguard submissions.</p> <p>The Applicant changed the Scale of Near-field (offshore) effects to "High" as a result of comments provided by Natural England to the Norfolk Vanguard Examination. The Scale in the nearshore environment remain low as there would be no dredging or disposal in the nearshore area.</p>
16	Natural England believe there is no evidence for sandbank recovery and therefore request monitoring to demonstrate recovery within the HHW SAC.	RR-099 <i>Appendix 2 (Chapter 8 Physical Processes, para. 330)</i>	<p>The Offshore In Principle Monitoring Plan (IPMP) (document 8.12, APP-703) (which is secured in the DCO and has to be signed off by the MMO) makes the commitment to a preconstruction and post construction survey. Condition 14 (b) of the DCO commits the Applicant to producing a monitoring plan which accords with the IPMP.</p> <p>The In-principle monitoring plan (IPMP) makes the pre-construction commitment to undertake "a single survey within the agreed cable corridor survey areas using full sea floor coverage swath-bathymetric undertaken to IHO S44ed5 Order 1a standard and side-scan surveys of the area(s) within the order limits in which it is proposed to carry out construction works, including a 500m buffer area around the site of each works". The IPMP also makes a commitment to undertake a post-construction survey covering the same specifications (this survey is secured through Condition 20(2)(b) of the Schedules 9 and 10, Condition 15(2)(b) of Schedules 11 and 12 and Condition 13 (3)(b) of Schedule 13). The document also states that further surveys may be required at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years). If evidence of recovery is recorded and agreed with the MMO, monitoring will cease.</p>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			Monitoring of the section of the offshore cable corridor which overlaps with the Haisborough, Hammond and Winterton Special Area of Conservation (SAC) would also need to be agreed through the HHW SAC SIP (required under Condition 9(1)(m) of Schedules 11 and 12 of the DCO in accordance with the Outline Haisborough, Hammond and Winterton SAC SIP (document 8.20, APP-711).
17	Natural England comment that no evidence/ justification has been presented in Appendix 7.1 of the HRA to show that there is no difference in deposition following surface or near bed release of disposal material.	RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA)</i>	<p>The comment relates to the second paragraph in Section 4.3.3 of Appendix 7.1 of the Information to Support HRA Report (document 5.3.71, APP-206), where it is stated that “<i>Theoretically there is very little difference in the potential deposition thickness associated with either [a surface release or disposal at the bed via a downpipe] disposal method</i>”.</p> <p>The same paragraph (also discussed in more detail in the preceding Section 4.3.2 of Appendix 7.1) notes that the shape of individual deposits (including the area, shape and thickness) is likely to be naturally variable and cannot be reliably predicted. The shape will be dependent on several factors, including the disposal method, but also the ambient current conditions at the time of the release, the local water depth, and the pattern in which the main deposit spreads as it settles to the seabed. During surface release disposal, the majority of material descends to the seabed rapidly as a single mass and so is only subject to limited additional advection or dispersion, in comparison to near bed release methods.</p> <p>The dimensions of any resulting sediment deposit are in any case limited by the finite volume of sediment being released (which is the same for either surface or near bed release methods). The full range of realistic worst case scenarios (from maximum thickness and minimum area, to minimum potentially significant thickness and maximum area) are provided in Table 8 of Appendix 7.21 (Document Reference 5.3.7.1, APP-206) and are considered in the Information to Support HRA report.</p>

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No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			<p>Therefore, although individual deposits are realistically expected to vary in shape and thickness, the assessed range of potential deposition thicknesses applies equally to either a surface release or near bed release of disposal material.</p>
18	<p>Natural England's supplementary advice on conservation objectives regarding physical processes</p>	<p>RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA, P1)</i></p>	<p>The conservation objectives for the 'Sandbanks which are slightly covered by sea water all the time' feature have not changed since the assessment was completed. The assessment and conclusions drawn within the report (document 5.3.7.1, APP-206) are therefore still applicable.</p> <p>For clarity, the attributes relevant to the physical processes are: extent and distribution; sediment composition and distribution; topography; volume; energy / exposure; and sediment movement and hydrodynamic regime. The proposed levelling works will not disrupt the governing processes across the Haisborough SAC, as these occur at much larger scales. Therefore, sandwaves and other sandbank bedforms will continue to naturally evolve, regardless of such localised changes to bed level or bedform shape. As the proposed bed levelling methodology is to return the dredged sediment to the seabed within the Haisborough SAC, no sediment will be removed or lost from the system. Therefore, the nature, texture, mineralogy and composition of surficial sediments within the system will also be maintained and the deposited material will re-join the local sedimentary environment.</p> <p>On this basis, the form and function of the sandbanks within the Haisborough SAC are not likely to be affected by the localised changes in topography and volume of individual sandwaves. All other attributes of the sandbanks remain unaffected.</p>
19	<p>Natural England is currently unsure if one dredge spoil disposal zone is sufficient or</p>	<p>RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA, P5)</i></p>	<p>Indicative spoil zones were identified by CWind (ES Appendix 5.1 Export Cable Installation Study) and analysed by ABPmer (Appendix 7.1 of the Information to Support HRA report) to determine the effects of disposal on sandwaves. Analysis based on disposal in one indicative location provides a</p>

**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
	whether there should be multiple zones to aid recovery		<p>worst case scenario (as stated in Section 3.3.2 of Appendix 7.1). Should sediment disposal be spread more widely or in multiple locations, the sediment would re-enter the natural system more rapidly.</p> <p>The disposal zones have been located to avoid the areas the Applicant believe to currently support <i>S. spinulosa</i> reef. The Applicant have sought advice from Natural England as to whether they would prefer disposal to be in specified zones or for the material to be disposed of locally to the source of dredging. In the Relevant Representation Natural England state:</p> <p><i>“Please be advised that best practice would be to deposit any material dredged immediately upstream of where it is removed to allow natural infill as soon as possible, rather than removal to another or central site. “</i></p> <p>Therefore the Applicant is prepared to make the commitments outlined in row 4 of this table. The final disposal strategy would be presented and agreed within the HHW SAC SIP.</p>
20	Natural England notes that the impacts will be bigger where the cable corridor runs east of Newarp bank and question the methodology used for the assessment of sanbank and sandwave features	RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA, P29)</i>	<p>The ABPmer Sandwave Study (Appendix 7.1 of the Information to Support HRA Assessment, document 5.3.7.1, APP-206) recognised that sandwaves are a mobile part of the sandbank features. The potential impacts of the proposed sandwave levelling on both the sandwave morphology (on individual bedforms and sandwave fields) and the form and function of sandbanks within the Haisborough SAC were assessed. The results of the assessments were set out in Sections 4.2 and 4.4 of report (document 5.3.7.1, APP-206) respectively. The study identified that the area was located within an active and dynamic sediment environment conducive to the development and maintenance of sandwave bedforms, with respect to flow speeds, water depth and sediment supply.</p> <p>These processes would not be disrupted and so all sedimentary processes and features are expected to continue and evolve at the naturally occurring rate and pattern after the proposed bed levelling. Directly affected local areas of individual sandwaves are expected to recover to a natural state in a relatively short time frame (e.g. in comparison to the timescale for sandwave propagation). In this</p>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			sense, the form and function of the sandbank system and the associated sandbanks to develop and evolve the important features of these environments would not be disrupted. The location or shape of a local section of sandwave at a given moment in time is a naturally transient state and so is not considered in itself to be part of the essential form and function of the natural system.
21	HHW SAC single or phased build impacts due to sandwave levelling	RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA, P30)</i>	Section 4.2.4 of report (document 5.3.7.1, APP-206) concluded there would be no additional impact on the sandwaves in implementing a phased installation. With a separation of 250m between the cable pairs for each OWF, and a proposed hiatus of 6 to 24 months, there would be insufficient time for sandwaves affected by levelling for Norfolk Vanguard to migrate into the area being dredged for Norfolk Boreas. Within this time frame, there is also the potential for the levelled sandwave sections to recover.
22	Natural England wish to discuss further and agree appropriate sediment disposal locations	RR-099 <i>Appendix 2 (Appendix 7.1 of the HRA, section 4.3.1)</i>	The strategy for disposal can only be determined at the detailed design stage as it would then be known exactly where the cables would be buried and whether there would be two export cables or one. Furthermore, pre construction surveys would allow the Applicant to identify the location of <i>S.spinulosa</i> reef at this time and therefore allow disposal sites to be agreed in such a way as to honour the commitment to maintain the 50m disposal buffer around reef. The HHW SAC SIP would provide an appropriate mechanism for further discussions and agreement.  However, in the meantime the Applicant will make the commitments outlined in row 7 of this table to provide Natural England with reassurance that sand wave levelling would not have an Adverse Effect on Integrity (AEol) for the Annex 1 sandbanks within the HHW SAC.
23	Sediment disposal conditions.	RR-099	Section 3.3.5 of Appendix 7.1 ABPmer Sandwave Study (document 5.3.7.1, APP-206) sets out the method used to estimate actively mobile sediment volumes in sandwave bedforms within discrete areas of the cable corridor. The total volume of sediment (including both surficial mobile and deeper

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
		<i>Appendix 2 (Appendix 7.1 of the HRA, P35)</i>	<p>immobile sediment) within the Newarp Bank could be up to a magnitude larger, and several magnitudes larger including all the sandbanks within the Haisborough SAC.</p> <p>As noted above, the proposed levelling works will not disrupt the governing attributes across the Haisborough SAC, namely: extent and distribution; sediment composition and distribution; energy / exposure; and sediment movement and hydrodynamic regime as these occur at much larger scales. The sandwaves and other sandbank bedforms will continue to naturally evolve, regardless of such localised changes to bed level or bedform shape. As the proposed bed levelling methodology is to return the dredged sediment to the seabed within the Haisborough SAC (as secured through conditions in Schedule 11 and 12 of the DCO and through the HHW SAC SIP), no sediment will be removed or lost from the system. Therefore, the nature, texture, mineralogy and composition of surficial sediments within the system will also be maintained and the deposited material will re-join the local sedimentary environment. On this basis, the form and function of the sandbanks within the Haisborough SAC are not likely to be affected by the localised changes in topography and volume of individual sandwaves.</p> <p>However, in order to provide further comfort to Natural England that the Applicant is committed to ensuring the disposal sites are located to maximise the recovery of the Annex 1 sandbanks the commitments outlined in row 4 of this table have been proposed. The exact locations of disposal sites would be agreed with the MMO and Natural England through the SIP process.</p>
24	Natural England welcomes the consideration of the cable protection in the application. But believes that an adverse effect can't be ruled out from	RR-099 <i>Appendix 2 (8.16 Scour and Cable protection plan, para. 7)</i>	The detailed design of cable protection within the HHW SAC would be provided and agreed through the HHW SAC SIP (document 8.20, APP-711). The outline Scour and Cable Protection plan has been provide to cover scour and cable protection outside of the HHW SAC SIP.

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
	its placement in HHW SAC. Please see Appendix 2.2, 2.3 and 2.4.		
25	Natural England queries the justification for 100m of scour protection leading up to and from the turbines	RR-099 <i>Appendix 2 (8.16 Scour and Cable protection plan, para. 34)</i>	The Applicant does consider that this is a precautionary parameter, but a reduction in this would not lead to a change in the significance of any impact and as the value for this parameter was also used in the Norfolk Vanguard DCO the Applicant considers that it is appropriate.
26	Based on the best available evidence at this time and a valid worst case scenario as set out in the SIP Natural England remains of the view that there is a high probably of an adverse effect on integrity of Haisborough, Hammond and Winterton SAC Annex I sandbanks both alone and in-combination	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP)</i>	The Applicant strongly disagree with this statement, and consider there is no evidence from which a conclusion of "high probability" of adverse effect on integrity can be justified, especially with regards to Annex 1 sandbanks. The Applicant maintains that the wording of the DCO condition (Schedules 11 and 12, Condition 9(1)(m)) allows a conclusion of no AEol to be made through the commitment from the Applicant that the relevant activity cannot commence until the MMO is satisfied that there would be no AEol:  <i>"The licensed activities, or any phase of those activities must not commence until a site integrity plan which accords with the principles set out in the outline Norfolk Boreas Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan has been submitted to the MMO and the MMO (in consultation with the relevant statutory nature conservation body) is satisfied that the plan provides such mitigation as is necessary to avoid adversely affecting the integrity (within the meaning of the 2017 Regulations) of a relevant site, to the extent that sandbanks and Sabellaria spinulosa reefs are a protected feature of that site."</i>

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
27	Alternative methods to provide cable protection such as marker buoys	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP)</i>	The Applicant does not consider this to be an acceptable permanent alternative to adequate burial or surface protection. The operational and financial consequences of a damaged export cable are very significant and exposed or surface laid cables may have safety implications for other marine users
28	<i>Sabellaria spinulosa</i> reef bordering the SAC	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP)</i>	Condition 14 (1)(i) of schedules 9 and 10 commit the Applicant to a mitigation scheme for any habitats of principal importance identified by the pre-construction surveys
29	Cable corridor impacts. (A single cable corridors impact)	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP, para. 7)</i>	The Applicant acknowledges the comment, but it is also important to note that both Norfolk Vanguard and Norfolk Boreas HHW SAC SIPs include a commitment to ensuring compatible mitigation solutions for both projects.
30	HHW SAC Site remediation- cable crossings	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP, para. 12, 3<sup>rd</sup> bullet)</i>	As stated in the HHW SAC SIP " <i>Subject to agreement of the owner/operator and engineering constraints, any disused cables would be cut, and a section removed to avoid the need for a crossing using cable protection.</i> "  The Applicant is currently in consultation with asset owners in order to reduce the maximum number of cable crossings required within the project design envelope as many of the existing cables are out of service and may be possible to cut in preference to a cable crossing.
31	HHW SAC SIP Favourable condition assessment published July 2019	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP, para. 30)</i>	Whilst this information was published after the Applicant's application was submitted, the Applicant considers that the installation of either 1 export cable or 2 export cables is a discrete event which is not comparable to almost one hundred years of continuous beam trawling activity by the commercial fishing fleet within the SAC, and therefore should not be subject to the same controls.



**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
32	Locating sediment disposal locations to avoid Sabellaria, and maintain sandbanks	RR-099  <i>Appendix 2 (8.20 HHW SAC SIP, para. 85-90)</i>	<p>Natural England requested through the Evidence Plan Process (EPP) for Norfolk Vanguard that sediment disposal should not be undertaken within 50m of <i>S. spinulosa</i> reef. Due to the ephemeral nature of <i>S. spinulosa</i> reef, the findings of the pre-construction surveys are required in order to identify the disposal locations.</p> <p>The Haisborough, Hammond and Winterton SAC is not a closed system and it presently has sediment both entering and leaving it around the boundaries. The proposed works are some distance from the boundaries of the SAC (at over 6 km from the southern boundary) and are unlikely to bring about any disruption to the transport regime. Therefore, the movement in and out of the HHW SAC as occurs at present will continue, irrespective of the proposed dredging or disposal activities as discussed in the Information to Support HRA report Appendix 7.1 ABPmer Sandwave Study (document 5.3.7.1, APP-206).</p> <p>Section 5.4 of the Outline HHW SAC SIP (document 8.20, APP-711) shows that the location(s) and methodology for disposal must be agreed with the MMO in consultation with Natural England before works can commence. Therefore, the Applicant considers that further details are not required at this stage, as the HHW SAC SIP provides the framework to agree the details of sediment disposal. The Applicant is aware that Natural England has proposed wording with regards to a condition “to ensure that the dredge material will be &gt;95% similar in particle size to disposal locations”, as provided in their submission at deadline 9 of the Norfolk Vanguard Examination. The Applicant notes that this condition is based on the Aggregates industry. The Applicant does not consider that a condition comparable to that applied to the aggregates industry would be appropriate or proportionate as this relates to dredging of sediment to be used in a different location. For Norfolk Boreas, the Applicant has committed to disposing of sediment arising from the HHW SAC back into the SAC to ensure that there is no net loss of sediment from the SAC system. However, in order to provide further comfort to Natural England that the Applicant is committed to ensuring the disposal sites are located to maximise the recovery of the Annex 1 sandbanks the commitments outlined in row 4 of this table have been proposed.</p>

**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
33	Natural England advises that an in principle sediment disposal strategy should be undertaken and provided as part of the consenting process	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP, para. 89)</i>	The Applicant understand that this would be covered and agreed within the final HHW SAC SIP.
34	The MMO question the inclusion of plastic frond mattressing in the design envelope	RR-069 <i>(Comment 4.4.22)</i>	The Applicant is not able to commit to not using plastic materials for scour and cable protection at this stage but will investigate this issue further.
35	The MMO request the final Seabed mobility study report	RR-069 <i>(Comment 4.4.2)</i>	The Final Seabed Mobility report supports the characterisation of the existing environment described within ES Chapter 8 (document 6.1.8, APP-221). The Applicant and the MMO are currently in discussion regarding the most appropriate way of providing this information to the MMO.
36	Conceptual modelling approach to assess physical marine and coastal process impacts	RR-069 <i>(Comment 4.2.5)</i>	The conceptual approach using expert geomorphological assessment using the results of numerical modelling for East Anglia ONE and the sand wave study of Norfolk Vanguard is considered proportionate to the potential impacts that are expected. Furthermore this approach was agreed through the Evidence Plan Process.
37	Average sediment depth for wave clearance	RR-069 <i>(Comment 4.2.6)</i>	The Applicant is confident that the larger sandwaves can be avoided and do not anticipate the need to level sandwaves above 5m in height. The Applicant has committed to post construction surveys as outlined in the Offshore In Principle Monitoring Plan (document 8.12, APP-703). Commitment is made to 1 pre and 1 post construction survey it is also stated that: <i>"further surveys may be required"</i>

**Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
			<i>at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years). If evidence of recovery is recorded and agreed with the MMO, monitoring will cease."</i>
38	Clarification that multiple episodes of impact on a single sand wave is now discounted	RR-069 <i>(Comment 4.2.13)</i>	The construction programme indicates that although up to four export cable installations would take place, there would be no multiple impacts on the same sand wave feature. This is because the distance between each export cable installation is sufficiently great that the partial growth and then migration rate of a pre-swept sand wave would not allow the sand wave to reach the destination of the next phase of pre-sweeping before it starts. Hence, it would not be possible for sand waves to be impacted by pre-sweeping on multiple occasions.
39	Conceptual modelling approach for cumulative impact assessment	RR-069 <i>(Comment 4.2.14)</i>	For both waves and tidal currents, the zones of influence for all three wind farms are aligned approximately north to south or north-northeast to south-southwest. Hence, only Norfolk Boreas, East Anglia THREE and Norfolk Vanguard East overlap. The HHW SAC is located about 40km to the west of Norfolk Boreas and East Anglia THREE where there is no overlap predicted. In the assessment it is predicted that the HHW SAC is not intersected by any of the zones of influence of the three wind farms individually. This would also hold true to a potential overlap of the cumulative zones. This is because any cumulative effect as discussed (interruption of the recovery of waves in Norfolk Boreas by the other two wind farms), would bypass the eastern side of HHW SAC because of the effectively north-south alignment of the cumulative effect.  The Applicant believe that the methodology used is proportionate to the level of impact that is likely to occur.
40	Repeated need to replace and/or rebury cable	RR-069 <i>(Comment 4.2.16)</i>	The movement of sand waves would be monitored post-consent (see commitments made in the Offshore In Principle Monitoring Plan (document 8.12, APP-703)). The concern is that replacement of cable every 5 years would lead to repeated impact on the sand waves at a single location. Although

Table 3 Applicant responses to Relevant Representations in relation to Marine Geology, Oceanography and Physical Processes

No.	Topic/ Issue	Relevant Representation Number (section reference if available)	Applicant's Comments
			there would be a need for further sea bed alteration to replace cable, the evidence indicates that the sand waves at a location would fully recover and be fully functioning in terms of height, wave length and migration rate within a year of completion of the initial pre-sweeping. Hence, prior to any further sea bed alternation (5 years after pre-sweeping) the sand waves would have fully reformed and a multiple impact of an 'unstable' bedform at a location would not take place. After further sea bed alteration, the sand waves would reform again within a year of disturbance.
41	Monitoring of the sandwave recovery following sweeping	RR-069 (Comment 4.2.18)	The Offshore In Principle Monitoring Plan (document 8.12, APP-703) (which is secured in the DCO and has to be approved by the MMO) secures 1 pre and 1 post construction survey. It also states that: "further surveys may be required at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years). If evidence of recovery is recorded and agreed with the MMO, monitoring will cease."
42	Conceptual modelling limitations and need for post development monitoring	RR-069 (Comment 4.2.19)	Post-construction monitoring of the sea bed morphology will be implemented as part of the Offshore In Principle Monitoring Plan (document 8.12, APP-703), see row 41 above.

## 1.4 Marine Water and Sediment Quality

Table 4 Applicant responses to Relevant Representations in relation to Marine Water and Sediment Quality

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
1	Contaminant sampling	RR-069 <i>(Comment 4.3.3)</i>	The Applicant believes that due to the fact that the current levels of contamination are very low there should not be any condition to stipulate the need for contaminant sampling at this stage. The Applicant notes that this was not a requirement for Norfolk Vanguard and therefore questions why it would apply to Norfolk Boreas. However, as stipulated in the DCO the final Monitoring Plan is required to be approved by the MMO and therefore agreement for the need to undertake contaminant sampling would occur at that stage.
2	Sampling regime	RR-069 <i>(Comment 4.3.5)</i>	As stipulated in the DCO the final Monitoring Plan is required to be approved by the MMO and therefore any sediment samples removed for the purposes of informing environmental monitoring would be agreed through the final plan.
3	Foundations <i>Cleaning of structures</i>	RR-069 <i>(Comment 4.3.6)</i>	The Applicant understands that if the foundations show signs of rust or paint flaking, a new marine licence is likely to be required. The Applicant is in further discussions with the MMO to understand what regulations would govern this process and what would be the mechanism for undertaking assessment and subsequent licence application.
4	Expert assessment regarding sediment dispersal.  The MMO would expect to see modelling to inform the assessment.	RR-069 <i>(Comment 4.3.7)</i>	ES Chapter 8 (document 6.1.8, APP-221) explains the concept of expert based assessment and that this is based on proxy modelling undertaken for East Anglia ONE. This approach was discussed and agreed through the Evidence Plan Process, and was subsequently presented in the Norfolk Boreas PEIR. The MMO did not request that modelling was undertaken in their response to the PEIR. In addition, comment 4.2.5. within the MMOs Relevant Representation confirms agreement with this approach. The Applicant also notes that this approach was agreed and accepted for Norfolk Vanguard and East Anglia THREE

**Table 4 Applicant responses to Relevant Representations in relation to Marine Water and Sediment Quality**

No.	Topic/ Issue	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
			offshore windfarm. Therefore, this comment contradicts the earlier comments made on the marine physical processes assessment (Refer to Applicant's comments in Table 3) .

## 1.5 Benthic and Intertidal Ecology

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
Benthic Ecology relating to the Haisborough Hammond and Winterton SAC			
1	<p><u>Favourable condition status of the HHW SAC</u></p> <p>Natural England refer the Applicant to the latest assessment on the condition of the HHW SAC</p>	<p>RR-099</p> <p><i>Appendix 2 (Summary)</i></p>	<p>The Applicant notes that the condition assessment was unpublished at the time the application was made (June 2019). The Applicant also notes assessment for "Reefs" states <i>"It is not possible to provide a reliable estimate of the area of this feature that may be in unfavourable condition due to the ephemeral nature of the reef"</i> and that the assessment does not provide a target for an increase in area of <i>S.spinulosa</i> reef, to restore the site to favourable condition. Although revised conservation objectives are stated to have some targets, these are entirely qualitative and give no indication of what 'overall reduction' is required.</p> <p>The Applicant also notes Natural England's position in paragraph 3.7.2 of their Written Representation submission as part of the Norfolk Vanguard Examination (REP1-088) states <i>"We agree that potential beneficial effects may occur from introduction of hard substrate into a soft substrate system. However, within MPAs, this must be considered secondary to the requirement to recover or maintain the features for which the site is designated."</i></p> <p>Furthermore, impacts would be highly localised and cable protection could become colonised by <i>S.spinulosa</i> reef and would therefore not limit the recovery potential.</p> <p>The Applicant has demonstrated through the Information to Support HRA report (document 5.3, APP-201) the risk levels of the proposed works to the site conservation objectives, through the assessment undertaken for each relevant activity in each stage of the project lifecycle.</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
2	<p><u>Sabellaria spinulosa and reef distribution</u></p> <p>Natural England acknowledge that that Sabellaria biotopes have a wide distribution throughout the southern North Sea, however, this does not preclude mitigation measures being sought to avoid areas of Annex I reef.</p>	<p>RR-099</p> <p>Appendix 2 (Summary)</p>	<p>The Applicant notes the agreement and highlights that the mitigation proposed includes micrositing around Annex I reef where possible.</p>
3	<p><u>Sabellaria spinulosa and reef distribution</u></p> <p>Natural England believe that given the proposed fisheries closures it is highly likely that <i>S.spinulosa</i> reef will have straddled the cable corridor at the pre-construction stage.</p>	<p>RR-099</p> <p>Appendix 2 (Summary)</p>	<p>The Applicant notes Natural England's previous advice to the Norfolk Vanguard project that micrositing should be possible and Natural England's advice to the Applicant to adhere to advice provided for the Norfolk Vanguard project. The Applicant is content that micrositing is likely to be possible. The Outline HHW SAC SIP (document 8.20, APP-711) does however contain the following statement:</p> <p><i>"This route would then be subject to further assessment and a conclusion of no AEoI would have to be reached by the MMO in consultation with Natural England. If such a finding could not be reached, construction could not commence and the onus would be on Norfolk Boreas Limited to consider alternative solutions. For example, this could include: minor amendments to the redline boundary in discrete areas where the cable route interacted with reef to provide space for micrositing; or a variation to the Transmission DML Condition 9(1)(m) to allow a finding of AEoI should the project satisfy the HRA Assessment of Alternatives, Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures tests."</i></p>
4	<p><u>Micrositing as mitigation</u></p> <p>Natural England believe that the</p>	<p>RR-099</p>	<p>Natural England stated in their Relevant Representation for the Norfolk Vanguard project (RR-106) "that on the basis of survey data at this point there should be room to microsite</p>



**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	primary mitigation of micrositing will not always be possible	Appendix 2 (Summary)	<p>around reef in the cable corridor, although noting that this may not be the case pre-construction". It should be noted that throughout the EPP and Section 42 consultation on the PEIR Natural England referred the Applicant to advice provided for the Norfolk Vanguard project, the current position presented in the Relevant Representation does not reflect the previous advice provided for the Norfolk Vanguard project.</p> <p>The Applicant agrees with Natural England's position as stated in their Relevant Representation for the Norfolk Vanguard Project that micrositing to avoid reef "<i>should be possible</i>" and has committed to undertake pre-construction surveys (as required by dDCO Schedules 11 and 12 Part 4 Condition 13(2)(a)) and to agree cable installation methods and routing with the MMO through the Construction Method Statement (required under the dDCO, Schedules 11 and 12, Part 4 Condition 9(1)(c)) and the Cable Specification Installation and Monitoring Plan (required under dDCO Schedules 11 and 12, Part 4 Condition 9(1)(g)).</p> <p>In the unlikely event that <i>S.spinulosa</i> reef has developed to such an extent that it is not possible to route the cable trenches through the 2 to 4km wide corridor (which provides approximately 1.05km to 3.75km space for micrositing), then the proportion of temporary disturbance to such a large area of reef would be very small, combined with the likely recoverability of reef, resulting in no AEoI (as discussed in section 7.4.2.1.1 of the Information to Support HRA report). Given the conditions listed in the definition of <i>Sabellaria</i> reef by JNCC (2016), as discussed in the response to paragraph 3.1.2, it is considered that, once the disturbance has ceased (i.e. cable laying or placement of cable protection) <i>S. spinulosa</i> could once again settle and form reef aggregations.</p>
5	<p><u>Micrositing as mitigation</u></p> <p>Natural England question the Sabellaria reef mitigation through</p>	<p>RR-099</p> <p>Appendix 2 (Summary)</p>	<p>The Applicant notes that "<i>where possible</i>" is a necessary caveat to the mitigation in accordance with Natural England's Relevant Representation given that Natural England do not agree that micrositing will always be possible.</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	avoidance and the inclusion of the "where possible" caveat		
6	<p><u>S.spinulosa colonisation of Cable Protection</u></p> <p>Natural England comment that evidence presented in the HRA to support conclusions on recoverability predominantly relates to individuals/abundance and not reef</p>	<p>RR-099</p> <p>Appendix 2 (Summary)</p>	<p>The following references, considered in the Information to Support HRA report, refer to <i>S.spinulosa</i> reef rather than (or as well as) individuals:</p> <ul style="list-style-type: none"> <li>• Tillin, H.M. &amp; Marshall, C.M. (2015) Sabellaria spinulosa on stable circalittoral mixed sediment. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [online]. Plymouth: Marine Biological Association of the United Kingdom. Available from: <a href="http://www.marlin.ac.uk/habitats/detail/377">http://www.marlin.ac.uk/habitats/detail/377</a></li> <li>• Holt, T.J., Rees, E.I., Hawkins, S.J., &amp; Reed, R. (1998) Biogenic reefs: An overview of dynamic and sensitivity characteristics for conservation management of marine SACs. Scottish Association of Marine Sciences (UK Marine SACs Project), Oban.</li> </ul> <p>The Applicant firmly believe that <i>S.spinulosa</i> reef can be expected to colonise cable protection. In addition, Gibb et al. (2014) states that Sabellaria reef is considered to be 'Not Sensitive' to a habitat change which results in increased coarseness as the resulting habitat is suitable for this species.</p> <p>The Applicant notes that Natural England expects <i>S.spinulosa</i> reef to recover following circa. 100 years of extensive and repeated commercial fisheries dredging, should the area become closed to fishing via a fisheries byelaw closure area. It is therefore highly likely that the same logic would apply to short term and localised cable installation and potential maintenance activities for Norfolk Boreas.</p>
7	<p><u>Micrositing as mitigation</u></p> <p>Whether reef is avoided or not</p>	<p>RR-099</p> <p>Appendix 2 (Summary)</p>	<p>The Information to Support HRA report (document 5.3, APP-201) considers potential temporary disturbance impacts on <i>S.spinulosa</i> reef during maintenance on the assumption</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

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	during installation there does remain a risk during O&M cable remediation activities that reef could establish across the cable corridor or nearby areas where remediation activities needed to occur. Accordingly, every effort should be made, with input from the MMO and Natural England, to minimise the impacts at the time of undertaking the works.		that reef could have colonised/recolonised following cable installation. This assessment concludes there would be no AEoI.  The Applicant is willing to consult with the MMO and Natural England prior to undertaking intrusive maintenance works within the Haisborough, Hammond and Winterton SAC and this would be done through the commitment to the HHW SAC SIP (document 8.20, APP-711).
8	<u>Micrositing as mitigation</u>  The magnitude of the impact to <i>S.spinulosa</i> reef is only low if micro-siting is possible	RR-099  <i>Appendix 2 (Chapter 10 Benthic Ecology)</i>	The Applicant agrees that a key component for assessing the magnitude as being low is the ability to microsite. However, other factors are also pertinent to the assessment of low impact magnitude, including the expectation of recovery post installation and the application of mitigation measures outlined in Table 5.2 of the Outline HHW SAC SIP (document 8.20, APP-711) and the further proposed measures (see row 4 of Table 3) such as the commitment to use a fall pipe to ensure that material is not disposed of within 50m of <i>S.spinulosa</i> reef and the commitment to ensure that material is disposed of upstream of where it was dredged from thus ensuring that sediment characteristics across the site remain similar.
9	<u>Micrositing as mitigation</u>  Natural England queries the extent of <i>S.spinulosa</i> at the time of preconstruction surveys and the likelihood that it will be located	RR-099  <i>Appendix 2 (Chapter 10 Benthic Ecology, para. 137)</i>	In the unlikely event that <i>S.spinulosa</i> reef has developed to such an extent that it is not possible to route the cable trenches through the 2 to 4km wide corridor (which provides approximately 1.05km to 3.75km space for micrositing), then the proportion of temporary disturbance to such a large area of reef would be very small, combined with the likely recoverability of reef, resulting in no AEoI (as discussed in Section 7.4.2.1.1 of the

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	<p>across the majority of the cable corridor. In point 139 it is good the Applicant has assessed room available for micro-routing, but as set out in our Site Integrity Plan and Habitat Regulations advice we have limited confidence in the feasibility of this mitigation measure</p>	<p><i>And</i> <i>Appendix 2 (8.20 HHW SAC SIP para. 45)</i></p>	<p>Information to Support HRA report, APP-201). Given the conditions listed in the definition of <i>S.spinulosa</i> reef by JNCC (2016), it is considered that, once the disturbance has ceased (i.e. cable laying or placement of cable protection) <i>S. spinulosa</i> could once again settle and form reef aggregations.</p>
10	<p><u>Micrositing (sediment disposal) as mitigation</u></p> <p>Natural England and the MMO query the use of a 50m buffer zone around <i>S.spinulosa</i> reef for the disposal of dredged material</p>	<p>RR-099 <i>Appendix 2 (Chapter 10 Benthic Ecology, Table 10.2)</i></p> <p>RR-069 <i>(Comment 4.4.6)</i></p>	<p>The 50m buffer was advised by Natural England when consulting on the SIP for the Norfolk Vanguard Project Natural England's advice to the Applicant has been to adhere to advice provided for the Norfolk Vanguard project.</p> <p>Therefore, the Applicant considers that the proposed buffer is appropriate on the basis that this was the buffer advised by Natural England. However the Applicant acknowledges that there is benefit in securing this as mitigation through the Outline HHW SAC SIP (document 8.20, APP-711). This would include agreement on the location and methodology for sediment disposal and the best method would be determined at that time, taking into account the pre-construction survey data and any evidence from other relevant projects.</p> <p>In order to give further comfort to Natural England the Applicant is also prepared to make a commitment to release seabed material close to the seabed using a fall pipe to ensure that the 50m buffer is maintained (see row 4 of Table 3). The strategy for disposal of seabed material within the SAC would be agreed with the MMO in consultation with Natural England through the SIP and the Applicant is prepared to add this latest commitment to the Outline HHW SAC SIP.</p>

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11	<u>Micrositing as mitigation</u> Natural England make the point that low reef is still reef	RR-099 <i>Appendix 2 (Chapter 10 Benthic Ecology, para. 214)</i>	The Applicant does not refer to routing through lower quality reef, having committed to micrositing around all reef, where possible.  It should be noted however that by definition, "low reef" is inherently patchy (with only 10-20% coverage, Gubbay (2007) ) and therefore increases the potential for micrositing. Medium reef also has high potential for micrositing, being classified by 20-30% coverage.
12	<u>Micrositing as mitigation</u> Natural England have a number of concerns on how the data has been treated in the Norfolk Vanguard and Norfolk Boreas <i>S.spinulosa</i> Review (Appendix 7.2 of the Information to Support the Habitats Regulations Assessment)	RR-099 <i>Appendix 2 (Appendix 7.2 of the HRA)</i>	The method has been employed in order to consider sample data which did not show consensus with maps that had been produced using the Limpenny et al methods (it should also be noted that these previous maps had been produced with some variation in sample data interpretation). Confidence for the whole map could be assessed using a criterion based system e.g. MESH/EMODNET confidence tool but this gives a simple score which will vary as data ages. Using a spatially based confidence assessment targets the specific habitat in question rather than the whole map. The spatially based confidence is different to the MESH/EMODNET scoring tool as it is used to assess the confidence of specific habitats and considers ground truth/sample data which has always been considered to be the most accurate measure of the presence or absence of a habitat. i.e. a visual or physical sample detecting the presence of a habitat far out weights any predictions based on remote geophysical data.  Considering all data sets equally does not diminish the value of the presence of any habitat, if a survey was targeted at specific habitats then this could be weighted for but it is likely the historical presence of habitats of conservation interest would become less important. The Applicant notes that these issues were not raised by Natural England through the EPP nor during S42 consultation..
13	<u>Micrositing as mitigation</u>	RR-099	It is appreciated the ground truth data has been collected over a wide timescale, but due to the temporal variability of <i>S. spinulosa</i> reef the analysis used does treat all positive records

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	Natural England have further concerns about ground truthing of the data they note that ..... If there is a considerable gap between the collection of ground truthing and that of the geophysical data then it will reduce the data's ability to assist in detecting reefs from the geophysical data....	Appendix 2 (Appendix 7.2 of the HRA)	of <i>S.spinulosa</i> reef equally. In addition, the geophysical data set used was the most current for the area of study at the time of analysis. Treating all ground truth points equally gives very high probability of any biotope or habitat occurring at the precise sample location and using these sample points to interpret the most relevant geophysical data set provides an interpretation of the full coverage data based upon best available knowledge. If the geophysical data set is to be interpreted using only sample data which was collected coincidentally then this would limit the knowledge available from sample data collected over various timescales. Sample data could be weighted based on age but given the temporal and spatial variability of <i>S.spinulosa</i> reef this would further restrict predicted reef areas.
14	<u>Micrositing as mitigation</u> Natural England also note that if an area has been mapped as reef, but a grab sample or video tow at a different point in time did not find reef in the same location, then this is not sufficient information to say this area is less likely to support reef without further clarification.	RR-099 Appendix 2 (Appendix 7.2 of the HRA, Page 19, section 2.3, para. 2)	It is noted that <i>S.spinulosa</i> reef habitat is patchy both temporally and spatially but where distribution is based purely on prediction (i.e. distribution is based on interpretation of geophysical data, which is acknowledged as difficult) then a positive or negative sample should reduce or increase the probability of occurrence of a habitat. If an area has been predicted to have a certain habitat but there is no verification then a sample which contradicts the prediction should take precedence and the sample verifiable data rather than prediction. The method used considers the variability of <i>S.spinulosa</i> reef habitat at any point in time and if reef has been present then this is considered. Confidence is based on the distance away from a 'positive' sample, if a polygon has no sample data verifying the presence of <i>S.spinulosa</i> then a lower confidence is given to a polygon which contains a sample which verifies the presence of <i>S.spinulosa</i> reef.
15	<u>Micrositing as mitigation</u> The categories used in this map need defining. What were the possible mapping scenarios (for example, polygon with two ground	RR-099 Appendix 2 Appendix 2 (Appendix 7.2 of the HRA, Page 20 Figure 9)	This map illustrates how a single instance interpretation can be unreliable, each area of SS.SBR.Por.SspiMx from the Fugro interpretation has been assessed against sample data within these. All areas are initially considered valid and correctly interpreted at the time, even if there were no supporting sample data within them. If an area has been defined as

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	<p>truthing points from the relevant survey, one which indicates reef presence and one which does not) and how do these relate to the categories used in the map</p>		<p>SS.SBR.Por.SspiMx without any supporting sample data then this is given a lower level of confidence (i.e. it is assigned to this habitat based purely on subjective interpretation).</p> <p>0 = Areas identified as SS.SBR.Por.SspiMx but with +2 samples NOT having SS.SBR.Por.SspiMx</p> <p>1= Areas identified as SS.SBR.Por.SspiMx but with +1 samples NOT having SS.SBR.Por.SspiMx</p> <p>2=Areas identified as SS.SBR.Por.SspiMx with either no supporting samples or an equivalent number of samples showing SS.SBR.Por.SspiMx or contrary habitats</p> <p>3=Areas identified as SS.SBR.Por.SspiMx with equivalent -ve to +ve supporting samples</p> <p>4=Areas identified as SS.SBR.Por.SspiMx with a +1 number of supporting samples</p> <p>5=Areas identified as SS.SBR.Por.SspiMx with a +2 number of supporting samples and above with no contradictory samples</p>
16	<p><u>Micrositing as mitigation</u></p> <p>Using the Gubbay criteria, low reef is still reef, so why have areas with low reefiness been mapped as sediment? This table does not make it clear what thresholds have been used for determining whether a sample is reef. It also does not refer to the primary criteria described in Gubbay; elevation, patchiness and extent.</p>	<p>RR-099</p> <p><i>Appendix 2 (Appendix 7.2 of the HRA, Page 21. Table 2)</i></p>	<p>The Applicant acknowledges that low reef is still reef within Gubbay et al but upon review it was found that 'low reef' had been attributed to samples without supporting evidence from video footage, where samples were of poor quality and could not be confidently assessed for reefiness, and with the biotope assigned to the sample also not being SS.SBR.Por.SspiMx.</p> <p>There were also samples assessed as not reef but attributed to SS.SBR.Por.SspiMx and upon review these are again not considered to be reef, however they are mapped as SS.SBR.Por.SspiMx when video imagery is considered to be unreliable at current standards. An example of confused interpretation would be video sample 19S, which is given a low reefiness score but attributed with the habitat/biotope of SS.SSa.CFiSa: video quality is poor and not valid for reefiness assessment and grabs show low numbers of <i>S.spinulosa</i> and any tubes identified are moribund and low relief/very patchy which would not be considered low reefiness - they have therefore been mapped as SS.SSa.CFiSa.</p>

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			This is explained in the consultation table included in Chapter 10 of the ES of the application (document 6.1.10, APP-223).
17	<p><u>Micrositing as mitigation</u></p> <p>Taking one dataset and using a number of methods to create maps, and then creating a consensus map from these maps would enable an assessment of confidence in the final map based on how many of the mapping techniques had indicated that area to be that habitat i.e. consensus based on one dataset mapped using a number of techniques. This could be used to consider whether an area is appropriate to support reef</p>	<p>RR-099 Appendix 2</p> <p><i>Appendix 2 (Appendix 7.2 of the HRA, Page 27, Section 2.7)</i></p>	<p>It is agreed that each and every map produced could be used within consensus mapping but given the differing map scales and interpretations this introduces considerably more variables than the current method. The current method uses verifiable ground truth samples to interpret the most current geophysical data (at the time of interpretation). Within UK marine mapping the sample data has always taken precedence over the interpretation of geophysical or acoustic data (predictive maps) and this principle has been used within this methodology.</p> <p>The use of consensus mapping enables new geophysical data and new sample data to be considered as data collection improves. Using a variety of methods to produce each 'input' dataset highlights the variability within mapping interpretations when using verifiable sample data to interpret full coverage data sets and final maps. Confidence should not be based purely on one interpretation (the predictive 2016 map), when the same data can be used to produce other habitat distribution data with equal validity to the first map produced. Interpretive mapping always introduces some variability and often subjectivity therefore interpretive maps can vary with interpretation techniques and method enhancement, whereas the consistent use of ground truth sample data to reinterpret one geophysical data set removes the temporal variance in data interpretation but still considers the sample data as a prime input dataset.</p> <p>Immediately after a sample has been taken it is temporally invalid and likewise with any geophysical data set, it is likely there will never be sufficient data to produce a truly scientifically robust output, and therefore the best available knowledge is used, with sample data taking precedence over interpreted geophysical datasets (predictive maps).</p>



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			Note that a response to this comment was also provided in chapter 10 of the ES (document 6.1.10, APP-223).
18	<p><u>Micrositing as mitigation</u></p> <p>Defining areas of <i>S.spinulosa</i> reef and areas where reef is likely to occur in the future .</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, para. 12- 1st bullet)</i></p>	<p>It should also be noted that Natural England has stated they are not confident that reef will recover following the localised and short term temporary cable installation or maintenance works. However, the Applicant proposes that this position is inconsistent with Natural England's position that micrositing will not be possible due to significant recovery following around 100 years of extensive and repeated commercial fisheries dredging in the HHW SAC. Therefore, the Applicant maintains that a conservative but proportionate approach to the assessment of potential impacts, if micrositing is not possible, has been presented in the Information to Support HRA report (document 5.3, APP-201) and the conclusion of no Adverse Effect on Integrity (AEoI) is correct and remains valid.</p>
19	<p><u>HRA conclusions</u></p> <p>Based on the best available evidence at this time and a valid worst case scenario as set out in the SIP Natural England remains of the view that there is a high probability of an adverse effect on integrity of Haisborough, Hammond and Winterton SAC Annex I reef features both alone and in-combination</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, general point)</i></p>	<p>The Applicant strongly disagrees with this statement and considers there is no evidence from which a conclusion of "high probability" of adverse effect on integrity can be justified, especially with regard to Annex 1 sandbanks. The Applicant maintains that the wording of the DCO condition (Schedules 11 and 12, Condition 9(1)(m)) allows a conclusion of no AEoI to be made through the commitment from the Applicant that the relevant activity cannot commence until the MMO is satisfied that there would be no AEoI:</p> <p><i>"The licensed activities, or any phase of those activities must not commence until a site integrity plan which accords with the principles set out in the outline Norfolk Boreas Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan has been submitted to the MMO and the MMO (in consultation with the relevant statutory nature conservation body) is satisfied that the plan provides such mitigation as is necessary to avoid adversely affecting the integrity (within the meaning of the 2017 Regulations) of a</i></p>

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			<p>relevant site, to the extent that sandbanks and <i>S.spinulosa</i> reefs are a protected feature of that site."</p> <p>It should be noted that the Applicant concludes within the Information to support HRA (Document 5.3, APP-201) no Adverse Effect on Integrity for the reasons summarised below (further information can be found in the full document):</p> <p>Studies (Appendix 7.1 ABPmer Sandwave (document 5.3.7.1, APP-206)) have demonstrated that the Project would not affect the form and function of the Annex 1 sandbanks and therefore by association their ability to support the habitats and communities. A further study (APP-207) has also shown that the cable corridor is likely to allow for microsinoting of export cables around naturally occurring <i>S.spinulosa</i> reef. Mitigation measures detailed under row 4 of Table 3 will ensure that no sediment is disposed of on naturally occurring <i>S. spinulosa</i> reef. Any introduced hard substrate from cable protection will provide stable substrate for <i>S.spinulosa</i> to colonise. Any <i>S.spinulosa</i> reef that colonises hard substrate is likely to provide the same function as naturally occurring <i>S.spinulosa</i> reef and therefore should be "counted as such".</p> <p>Therefore, the Applicant does not agree with the statement that there is a "high probability" of AEol and believe that the conclusion of no Adverse Effect on Integrity (AEol) remains valid.</p>
20	<p><u>HRA conclusions</u></p> <p>Natural England considers that a worst case scenario can be identified in the consenting phase. The Applicant propose to use a Grampian condition to aid</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, para.10)</i></p>	<p>The Applicant has set out the worst case scenario within the HRA and the In Principle HHW SAC SIP. The Applicant concludes in the HRA that it is possible to conclude no AEol for the SAC without the SIP. This is in relation to (but not limited to) the following summary:</p> <p>1. The Applicant believes that neither the dredging of sand waves nor the introduction of cable protection will change the form and function of the Annex 1 sand banks as they will rapidly recover (as concluded in Appendix 7.1, APP-206 of the HRA);</p>

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	<p>consenting and then a Site Integrity Plan to demonstrate no adverse effect on integrity post consent/preconstruction. This is not helpful especially as based on best available evidence an adverse effect on integrity could not be ruled out at this time. The AA should be undertaken now on the best available evidence.</p> <p>Natural England do recognise that this advice differs from that provided to Norfolk Vanguard however they cite recent experience on Triton Knoll offshore wind farm as a reason for changing their advice.</p>		<p>2. The Applicant believes that the project will have the ability to microsite around confirmed Annex I <i>S.spinulosa</i> reef. The only locations where this will not be possible is at cable crossings;</p> <p>3. The Applicant believes that there is enough evidence to suggest that <i>S.spinulosa</i> would colonise cable protection.</p> <p>However, the Applicant acknowledges that Natural England do not agree with this conclusion and therefore the SIP has been developed for Natural England and the MMO to manage any potential effects of the project on the SAC.</p> <p>Throughout the Evidence Plan Process and in the Section 42 consultation on the PEIR Natural England referred the Applicant to advice which was being provided to Norfolk Vanguard. Natural England accepted the SIP approach and the Grampian condition for Norfolk Vanguard and therefore the Applicant have followed this advice and proposed the same approach.</p> <p>With respect to information provided by Natural England regarding Triton Knoll the Applicant notes that Norfolk Boreas is a different project in a different area of the North Sea with a wider export cable corridor and therefore the same criteria does not automatically apply.</p>
21	<p><u>Cable repair</u></p> <p>It is not just the installation of the cables that will impact Annex I features. The proposed operation and maintenance (O&amp;M) activities are likely to hinder the</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, section 2.3)</i></p>	<p>It is likely that the site would have recovered from installation impacts before any potential maintenance would be required. The potential for disturbing communities, in particular <i>S.Spinulosa</i> reef that has recolonised the site during this recovery is considered in Section 7.4.2.1.2 of the Information to Support HRA report. The area affected by any repairs or reburial would also be highly localised and recovery from each event can be expected.</p>

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	recoverability of any Annex I reef features		
22	<p><u>Use of a Site Integrity Plan</u></p> <p>Whilst Natural England recognises that a Grampian condition is appropriate, the use of the SIP to remove consideration of adverse effect on integrity at consenting isn't. Natural England note that this approach has only previously been proposed for Norfolk Vanguard and because of recent experience on Triton Knoll Natural England have serious concerns that the proposed approach is not appropriate and may lead to long delays for the project.</p> <p>The MMO is not content that the use of the HHW SAC SIP is the appropriate route for the development as discussed in</p>	<p>RR-099 <i>Appendix 2</i> <i>(8.20 HHW SAC SIP, para. 13, 48 and Table 5.1)</i></p> <p>RR-069 <i>(Comment 3.5)</i></p>	<p>As demonstrated in Row 20 of this table, the Applicant believes that it is possible without the SIP to conclude no adverse effect on integrity of the SAC.</p> <p>However, the Applicant acknowledge that Natural England do not agree with this conclusion and therefore the SIP has been developed for Natural England and the MMO to manage any potential effects of the project on the SAC.</p> <p>The Applicant maintain the position that a SIP approach is appropriate.</p> <p>As reflected in the Outline HHW SAC SIP(document 8.20, APP-711), the risk is borne by the Applicant as the works cannot commence unless the MMO is satisfied that there would be no AEol. The Grampian condition provides this restriction and the SIP provides the framework for matters to be agreed in relation to the condition.</p> <p>As presented in a document titled "Consideration of the Purpose of the Haisborough Hammond and Winterton Special Area of Conservation Site Integrity Plan" (submitted by Norfolk Vanguard Limited at deadline 7 of the Norfolk Vanguard Examination) the Haisborough Hammond and Winterton Special Area of Conservation Site Integrity Plan reflects the principles first established by the East Anglia THREE SIP in that:</p> <ul style="list-style-type: none"> <li>• The outline SIP seeks to address current areas of uncertainty with regard to such matters as the location and extent of the Annex 1 Reef feature (due to its ephemeral nature), and the outcome of pre-construction surveys affecting installation methods, cable crossings and the requirement for cable protection;</li> <li>• The outline SIP sets out the Applicant's approach to delivering any mitigation or management measures to ensure the SAC conservation objectives are met by, for</li> </ul>

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			<p>example, cable installation and sea bed preparation, sediment disposal, micro-siting, cable protection, cable and pipeline crossings and cable burial;</p> <ul style="list-style-type: none"> <li>• The outline SIP provides a framework for development and implementation of specific mitigation measures to avoid AEol, including a table of key milestones to indicate the likely development of the SIP between consent and construction;</li> <li>• The outline SIP ensures that the mitigation measures and techniques are available at the time of construction taking account of any possible changes to the extent of the Annex 1 features following pre-construction surveys; and</li> <li>• The outline SIP will be updated prior to construction to reflect latest targets, guidance, pre-construction survey data and available evidence from other projects where possible."</li> </ul> <p>Throughout the EPP and during the Section 42 consultation on the PEIR, Natural England advised the Applicant to follow the approach that Norfolk Vanguard were taking, prior to the Norfolk Boreas application being made a HHW SAC SIP was agreed for that project and therefore the Applicant adopted that approach for the Norfolk Boreas project.</p>
23	<p><u>Compensatory measures</u></p> <p>It is not clear to Natural England if sufficient time has been factored in to the timetable to take account of processes required should an adverse effect on integrity be determined. In our experience on other terrestrial projects this has taken 12-24months to agree and secure any compensation</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, Table 2.1)</i></p>	<p>The Applicant is not proposing compensation as the project has committed to ensuring no AEol, recognising the project cannot proceed to construction if this cannot be agreed with the MMO. If the derogation route were to be adopted it would be through a variation to the DCO.</p> <p>With respect to information provided by Natural England regarding Triton Knoll, it should be noted that the two projects are not necessarily directly comparable. The Norfolk Boreas offshore cable corridor is almost twice the width of Triton Knoll and the projects are located in different areas of the North Sea. Furthermore, Natural England would have the security of the SIP to manage the potential effect on the HHW SAC which they did not have for Triton Knoll.</p>

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No.	<u>Topic/ Issue/ comment</u>	<u>Relevant Representation Number (section reference if available)</u>	<u>Applicant's Comments</u>
24	<p><u>Micrositing as mitigation</u></p> <p><i>S.spinulosa</i> reef has already been found and therefore we do not agree with the Applicant.</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, para. 24)</i></p>	<p>Paragraph 24 of the Outline HHW SAC SIP (document 8.20, APP-711) states "<i>As described above and shown in Figure 1.1, the Norfolk Boreas offshore cable corridor overlaps with the HHW SAC and therefore there is potential for the designated features of the SAC to be affected during the construction and maintenance of Norfolk Boreas.</i>"</p> <p>Therefore it is unclear what Natural England disagree with.</p> <p>Appendix 2, Section C, no.5 of Natural England's Relevant Representation for the Norfolk Vanguard project confirmed</p> <p>"<i>Whilst Natural England understands that on the basis of survey data at this point there should be room to microsite around reef in cable corridor, we note that this may not be the case pre construction.</i>" Therefore the Applicant believe that the most appropriate time to confirm whether micrositing is possible is once preconstruction surveys have been undertaken.</p>
25	<p><u>Cable Protection</u></p> <p>Natural England understand the Applicant is proposing to reduce the amount of cable protection required in HHW SAC from 10% to 5% however this is still not confirmed. Therefore, we reserve the right to amend our advice once such a proposal is confirmed. However, please note that this reduction whilst welcomed is unlikely to change our advice. As</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP, para. 42)</i></p>	<p>Natural England's comments on the use of cable protection within the HHW SAC are noted. As a result of the Interim Cable Burial Study and ongoing consultation with Natural England, the Applicant has committed to reducing cable protection for unburied cables from 10% to 5% of the cable length within the HHW SAC. This commitment will be reflected in the updated Outline HHW SAC SIP (document 8.20, APP-711) and the maximum area and volume of cable protection in the HHW SAC has been included in the updated draft DCO which will be submitted as part of the Examination (Schedules 11 and 12, Condition 3(f)). Section 5.5 of the Outline HHW SAC SIP (document 8.20, APP-711) shows that prior to installation, the location, extent, type and quantity of cable protection must be agreed with the MMO in consultation with Natural England. The Applicant considers that the Outline HHW SAC SIP is in accordance with the Natural England Advice Note regarding consideration</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	per the advice provide for Vanguard		<p>of small scale habitat loss within Special Areas of Conservation (SACs) in relation to cable protection provided to the Norfolk Vanguard Examination. This states:</p> <p><i>“Whilst there are no hard and fast rules or thresholds, in order for Natural England to advise that there is no likelihood of an adverse effect the project would need to demonstrate the following:</i></p> <ol style="list-style-type: none"> <li><i>1) That the loss is not on the priority habitat/feature/ sub feature/ supporting habitat and/or</i></li> <li><i>2) That the loss is temporarily and reversible (within guidelines above) and/or</i></li> <li><i>3) That the scale of loss is so small as to be de minimus alone and/or</i></li> <li><i>4) That the scale of loss is inconsequential including other impacts on the site/ feature/ sub feature”</i> <p>The Applicant is not able to commit to having no cable protection within the HHW SAC as there are operational cables and pipelines in the HHW SAC which would require cable protection at the locations where the Norfolk Boreas cables cross these assets. In addition, the Interim Cable Burial Study (which will be provided in Appendix 2 of the updated HHW SAC SIP (to be submitted at Deadline 1) shows that at least 95% of the offshore export cable length within the HHW SAC is likely to be able to be buried. It is therefore necessary to maintain a contingency of cable protection for up to 5% of the cable length in the SAC.</p> </li></ol>
26	<p><u>Micrositing as mitigation</u></p> <p>Natural England would argue that the presence of <i>S.spinulosa</i> is known and whilst the location may change prior to installation the adoption of the fisheries byelaws is</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP Table 3.1 – 2<sup>nd</sup> Bullet)</i></p>	<p>The Applicant believes that this comment reinforces the appropriateness of the SIP approach and future surveys should be used to identify the exact presence and location of the Annex 1 features. It should also be noted that there is significant uncertainty regarding the fisheries closures - the MMO stated the following in their Deadline 6 submission to the Norfolk Vanguard Examination:</p>

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	<u>Topic/ Issue/ comment</u>	<u>Relevant Representation Number (section reference if available)</u>	<u>Applicant's Comments</u>
	more likely to ensure the ongoing presence of reef and the possible expansion.		<i>"Under the Common Fisheries Policy (CFP), fisheries management measures for MPAs must be agreed by other Member States' with an active interest in the site. However, because other Member States with a direct management interest have not yet consented to our proposals, therefore, we have not yet been able to introduce measures."</i>
27	<p><u>Impact Assessment</u></p> <p>The impacts to Annex I reef features is considered by the Applicant to be temporary. This is something that the SNCBs are currently seeking to confirm through monitoring, but until this is completed (outside of the examination timeframe for NB) there remains doubt over the severity of the impacts and the recoverability.</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP Table 3.1- 3<sup>rd</sup> bullet)</i></p>	<p>The Applicant note Natural England's current position and will continue to work with Natural England through the HHW SAC SIP to define the most appropriate mitigation and monitoring for the site.</p>
28	<p><u>Impact Assessment</u></p> <p>The HHW SAC is under pressure from historic and ongoing activities from proposed offshore windfarm cables plus existing oil and gas pipelines and associated pipeline protection. .... Cabling through this site may be possible if evidence is</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP Table 3.1)</i></p>	<p>The Applicant believe this provides further justification for a SIP approach. The detailed design would provide far more certainty on exactly where the cable protection (if any) would be located. As outlined in Table 3 of this document, studies have shown that the recovery of the Annex 1 sandbanks within the SAC from any effect of the project is likely to occur over a short timescale. The Applicant has committed to a number of mitigation measures such as not removing any sediment from the SAC and the additional measure proposed in row 4 of Table 3 to ensure that this is the case.</p>



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	provided that impacts are short-lived and the feature will recover.		
29	<p><u>Micrositing as mitigation</u></p> <p>Natural England agrees with the Annex I survey occurring within 12 months of construction, but we recognise that the cable procurement process has happened before this. Therefore how will the Applicant guarantee there is sufficient slack to micro site the cables</p>	<p>RR-099</p> <p><i>Appendix 2 (8.20 HHW SAC SIP para. 54)</i></p>	<p>The Applicant proposes to undertake additional survey prior to the preconstruction surveys to inform the development of a 'provisional cable routing strategy' including avoidance of any Annex 1 <i>S.spinulosa</i> reef. This interim survey, which is included within the Outline HHW SAC SIP is planned for Summer 2020. The commitment to preconstruction surveys will be maintained, and these will be used to make final route adjustments to account for where additional reef may have established between the survey in 2020 and the pre construction survey. The timescale committed to in the DCO for the pre-construction survey is not less than 12 months prior to cable installation. Therefore, to allow maximum time for final route adjustments the Applicant would undertake these surveys 12 months prior to construction starting rather than any closer to the start of cable installation.</p> <p>To allow for the potential to make final route adjustments the Applicant would procure a quantity of cable that includes a defined 'margin' over and above the length of the route defined in the 'provisional strategy'. This margin would be determined based on the 2020 survey. Adjustments to the original route would then have to be designed to make the best use of this 'extra' cable.</p>
30	<p><u>Site Integrity Plan</u></p> <p>Natural England would welcome further consideration on the significance of small scale impacts to the site and potential (more robust) mitigation measures.... it is not possible to assess the</p>	<p>RR-099 Appendix 2</p> <p><i>Appendix 2 (8.20 HHW SAC SIP para. 56)</i></p>	<p>The Outline HHW SAC SIP (document 8.20, APP-711) describes the process for how further assessment will be completed once the detailed design and the presence and extent of <i>S.spinulosa</i> reef is known. The Outline HHW SAC SIP also explains the process by which mitigation measures will be agreed within the final SIP.</p> <p>The Applicant is prepared to make a number of further commitments mitigate potential effects as described in row 4 of <b>Error! Reference source not found.</b>, which will be made in the updated SIP to be submitted at deadline 1.</p>

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	<u>Topic/ Issue/ comment</u>	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
	parameters of 'where possible' under the Habitat Regulations. The Annex I reef mitigation is designed to ensure the complete avoidance of an Annex I reef. Therefore, the current SIP is contradictory in places as it is identified that not all impacts will be avoided/fully mitigated.		
31	<u>Site Integrity Plan</u> Natural England would argue that it is not just about maintaining the extent of the feature, but also the form and function. The favourable condition status of the feature will also need to be used to provide the context for any decision making process, both at the consenting and pre construction phase.	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP para. 58-60)</i>	The Applicant do not believe that there would be any impact on the form and function of the Annex 1 features of the SAC as concluded in the Information to Support HRA (document 5.3, APP-201).
32	<u>Site Integrity Plan</u>	RR-099 <i>Appendix 2 (8.20 HHW SAC SIP para. 67)</i>	Diagram 5.1 of the SIP illustrates the steps that will be taken to ensure the project has the least effects. Furthermore the cable route must be agreed with the MMO in consultation with Natural England and therefore construction would not be possible until it has been agreed that the project has been designed to reduce any affect as far as possible.

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	The Applicant has committed to having have the 'least effect' on priority areas managed as reef, but there is nothing provided to demonstrate how this will be achieved and to what extent.		
33	<p><u>Site Integrity Plan</u></p> <p>Natural England notes in Annex 1 of the SIP Annex I reef is shown to straddle the length of the cable corridor. Therefore in this scenario mitigation in the form of micrositing will not be possible.</p>	<p>RR-099</p> <p>Appendix 2 (8.20 HHW SAC SIP para. 71)</p>	<p>It is not clear what is being referred to here as Appendix 1 of the SIP does not show reef straddling the length of the cable corridor, however, Diagram 5.1 of the SIP shows the consequences if micrositing around reef is not possible and fundamentally, the cable route must be agreed with the MMO in consultation with Natural England.</p> <p>The Applicant proposes to undertake additional survey prior to the pre-construction surveys to inform the development of a 'provisional cable routing strategy' including avoidance of any Annex 1 <i>S.spinulosa</i> reef. These surveys are planned for Summer 2020. Pre construction surveys undertaken for Norfolk Vanguard will also be able to inform the routing of the Norfolk Boreas cables, prior to the preconstruction surveys which will be used for final small alterations of the cable route. The Applicant acknowledges that this approach may require the Applicant to have small amount of contingency when procuring marine cable, in order to accommodate the final small scale changes.</p>
34	<p><u>Cable crossings</u></p> <p>Natural England recognises that remediation in discrete areas where there will be cable crossing is a necessity and due to the presence of existing infrastructure</p>	<p>RR-099</p> <p>Appendix 2 Comments on the HHW SAC SIP (APP-711) paragraph 12 3<sup>rd</sup> bullet</p>	<p>As stated in the HHW SAC SIP "Subject to agreement of the owner/operator and engineering constraints, any disused cables would be cut, and a section removed to avoid the need for a crossing using cable protection."</p> <p>The Applicant is currently investigating the possibility of committing to cutting and clump weighting for the crossing of all disused cables and is also investigating the exact number of cable crossings that would be required as there is some uncertainty surrounding the current</p>

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	it is less likely to be Annex I reef present. However we would strongly encourage the removal of decommissioned cable rather than the use of cable protection		status of some cables. These discussions have been progressing well and the Applicant is confident that the worst case scenario outlined in the HHW SAC SIP for the number of cable crossings which will require cable protection will be reduced within the Examination timescale.
35	<p><u>Site Integrity Plan</u></p> <p>Natural England advises that this needs to be updated as there is no qualification as to what is essential and the impacts thereof. It is our view that an adverse effect on integrity can't be ruled out for cable protection at both 5% and 10% of the length within the HHW SAC.</p>	<p>RR-099</p> <p>Appendix 2 Comments on the HHW SAC SIP (APP-711) paragraph 91-92</p>	<p>Essential refers to where cable protection is required at crossings and where protection is required at locations where cables cannot be removed and where the substrate does not allow burial to a depth of at least 1m e.g. in hard clay and sedimentary rocks (as discussed in section 5.3 of the Outline HHW SAC SIP (document 8.20, APP-711)).</p>
36	<p><u>Cable Protection</u></p> <p>Permanent loss of Annex I reef hasn't been assessed because the Applicant considered that reef could recolonise artificial structure. However, Natural England doesn't consider this to be Annex I reef - Please see Appendix 2.1 of the Relevant Representation</p>	<p>RR-099</p> <p>Appendix 2 (8.20 HHW SAC SIP Table 3.1)</p>	<p>The Applicant does not agree that cable protection is not a suitable habitat for Annex I reef communities. The Applicant notes that <i>S.spinulosa</i> reef can develop on artificial hard substrate as noted in the JNCC (2016) definition:</p> <p><i>"S. spinulosa requires only a few key environmental factors for survival in UK waters. Most important seems to be a good supply of sand grains for tube building, put into suspension by strong water movement....The worms need some form of hard substratum to which their tubes will initially be attached, whether bedrock, boulders, artificial substrata, pebbles or shell fragments."</i></p>

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
37	<p><u>Cable Protection</u></p> <p>All Annex I habitats have equitable protection; therefore it is not appropriate to trade one habitat in a site for another. For example, if the site is designated for both sandbanks and reef and rock protection is placed on the sandbank feature and then <i>S.spinulosa</i> reef colonises this rock protection it cannot be considered as a benefit to the site that you have taken one feature in the site and swapped it for another.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.1 (generic advice in relation to colonisation of S.spinulosa reef)</i></p>	<p>The Applicant accept this concept, but do note that Natural England request that the Applicant provide more certainty over cables remaining buried, which requires sandwave levelling, but also object to the use of sandwave levelling and disposal of material.</p> <p>It should be noted that cable protection is only likely to be required where harder sediment is encountered. Harder substrates will not form part of the Annex 1 sandbanks. The other situation where cable protection is required would be at a cable or pipeline crossing. At these locations introduced substrate will already mean that under Natural England's definitions provided in the Appendix 2.1 <i>S.spinulosa</i> reef cannot be described as Annex 1 habitat and therefore at these locations the Applicant would not be impacting upon Annex 1 reef.</p> <p>The EIA and HRA conclude that there will be no impact to Annex 1 sandbank features as a result of the project.</p>
38	<p>Furthermore, possible gain of <i>S.spinulosa</i> reef and definite loss of sandbank feature is not acceptable mitigation under recent ECJ ruling Please see Briels judgement.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.1</i></p>	<p>The EIA and HRA conclude that there will be no impact to Annex 1 sandbank features as a result of the project and therefore the Applicant does not agree that it would be the case that possible gain of <i>S.spinulosa</i> reef would be to the detriment of Annex 1 sandbanks.</p>
39	<p><u>Cable Protection</u></p> <p>Establishment of <i>S.spinulosa</i> reef on artificial substrata over laying suitable habitat for reef development</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.1</i></p>	<p>The Applicant disputes this conclusion, as any sabellaira reef that establishes on introduced substrate will provide the same function as <i>S.spinulosa</i> reef that has established on other substrate. The area within which the HHW SAC is located is already a heavily modified environment due to prolonged fishing activity using beam trawls and the introduction of numerous pipelines and cables installations. Natural England and the JNCC have identified a large area "to be managed for <i>S.spinulosa</i> reef" which spans the Norfolk Boreas offshore</p>

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
			cable corridor within the HHW SAC. This area includes the Bacton to Zeebrugge Gas pipeline. If Natural England do not recognise <i>S.spinulosa</i> reef that has established because of artificial hard substrate than it must be assumed at least part of this "area to be managed as <i>S.spinulosa</i> reef" is not Annex 1 reef.
40	<p><u>Cable Protection</u></p> <p>The fact that new areas of habitat may be created elsewhere in the same site does not appear to be relevant, even if a net beneficial effect is predicted. There is still a possible adverse – even irreparable – effect on the existing natural habitat, and thus on the integrity of the site. The new habitat will be, to some extent, artificially created and cannot become a true natural habitat for some, possibly quite considerable, time.</p> <p>As was pointed out by counsel for the Stichting hearing, there can be no certainty that steps to create a new area of a particular habitat will in fact ever achieve the desired outcome and, in application of the precautionary principle, absence of uncertainty is a condition for</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.1</i></p>	<p>The Applicant has concluded that there would be no adverse effect on integrity and therefore are not making the case for derogation under Article 6(4) of the habitats directive. The Applicant is not proposing to create new habitat as compensation. Therefore this has not been considered.</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	approval in the context of Article 6(3) of the Habitats Directive		
41	<p><u>Cable Protection</u></p> <p>Offshore windfarm developers have suggested that views on the acceptability of colonisation of rock armouring may have changed by the time of decommissioning, including a potential argument to retain the rock armouring in situ within designated sites. Whilst, Natural England acknowledges this may be the case, we can't foresee what will happen over the next 20 - 30 years and a further assessment would need to be made at that time. Therefore, based on best available evidence our advice remains unchanged that <i>S.spinulosa</i> on artificial substrate is not Annex I reef.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.1</i></p>	<p>The Applicant disagrees with this advice as <i>S.spinulosa</i> reef which has colonised artificial hard substrate would form the same function as that which has not. The Applicant would also like to draw attention to the fact that one of the main areas to be "<i>be Managed as S.spinulosa reef</i>" is located around the Bacton to Zeebrugger pipeline.</p>
42	<p><u>Fisheries bylaws</u></p> <p>Defra's revised approach to fisheries requires that fishing</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.2</i></p>	<p>The Applicant welcomes this advice and notes that the byelaw does not legally restrict any activities other than bottom-towed fishing gear.</p>

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	<p>activity in European Marine Sites are managed in line with the requirements of Article 6 of the EC Habitats Directive. Towed demersal gear is considered a red risk interaction with <i>S.spinulosa</i> reef, meaning the use of towed demersal gear over <i>S.spinulosa</i> reef is not considered compatible with achieving the conservation objectives for the feature at any level of fishing effort.</p>		<p>In accordance with advice from the MMO, the Applicant agrees with the MMO that, irrespective of the bye-laws, this issue is related to the need to appropriately assess the impacts to the HHW SAC prior to making a determination and the Applicant maintains that this should be dealt with through the Outline HHW SAC SIP (document 8.20, APP-711). Discussions regarding the Outline HHW SAC SIP are ongoing between the Applicant, MMO and Natural England. The Applicant also notes that there remains uncertainty whether the DEFRA proposed areas will be adopted by the time of the Norfolk Boreas consent determination. It is acknowledged that the EIFCA area may be adopted during the examination period.</p>
43	<p><u>Fisheries bylaws</u></p> <p>Whilst it is the view of Natural England that cable laying activities would be permitted, Natural England would continue to advise that every effort would need to be made to demonstrate/ensure that this is a one off activity, including: Excluding cable protection within the management area (this view is endorsed by MMO and EIFCA; and</p> <ul style="list-style-type: none"> <li>• As set out above excluding</li> </ul>	<p>RR-099 <i>Appendix 2 Annex 2.2</i></p> <p>RR-069 <i>(Comment 4.4.4)</i></p> <p>RR-035</p>	<p>The Applicant will need to maintain the option of a phased approach and therefore in the worst case scenario where two export cables are required there could be two cable burial operations which would not spatially overlap and therefore would not cumulatively inhibit recovery. However under 2 of the 3 electrical solutions being proposed only one export cable would be required.</p> <p>The Applicant has committed to attempting to rebury cables before applying for a marine licence to install cable protection. This commitment will be included within an updated version of the Outline HHW SAC SIP.</p> <p>Furthermore, The Applicant will make reasonable efforts to avoid direct impacts on area 36 (the management area being proposed by the EIFCA) through appropriate micro-siting of cable routes. However, it may not be possible to meet this objective if other constraints or hazards are found within this part of the cable corridor. Cable route design and micro-siting will take place following detailed pre-construction survey.</p>



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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	<p>and/or limiting Operations and Maintenance activities in the site.</p> <p>Natural England would therefore request that the Applicant provides further information as to what they can do to reduce risk further.</p>		
44	<p>Cable Protection</p> <p>Natural England advises against the use of cable protection within designated sites as the addition of hard substrata is often incompatible with the conservation objectives for Annex I sandbanks and reef features.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>The Applicant do not believe that the small amount of additional hard substrate being proposed would be incompatible with the conservation objectives of the site. The HHW SAC SIP approach would ensure that the Norfolk Boreas project does not compromise those objectives.</p>
45	<p>Cable Protection</p> <p>In addition prior to the consideration of physical protection all alternatives need to be fully considered including the use of markers buoys to act as an exclusion zone around surface layed or sub optimally buried cables.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>Marker buoys can only be considered as a temporary measure and not a replacement for cable protection if this was required.</p>

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
46	<p>Cable Protection</p> <p>The use of 10% worst case scenario (WCS).</p> <p>Unless proven otherwise cable protection within the SAC should be assumed to lead to permanent loss of SAC habitat.</p>	<p>RR-099</p> <p>Appendix 2 Annex 2.5</p>	<p>The Applicant believes that <i>S.spinulosa</i> would colonise the cable protection and this would develop into reef if existing conditions within that area were suitable to allow reef development without the cable protection . This reef would have the same form and function as naturally occurring reef.</p>
47	<p>Cable Protection</p> <p>An estimate of the maximum footprint of cable protection to be used in each benthic habitat type</p>	<p>RR-099</p> <p>Appendix 2 Annex 2.5</p>	<p>This level of detail is not yet known and further assessment based on the final design and the preconstruction surveys would be presented in the final SIP. The Applicant is in discussion with Natural England regarding potential further assessment to show the likely areas where cable protection would be required and therefore which benthic habitat they would be located in.</p>
48	<p>Cable Protection</p> <p>Consideration of likelihood and impacts of secondary scouring around cable protection</p> <p>NE Advice: We do not believe that this has adequately been considered at the consenting phase.</p>	<p>RR-099</p> <p>Appendix 2 Annex 2.5</p>	<p>Secondary scour has the potential to arise where tidal flows accelerate over a structure and then decelerate on the 'down-flow' side, returning to baseline values a short distance from the structure. The interruption to flows due to the presence of a structure could induce local turbulence in the flow field which could cause secondary scour in a 'down-flow' direction. Cable protection proposed for Norfolk Boreas would be a maximum of 0.5m high for unburi ed cable and 0.9m high for cable crossings. The changes to tidal current flows caused by a structure that is only 0.5-0.9m high above the surrounding seabed, in the context of sandwaves of approximately 3m height, would be minimal. In addition, tidal flows in this area are of relatively low velocity, as the project is close to the amphidromic point. In relation to scour protection, which is of greater dimensions to cable protection, it was agreed with Cefas during the Expert Topic Group on the 5 July 2017, that secondary scour is unlikely to be an issue and therefore this was scoped out.</p>

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
49	Cable Protection  Estimate of the likelihood and impacts of exceeding the proposed amount of cable protection.	RR-099  <i>Appendix 2 Annex 2.5</i>	The maximum values for cable protection are secured in the DCO and therefore this hypothetical scenario is out of the scope of the current Application. Any exceedance would require a variation or marine licence which would be considered in full at that time and may not be granted. Based on the interim burial study (which will be submitted as Appendix 2 of the revised Outline HHW SAC SIP) the Applicant is confident that there would be no exceedance of the proposed values for cable protection.
50	Cable Protection  Habitat Features  Greater level of certainty in relation to any requirement for cable burial and therefore requirement for protection.	RR-099  <i>Appendix 2 Annex 2.5</i>	The interim Cable Burial Assessment, which will be submitted as Appendix 2 of the revised Outline HHW SAC SIP, shows that there is a high degree of certainty that it will be possible to bury cables along the vast majority of the offshore cable route.
51	Cable Protection  Temporary vs. permanent loss Natural England advises that the placement of cable protection is a permanent impact and that to date no empirical evidence has been presented to demonstrate the successful decommissioning / removal of cable protection where the habitat is returned to its pre impact state.	RR-099  <i>Appendix 2 Annex 2.5</i>	The Applicant agree with Natural England that cable protection would not be removed at decommissioning. However as stated previously the Applicant do not believe that the small amount of cable protection proposed represents an adverse effect on integrity.

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No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
52	<p>Cable Protection</p> <p>Could the Applicant please confirm that the 10% (and/or the to be revised figure) of cable protection was to be placed during the construction phase and that any subsequent cable protection would be applied for separately? However, if the Applicant would like flexibility to place the 10% of cable protection in new areas over the life time of the project then there needs to be an agreed approach on how impacts to priority habitats and/or interest features will be avoided and/or minimised during subsequent cable protection placement and this should be assessed as part of the consenting process. We advise that a Site Integrity Plan should be submitted which goes one step further than a Cable Installation Plan to ensure that these HRA concerns are addressed.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>The Applicant welcome Natural England's advice to provide a HHW SAC SIP and have submitted an Outline plan with the Application (document 8.20, APP-711).</p> <p>The Applicant has also committed to applying for a separate marine licence should new areas of cable protection be required during the operation phase.</p>

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
53	<p>Cable Protection</p> <p>Natural England queries how the regulator will be certain that 10% of the length of the cable corridor within a designated site hasn't been exceeded? If the Secretary of State is minded to consent the project, and noting the point above about concentration of cable protection on particular habitats/features, further DCO/DML restrictions may be appropriate.</p> <p>Natural England queries if it would be better to set out in the DCO/DML what 10% of the cable length the designated site would be and what the maximum volume of rock armouring/cable protection would equate to? This is to make it clear to all parties what the thresholds are.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>Schedules 9 and 10 Part 4, Condition 22; Schedules 11 and 12 Part 4, Condition 17; and Schedule 13 Part 4, Condition 14 - of the DCO commit the Applicant to:</p> <p><i>"(1) Not more than 4 months following completion of the construction phase of the authorised scheme, the undertaker must provide the MMO and the relevant statutory nature conservation bodies with a report setting out details of the cable protection used for the authorised scheme.</i></p> <p><i>(2) The report must include the following information—</i></p> <p><i>(a) location of the cable protection;</i></p> <p><i>(b) volume of cable protection; and</i></p> <p><i>(c) any other information relating to the cable protection as agreed between the MMO and the undertaker."</i></p> <p>Also Schedules 11 and 12 Part 4, condition 3(1)(f) states <i>"in the Haisborough, Hammond and Winterton Special Area of Conservation, the total area of cable protection must not exceed 52,000m<sup>2</sup> and the total volume of cable protection must not exceed 30,800m<sup>3</sup>".</i></p> <p>Therefore, these volumes are secured. The next draft for the DCO will contain revised numbers to reflect the Applicants commitment to reduce 10% to 5%.</p>
54	<p><u>Cable Crossing</u></p> <p>Out of service cables</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>The Applicant believe that this is sufficiently covered in Section 5.5.1 of the SIP which states <i>"Subject to agreement of the owner/operator and engineering constraints, any disused</i></p>

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	Natural England advises that where there are out of service cables in the HHW SAC it would be better to reduce impacts by cutting cables rather than introducing unnecessary hard substrate to cross redundant cables. This should be further investigated.		<p><i>cables would be cut, and a section removed to avoid the need for a crossing using cable protection."</i></p> <p>Furthermore, the Applicant is in discussion with cable owners to determine which cables are now out of service and therefore which could be cut rather than designing a cable crossing which would require cable protection. The Applicant is confident that the worst case scenario assessed within the application documents of 12 crossings within the SAC can be markedly reduced.</p>
55	<p>Cable protection</p> <p>Operational phase</p> <p>During the Norfolk Vanguard examination the MMO advised that if the volume of cable protection detailed in the DMLs is not used during construction then they would expect to see a separate marine licence application for remedial cable protection during the operational phase.</p>	<p>RR-099</p> <p><i>Appendix 2 Annex 2.5</i></p>	<p>The Applicant has confirmed in the Outline HHW SAC SIP (document 8.20, APP-711) and in the Outline Offshore Operation and Maintenance Plan (document 8.11, APP-702), that if new areas of cable protection were to be required during maintenance, this would be subject to an additional Marine Licence. The MMO had stated to Norfolk Vanguard (who included the same wording as that in the dDCO for Norfolk Boreas), that the wording of the draft DCO did not allow for new areas of cable protection to be installed during the operation and maintenance phase of the project, therefore no changes to the draft DCO are proposed as a result of the Applicant's position.</p>
<b>Benthic Ecology – General Points</b>			
56	Monitoring	<p>RR-069</p> <p><i>(Comment 4.4.2)</i></p>	<p>The Applicant believe that the findings of the Benthic ecology assessment do not warrant a full-scale benthic monitoring programme. The surveys completed to date and the pre and post construction surveys outlined in the Offshore In Principle Monitoring Plan (IPMP)</p>

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	Monitoring of wider benthic ecology  Monitoring of long-term cumulative impacts.		(document 8.12, APP-703) are sufficient to fill any relevant data gaps. Therefore, the Applicant do not propose to commit to any further surveys. This level of survey for wider benthic ecology is reflective or in exceedance of other offshore windfarm projects which have been granted consent or are in the application process.
57	Timelines of post-construction surveys.	RR-069 <i>(Comment 4.4.1)</i>	As stated in the IPMP (document 8.12, APP-703) " <i>post-construction survey(s) will be undertaken, at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years)</i> ".
58	The IPMP includes monitoring for Annex 1 reef but not the wider assemblage.  Long term changes to the wider assemblage should be monitored and requirements included within the DMLs.	RR-069 <i>(Comment 4.4.17)</i>	<i>Please also refer to the Applicant's comment in row 56 of this table.</i>  The commitment within the IPMP is to " <i>survey to determine any change in the location, extent and composition of any benthic habitats of conservation, ecological and/or economic importance constituting Annex 1 reef habitats identified in the pre-construction survey in the parts of the Order limits in which construction works were carried out.</i> " The final monitoring plan must be approved by the MMO in consultation with Natural England.
59	Consideration of primary and secondary impact areas should aid station placement to aid impact assessment.  Post construction monitoring within the DMLs.	RR-069 <i>(Comment 4.4.20)</i>	<i>Please also refer to the Applicant's comment in row 56 and 58 of this table.</i>  The Applicant do not propose to commit to any further benthic surveys. The level of benthic survey is in line with other offshore windfarms that have been award DCO consent or are in the process of applying for consent.

Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
60	Presence of chalk within drill arisings	RR-069 (Comment 4.4.7)	<p>The Applicant believe that it is highly unlikely that chalk contained in drill arisings will cause an impact to the benthic habitat for the following reasons:</p> <ul style="list-style-type: none"> <li>• The geotechnical and geophysical data show that due to the ground conditions, it is very unlikely that any drilling will be required - piles will be driven rather than drilled;</li> <li>• The underlying strata are largely muds and clays, and do not contain chalk;</li> <li>• The volume of any drill arisings will be extremely small relative to the total volume of sediment being transported through the site under natural processes and therefore these arisings would be either covered by other sediment or dispersed.</li> </ul>
61	The MMO requests the Applicant to identify where the following requirements are captured within the DMLs: the information on the planned disposal schedule, sediment characteristics of any drill arisings and location where they are disposed of, along with a more accurate assessment of the potential impacts.	RR-069 (Comment 4.4.8)	<p>This level of detail would only be known at the detail design stage. There is a commitment in the SIP to provide this information for the HHW SAC and Condition 14(1)(d) of Schedules 9 and 10 of the DCO states that the Project Environmental Management Plan (PEMP) (document 8.14, APP-705) will include the following scope:</p> <p><i>A project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation to include details of—</i></p> <p><i>(iii) waste management and disposal arrangements;</i></p> <p>The Final PEMP would require agreement with the MMO in consultation with the SNCB.</p>
62	It is unclear whether post-construction monitoring of any <i>S.spinulosa</i> reef identified will be limited to a single event and exclusively within the HHW SAC,	RR-069 (Comment 4.4.9)	<p>As stated in Table 4.2 of the in- principle monitoring plan (document 8.12, APP-703) and in Table 6.1 of the Outline HHW SAC SIP (document 8.20, APP-711) "<i>Where S. spinulosa reef is identified during the baseline survey and cannot be entirely avoided through micro-siting, a single post-construction survey(s) will be undertaken, at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years). If evidence of recovery is available and agreed with the MMO, monitoring will cease. Surveys specifically</i></p>



Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	the MMO requests this is clarified by the Applicant.		<p>targeting those reefs identified in the baseline survey will be undertaken as a check on their condition using the same methodology set out for pre-construction monitoring to be agreed with the MMO."</p> <p>To clarify, the word "single" refers to a single survey per year.</p> <p>Furthermore, it is stated in both documents that the duration over which monitoring of recovery is required would be agreed with the MMO following review of the post-construction survey data.</p>
63	The MMO is mostly content with the mitigation proposed apart for the mitigation regarding the identification of <i>S.spinulosa</i> reef. The MMO would recommend the latest data sets from the Joint Nature Conservation Committee and Natural England are used to inform the assessment. The MMO defers to Naturl England on the appropriateness of mitigation.	RR-069 (Comment 4.4.10)	The maps provided by Natural England identify "areas to be managed for <i>S.spinulosa</i> reef" rather than areas where <i>S.spinulosa</i> reef is currently present. The data used in the EIA includes the site specific surveys of the entire cable corridor and offshore wind farm site which were collected in 2016 and 2017. This has been supplemented by all other available data sets as set out in Appendix 7.2 of the information to support HRA: Norfolk Vanguard and Norfolk Boreas <i>S.spinulosa</i> Review (document 5.3.7.2, APP-207). Therefore the Applicant believe that the most appropriate data sets have been used.
64	The potential for cumulative impacts resulting from the simultaneous construction of the Norfolk Vanguard and East Anglia 3 OWFs is acknowledged. However, the cumulative impact on the	RR-069 (Comment 4.4.13)	For Norfolk Boreas and Norfolk Vanguard, scour protection will be used wherever scour will occur, reducing suspended sediment release to negligible quantities. Also, increased suspended sediment concentrations would not be maintained for very long once any scour reaches an equilibrium with the driving forces creating it. Release would then be effectively zero and suspended sediment concentrations would reduce to the ambient concentrations.

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	Topic/ Issue/ comment	Relevant Representation Number <i>(section reference if available)</i>	Applicant's Comments
	<p>benthos, due to an increase in or maintained suspension of sediment from the expected 30-year operation of these OWFs has not be addressed. The MMO request this is addressed.</p>		<p>Therefore, it is not considered necessary to assess the potential impacts of long term increased suspended sediment on benthic ecology receptors.</p>
65	<p>The MMO has concerns on a point in the Outline Operation and Maintenance Plan stating that ‘the magnitude of changes to the Marine Physical Processes in the far-field (beyond approximately 1 km) is unlikely to be sufficient to result in a discernible impact on benthic ecology’. The MMO understands that the mapping of (hydrodynamic) impacts in the ES Chapter 8 (Figures 8.13 and 8.14 for tidal and wave flow changes respectively) does not allow an interpretation of the magnitude of change at 1km. The far-field zones of influence are shown as extending up to 20km or more from the development site, generally defined on the basis of a</p>	<p>RR-069 <i>(Comment 4.4.14)</i></p>	<p>The potential impact on waves and tidal currents is assessed at a turbine level in the ES chapter (document 6.1.8, APP-221). The zones of potential influence are not cumulative assessments. They simply summarise the effect as maximum zone extents based on wave heights and tidal ellipses. It does not mean that effects closer to the centre are greater than those towards the edge. In reality, the effects at each turbine are small in magnitude and local in extent, and confined to a wake (tidal currents) or shadow (waves) at each turbine that do not interact with the wake or shadow at the adjacent turbine. The effect is the same at each turbine location whether it is in the middle of the array or around the outside. It is not worse towards the centre of the zone (i.e 1km rather than 20km). The boundaries of the zones of influence are showing how far the effects are felt beyond the edge of the array.</p>

**Table 5 Applicant responses to Relevant Representations in relation to Benthic and Intertidal Ecology**

No.	Topic/ Issue/ comment	Relevant Representation Number (section reference if available)	Applicant's Comments
	<p>predicted 5% change in magnitude so, in these terms, the effects do extend more than 1km, and it is not possible to state the percent change in hydrodynamic parameters at the 1km distance. This is due to the conceptual modelling approach, concerns could also be raised as it could mean that the far-field extent of cumulative impacts from Norfolk Boreas and other nearby sites are under-estimated. The MMO recommends further information is provided.</p>		

## 1.6 Fish and Shellfish Ecology

Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	<p>The MMO states that comments were raised in response to the Scoping Report (22nd May 2017, Item 24) with regards to known potential impacts of SSC through dredging and deposition which have not been discussed for fish in general within the ES.</p>	<p>RR-069 <i>(Comment 4.5.3)</i></p> <p>The MMO is currently providing further clarity on these comments as these were not provided to the Applicant in response to the Scoping Report.</p> <p>Notwithstanding this, the Applicant welcomes the MMO agreement, outlined in paragraph 4.5.4 of their Relevant Representation, that the results of the assessment are generally considered appropriate in the context of the project. The methodology used for assessment on fish and shellfish ecology, including aspects covered for assessment, were presented in the Fish and Shellfish Ecology Method Statement and agreed with relevant stakeholders, including the MMO, as part of the Evidence Plan Process (EPP). Comments from the MMO of relevance to the fish and shellfish ecology assessment included in the Norfolk Boreas Scoping Opinion, the responses to the PEIR and those discussed during the EPP, are presented in Appendix 11.2 Fish and Shellfish Ecology Consultation Responses (document 6.3.11.2, APP-559) including details of how they have been taken account of in Chapter 11 Fish and Shellfish Ecology (document 6.1.11, APP-224a). The Applicant notes that the feedback provided by the MMO to the Norfolk Boreas scoping report, and included in the scoping opinion, does not include specific reference to the potential impacts of SSC through dredging and deposition as listed in this comment.</p>

Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
2	<p>RR-069 <i>(Comment 4.5.10)</i></p>	<p>As described in Appendix 11.2 of the ES (Fish and Shellfish Ecology Consultation Responses – document 6.3.11.2, APP-559), in the context of the cumulative assessment on sandeels, with regards to impacts during operation such as loss of habitat, the fact that habitat loss would only occur around relatively small localised areas at each individual offshore wind farm project should be taken account of. Furthermore, studies of fish assemblages in operational wind farms (Stenberg et al., 2011; 2015) have not detected significant changes to sandeel populations. It has been suggested (Stenberg et al., 2015) that direct loss of habitat associated with offshore wind farm infrastructure and indirect effects (i.e. changes to sediment composition) are too low to influence the abundance of sand-dwelling species such as sandeels. This would also apply in a cumulative context.</p> <p>In the context of this assessment the potential small contribution of the Boreas offshore wind farm project to any cumulative effects should also be noted. As described in Appendix 11.2 of the ES, the conclusion that the area of the project supports sandeels in comparatively low numbers is supported by the results of the IBTS, but also by the distribution of sandeel fishing activity (derived from VMS data), known sandeel grounds (Jensene et al., 2011) and the fact that the offshore project area does not overlap with high intensity sandeel spawning and/or nursery grounds.</p> <p>Also noted in Appendix 11.2 of the ES are limitations of PSA data with regards to inferring sandeel distribution. As described in Appendix 11.2., PSA data from benthic surveys undertaken in the offshore cable corridor, the Norfolk Boreas site and areas relevant to the project interconnector search area (Norfolk Vanguard East (NV East) and Norfolk Vanguard West (NV West)) were analysed to provide an indication of the suitability of the offshore project area in terms of potential for provision of habitat for sandeels (see Appendix 11.1, APP-558). As expected, given the sandy nature of the sediment across the offshore project area, preferred and marginal sandeel habitat was identified across the majority of the offshore project area, with unsuitable areas identified at discrete locations. It should be noted, however, that the habitat classification on which the above analysis is based (Marine</p>

**Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
		<p>Space, 2013) relies on sediment composition rather than evidence of sandeel usage of the area. The presence of suitable sediment does not necessarily imply that sandeels are present in a particular area. Similarly, the presence of suitable sediment does not imply that a given area would be colonised by sandeels.</p> <p>It is the Applicant's view that the information already submitted provides sufficient evidence that cumulative impacts on sandeels will not be significant in EIA terms (i.e. above minor). The Applicant also notes that the information provided within the Norfolk Boreas application is for the most part in line with that provided as part of the Norfolk Vanguard application (with the exception of additional details added in the Norfolk Boreas application with regards to results of post-construction monitoring). Furthermore, the adequacy of the cumulative assessment and its outputs was agreed with the MMO in the SoCGs submitted for the Norfolk Vanguard project.</p>
3	<p>The MMO notes that foundation installation (which is expected to be undertaken over a period of 18 months) will coincide with the winter hibernation period for sandeel. During this period, sandeel remain largely sedentary within their burrows and are therefore more vulnerable to construction activities. It is acknowledged that the overall installation footprint will be minor in the context of the wider project area, and it is therefore surmised that relatively</p>	<p>RR-069 <i>(Comment 4.5.9)</i></p> <p>The assessment presented in ES Chapter 11 Fish and Shellfish Ecology (document 6.1.11, APP-224a), takes account of the ecology of sandeels and the use that they make of the sediment (i.e. burrowing behaviour / requirement of specific substrate and the fact that they are demersal spawners). Considering the particularities of this species, sandeel specific assessments have been presented separately throughout ES Chapter 11 for relevant topics, including for assessment of the potential impact of habitat disturbance and temporary loss of habitat as a result of construction activities. This assessment concluded that impacts on sandeels would be of minor adverse significance. It should be noted that the assessment presented in Chapter 11 was based on worst case parameters and included consideration of the fact that sandeels remain in the sediment for prolonged periods of time and that foundation installation activities may take place at any time. The conclusion reached in the assessment would therefore apply regardless of the time of year when foundations may be installed.</p>

**Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<p>low direct mortality levels will be associated with the foundation installation process themselves (i.e. through physical injury during piling or similar).The MMO recommends the Applicant includes consideration of the installation timing and the associated higher potential impacts to sandeel during the winter hibernation period within the ES.</p>		
4	<p>The MMO recommends conducting post-construction sandeel habitat assessments (MarineSpace, 2013) based on the collection of seabed sediment samples for particle size analysis (PSA) to ascertain the continued habitat suitability. This information should be compared with the pre-construction data and post-construction survey years to highlight any changes that have occurred.</p> <p>The MMO understands that post construction benthic ecology monitoring is also recommended</p>	<p>RR-069 <i>(Comment 4.5.11)</i></p>	<p>The Applicant notes that the limitation of PSA data to infer sandeel distribution need to be fully recognised. As described in Appendix 11.2 of the ES (document 6.3.11.2, APP-559), PSA data from benthic surveys undertaken in the offshore cable corridor, the Norfolk Boreas site and areas relevant to the project interconnector search area (Norfolk Vanguard East (NV East) and Norfolk Vanguard West (NV West)) were analysed to provide an indication of the suitability of the offshore project area in terms of potential for provision of habitat for sandeels (see ES Appendix 11.1, Fish and Shellfish Ecology Technical Report, document 6.3.11.1, APP-558). As expected, given the sandy nature of the sediment across the offshore project area, preferred and marginal sandeel habitat was identified across the majority of the offshore project area, with unsuitable areas identified at discrete locations. It should be noted, however, that the habitat classification on which the above analysis is based (Marine Space, 2013) relies on sediment composition rather than evidence of sandeel usage of the area. The presence of suitable sediment does not necessarily imply that sandeels are present in a particular area. Similarly, the presence of suitable sediment does not imply that a given area would ever be colonised by sandeels. In addition, as described in ES Chapter 11 Fish and Shellfish Ecology (document 6.1.11, APP-224a), available evidence suggests that the</p>

Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<p>over three non-consecutive years (as per 4.4.15 above) and recommend that the sandeel habitat assessment is incorporated within this process.</p>	<p>area of the project supports sandeels in comparatively low numbers. This is evidenced by the results of the IBTS, but also by the distribution of sandeel fishing activity (derived from VMS data), known sandeel grounds (Jensen et al., 2011) and the fact that the offshore project area does not overlap with known high intensity sandeel spawning and/or nursery grounds. Considering the above and the fact that significant impacts (above minor significance) have not been identified for sandeels, it is the Applicant's view that the incorporation of sandeel habitat assessments as part of benthic monitoring campaigns are not necessary.</p>
5	<p>In Section 11.6.1, paragraph 45, the last sentence should include sandeel as an example of fish species which may be underrepresented in the survey results due to the gear types used. Sandeel are considered a key species within the project area.</p>	<p>RR-069 <i>(Comment 4.5.13)</i></p> <p>Detailed information on the limitations of survey data is provided in Appendix 11.1 Fish and Shellfish Ecology Technical Report (document 6.3.11.2, APP-558). This includes reference to the limitations of the International Bottom Trawl Survey (IBTS) to adequately target some species, including sandeels.</p>
6	<p>Section 11.7.4.1 (Impact 1), paragraph 113 and 114, relies heavily on the IBTS data to characterise the distribution of sandeel in the region. It should be made clear in this section of the ES that this sampling method is likely to underestimate populations of sandeel as it is not designed to</p>	<p>RR-069 <i>(Comment 4.5.13)</i></p> <p>The Applicant notes the MMO feedback. As outlined in the MMO response, the limitations of the IBTS data are described in detail in Appendix 11.1 Fish and Shellfish Ecology Technical Report (document 6.3.11.2, APP-558). The Applicant also notes that whilst reference is made to IBTS data in support of the characterisation of sandeel distribution and abundance presented in Chapter 11 Fish and Shellfish Ecology (document 6.1.11, APP-224a), evidence from a wide range of other sources, such as the distribution of spawning and nursery grounds, fishing activity and known sandeel grounds, has been taken account of to help characterise the sandeel baseline.</p>



**Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
	target these species. It is noted that the limitations of the IBTS methodology are acknowledged explicitly in Appendix 11.1, however reiterating this with regards to sandeel would be a useful inclusion in the ES itself.	
7	ES Chapter 11, Section 11.7.4.1 (Impact 1) error.	RR-069 <i>(Comment 4.5.16)</i>
8	ES Chapter 11, Section 11.7.4.3.5, paragraph 206 error.	RR-069 <i>(Comment 4.5.17)</i>
9	ES Chapter 11, Section 11.7.4.3.5, paragraph 236 error.	RR-069 <i>(Comment 4.5.15)</i>
10	In Section 3.4 of Appendix 11.1, paragraph 20, it should be highlighted that survey data provides reliable information relating to the time of the survey at the specific location surveyed (i.e. a snapshot) and should therefore be interpreted with caution. It is	RR-069 <i>(Comment 4.5.17)</i>

**Table 6 Applicant responses to Relevant Representations in relation to Fish and Shell Fish Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	acknowledged in the technical report that the gear types used may lead to underrepresentation of some species/groups.		however, that where surveys results are presented, these state the time period (year and month) which relates to the data shown.

## 1.7 Marine Mammal Ecology

Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	<p>Para 739 and 742 Natural England is broadly in agreement that the implementation of the SIP will reduce impacts to Grey seal to minor adverse; however we would welcome further discussion around this to better understand how the Applicant envisages this will work. Natural England also notes that the reference populations that have been used for grey seals appear to be lower than expected.</p>	<p>RR-099</p> <p><i>Appendix 3 (ES chapter Marine Mammal Ecology, para. 739 and 742)</i></p> <p>It is acknowledged that Natural England broadly agree with the proposed mitigation (of using the Southern North Sea SAC Site Integrity Plan (SIP) (document 8.17, APP-708)) to reduce cumulative underwater noise disturbance impacts on grey seal. The Applicant agrees that further discussion on this matter can be undertaken at the time of finalising the SIP, during the pre-construction phase of the Project, and when more information is known about the potential for cumulative impacts on the population (i.e. timings of other offshore wind farm piling activity). The draft DCO (document 3.1, APP-020) requires that the Southern North Sea SIP be agreed with The MMO (in consultation with the relevant SNCB) prior to any construction activity taking place.</p> <p>As was agreed through the EPP (document 5.1.28.1, APP-192), the assessment for the potential impacts on grey seal would be undertaken using the grey seal Management Unit (MU) populations for the South East England MU, the North East England MU, the East Coast of Scotland MU and the Waddenzee area. It is noted that these MU populations were updated in 2019, and now have been estimated to have a larger population size. However, these updated grey seal population estimates were released after the final date within which further information could be incorporated for the DCO submission. It should therefore be noted that the lower population numbers used in the assessment provide a level of precaution and the updated numbers would only reduce the level of sensitivity of the MU, however this would not change the outcome of assessment.</p>
2	<p>Natural England would welcome further discussion with the Applicant regarding their conclusion of no adverse effect on integrity of the</p>	<p>RR-099</p> <p>For the in-combination assessment of grey seal, to take into account the wide ranging movements of the species and the large area covered by the in-combination projects that have been included, it is much more appropriate to use the wider reference population for assessment, which includes the South East England, North East England,</p>

**Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<p>Humber Estuary SAC considering up to 37% of the grey seal population of the SAC could potentially be impacted from Norfolk Boreas and all other projects and plans.</p>	<p><i>Appendix 3 (ES chapter Marine Mammal Ecology para. 1194 and Table 8.63)</i></p> <p>South Coast Scotland MUs and the Waddenzee. Using this wider reference population for the assessment results in a total of 6.6% of the grey population being potentially temporarily disturbed. In addition, not all grey seal that have been predicted to be temporarily affected from the in-combination projects included will be from the Humber Estuary SAC, due to the large distances between these projects and the Humber Estuary SAC.</p> <p>With the use of the Southern North Sea SAC SIP (document 8.17, APP-708) in order to reduce in-combination disturbance effects to harbour porpoise, the in-combination effect of disturbance to grey seal will also be reduced.</p>
3	<p>"As per Natural England's advice on other recent NSIP applications, a mechanism needs to be developed by the regulators to ensure continuing adherence to the SNCB thresholds over time. ....</p> <p>.....Until the mechanism by which the SIPs will be managed, monitored and reviewed is developed, Natural England are unable to advise that this approach is sufficient to address the in-combination impacts and therefore the risk of adverse effect on integrity on the Southern North Sea SAC cannot be fully ruled out.</p>	<p>RR-099</p> <p><i>Appendix 3 (8.12 Offshore In Principle Monitoring Plan)</i></p> <p>The responsibility to define the approach for any strategic monitoring, and how this should be undertaken between developers, lies with the regulator (MMO). However, Norfolk Boreas would be interested in working towards this with the regulator and Natural England. It should also be noted that the final Monitoring Plan will be developed in consultation with both the MMO and Natural England during the pre-construction phase of the project.</p>

**Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	This is not an issue unique to the project and work will need to be undertaken to reduce the noise levels of multiple wind farms potentially constructing at the same time"		
4	Underwater noise disturbance within the Southern North Sea SAC  Concerns regarding proposed SNCB advice.	RR-040	<p>The assessment of effects on marine mammals in both the Environmental Statement (ES) (document 6.1.12, APP-225) and Habitats Regulation Assessment (HRA) (document 5.3, APP-201) has been completed based on the current advice from the SNCBs, and Conservation Objectives for the Southern North Sea SAC.</p> <p>The responsibility of providing the advice on how to conduct underwater noise assessments for marine mammals lies with the SNCBs and the Regulator.</p>
5	Inclusion of fishing in all cumulative/in-combination assessments  As a principle, fishing should not be considered in any assessments as part of the baseline.	RR-040	<p>As noted in the ES Chapter 12 Marine Mammals (document 6.1.12, APP-225) paragraph 83, Natural England's Deadline 4 Response to the Further Examiners' Questions and Requests for Information on Hornsea Project Three was that the inclusion of commercial fishing is likely to be within the baseline characterisation, however, there are instances where commercial fishing impacts won't be adequately covered, such as where there is a change in effort, a change in management measures or a change in legislation. With regard to the assessment of effects in the Southern North Sea SAC, Natural England confirmed that they are not currently aware of anything that significantly alters the levels of fishing activity within the site.</p> <p>In addition, the Review of Consents (RoC) (BEIS, 2018) concluded that a quantitative assessment is not possible on the basis that there have been no quantified assessments undertaken on the extent of impacts from commercial fishing and therefore information is not available to inform the assessment. The RoC does however note that commercial</p>

Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
		<p>fishing has occurred within the SAC for many years and has had, and will continue to have, direct and indirect impacts on harbour porpoise and that there are no known plans to suggest that the level of fishing within the SAC will significantly increase beyond those in the baseline.</p> <p>Therefore, fishing activity is considered part of the existing baseline, as it has existed in the North Sea for a long time before any offshore wind farm construction, and it is not a recent or an increasing activity (in most areas fishing is currently in decline). It is therefore more appropriate for fishing to be assessed as part of a more strategic assessment rather than project / developer led assessment.</p> <p>The inclusion of commercial fishing as part of the baseline, rather than in the in-combination assessment has been agreed with Natural England and the MMO (document 5.1.28.1, APP-192).</p>
6	Due to a lack of detail the SIP cannot be used to conclude no AEoI.	RR-040 <p>The In-Principle SIP (document 8.17, APP-708) as included with the DCO application has not yet been finalised. Once further information is available on the timeframes of piling and UXO activities, for both Norfolk Boreas and other projects, within the Southern North Sea SAC, the SIP will be finalised. This process is expected to take place in the pre-construction phase of the Project. Developing the SIP during the pre-construction phase will allow for a detailed review and assessment of the most effective mitigation measures, and to take into account the latest scientific evidence to reduce underwater noise impacts. This information will be included within the final SIP. The Applicant will consult with TWT during this process.</p>

**Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
7	Underwater Noise Modelling to demonstrate degree of noise reduction achieved through mitigation.	RR-040	Further underwater noise modelling, if required, will be conducted during the pre-construction phase, when the MMMP is developed and finalised.
8	Lack of regulatory mechanism to manage in-combination underwater noise impacts.	RR-040	The responsibility to define the regulatory mechanism to manage in-combination effects in the Southern North Sea SAC lies with the regulator (MMO). At this time, the best method of managing underwater noise effects in the Southern North Sea SAC is with the development of the SIP (document 8.17, APP-708). The SIP for the Project will be further developed in the pre-construction phase, taking into account the latest scientific evidence and SNCB and regulatory advice.
9	UXO clearance – currently no evidence to support effective mitigation.	RR-040	The assessment of the effects of UXO clearance have been included in the ES Chapter 12 Marine Mammals (APP-225) (section 12.7.3.1) and Information to Support HRA Report (APP-201) (section 8.3.1.1.1) for information only. The formal licensing process for the clearance of UXO will not begin until the UXO survey has been undertaken in the pre-construction phase of the Project, to ensure that accurate information on location and size of any UXO is used within the assessments. Once the UXO survey and the final assessments have been completed for UXO clearance, and if required, a MMMP for the UXO clearance will be developed including the latest guidance and scientific information on mitigation effectiveness. A draft UXO MMMP has not been drafted at this stage, as there is not enough information available on the likely impacts and mitigation requirements.
10	Monitoring – Southern North Sea SAC	RR-040	The SIP (APP-708) for the UXO clearance will be completed when the licensing process for the activity is undertaken. The responsibility to define the approach for any strategic monitoring, and how this should be undertaken between developers, lies with the regulator. However, Norfolk Boreas would be interested in working towards this with the

**Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Uncertainty regarding the impacts of underwater noise on harbour porpoise in UK waters		regulator and other interested parties. The In-Principle Monitoring Plan (APP-703) sets out the framework for any monitoring requirements.
11	Post-consent engagement	RR-040	TWT will be provided the draft and final SIP and MMMP in accordance with the In-Principle documents (APP-708 and APP-704). In addition, Vattenfall and TWT are working towards a Memorandum of Understanding to clarify and further their working relationship, particularly on the further work to be undertaken in the post-consent and pre-construction phase of the Project.
12	In-combination effects of underwater noise disturbance impacts  Need for regulatory mechanism before can agree no adverse effect on the Southern North Sea SAC	RR-040	The Applicant notes TWT's comments on the management of disturbance from underwater noise effects in the Southern North Sea SAC. However, the responsibility to define the management framework and potential methodologies for management of this lies with the regulator (MMO). It is therefore with the MMO to develop the mechanism to ensure the continued adherence to the SNCB thresholds over time.
13	Impact cetaceans and the harbour porpoise population supported by the SNS SAC	RR-056	Noted. The assessment of noise impacts on marine mammals has been undertaken in both the ES (APP-225) and HRA (APP-201), including for all construction, operation and decommissioning activities and the associated vessel traffic.
14	All cetaceans are offered 'strict protection' under the Habitats Directive.  Impact of pile driving during construction on harbour porpoises	RR-056	An assessment of the effects of operational wind farms on the harbour porpoise population has been undertaken in section 12.7.4.1 of the ES Chapter 12 Marine Mammals (APP-225) and section 8.3.1.2.1 of the Information to support HRA (APP-201).  The paper referred to (Teilmann and Carstensen, 2012) states that the harbour porpoise population has not returned to baseline levels, with only 29% of the population



Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>returning (at the Nysted wind farm), and also reports that at the Horns Rev wind farm, a large number of individuals were affected, but for a very short time period during the construction period only. No significant effect on the abundance of harbour porpoise around the Horns Rev 1 wind farm were found during operation, and at Egmond aan Zee a significant increase in harbour porpoise numbers were found, potentially due to the ban on fishing and shipping within the wind farm site. The paper summarises that there are no clear explanations as to why a slower recovery has been observed at Nysted than at Horns Rev or Egmond aan Zee. It does note that Nysted used a different construction method (gravitation foundations, which take longer to construct) than the other two wind farms (pile driving), but again it is currently unknown if that affected the harbour porpoise populations differently. One possible explanation for the difference is that the area around the Nysted wind farm is less important for porpoises than for the other two wind farms, and that individuals do not have a strong incentive to return to the area after the disturbance event. The paper concludes that until more information is available on the actual cause of the observed difference in presence and abundancies during operation, the results should not be used to generalise these effects and relate them to other wind farms.</p>
15	<p>Pile driving impact on Harbour Porpoise</p> <p>Displacement from potential important feeding grounds</p>	RR-056	<p>An assessment of the effects of disturbance from pile driving on the harbour porpoise population has been undertaken in section 12.7.3.2 of the ES Chapter 12 Marine Mammals (APP-225) and section 8.3.1.1.2 of the HRA (APP-201).</p> <p>It should be noted that the Wisniewska et al. (2016) study referred to (that concluded that a harbour porpoise could lose 4% of their body weight in 24 hours) is not considered representative of all harbour porpoise, due to its small sample size concentrating on mostly juveniles, and the relatively short period of observation after being trapped in a pound net for a 24 hour period, with limited access to prey, that could be indicating an ability of harbour porpoise to regain any loss of foraging with ultra-high foraging rates</p>

Table 7 Applicant responses to Relevant Representations in relation to Marine Mammal Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
		<p>following a disturbance event (Hoekendijk et al., 2018). It also noted that the individuals of this study were feeding on smaller fish than would be expected for adults, who generally feed on larger prey due to their energy requirements.</p>
16	<p>Pile driving impact on Harbour Porpoise</p> <p>Cumulative and in-combination impacts</p>	<p>RR-056</p> <p>Piling has been assessed as worst-case, but other foundation options are being considered. The requirement for pile driving will be based on several factors, such as underlying ground conditions and the safest way to successfully install and operate the turbines. The most suitable foundation options for the site would be determined during final design, post consent, and would be informed by further site investigations.</p> <p>If piling is required, then the need for additional noise mitigation measures will be developed during the finalisation of the MMMP in the pre-construction phase.</p>
17	<p>Use of the NMFS (2018) noise exposure criteria relevant for impulsive sources (for PTS)</p> <p>Modelling approach can only give a rough estimation of potential effects</p>	<p>RR-069 <i>(Comment 4.8.13)</i></p> <p>All relatively low-level, continuous noise sources considered within the noise modelling report use directly measured noise samples from typical equipment in our SPEAR model. The transmission losses used in SPEAR are based on the real noise attenuations seen at relatively short range, i.e. &lt;1,000m. It is acknowledged that this is a simplistic technique but the impact ranges and risk of a significant effect from these sources are low enough that it has been accepted as reasonable for all offshore wind farms that Subacoustech has undertaken assessments for over the last 10 years. Although, as the MMO state, the results are only estimations, the noise from these sources would have to reach unprecedented levels for them to lead to significantly greater effect ranges.</p>

## 1.8 Offshore Ornithology

8. Based on the Relevant Representations and in consultation with Natural England (RR-099), the Applicant has undertaken an updated assessment which will be provided to Natural England for review and be submitted as part of the Examination. The majority of the points raised in the Relevant Representation have been addressed in this assessment and therefore only topics that require a more detailed or a more specific response have been included in [Table 8](#).

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Requests for additional or updated assessments	RR-099 <i>(Table 5.2)</i>	The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination.
2	Ascertainment of no adverse effects on the integrity for the FFC SPA.  Appropriateness of the apportionment of kittiwakes and request for additional age class information.	RR-099 <i>(Table 5.2 -1)</i>	The Applicant will provide the requested survey data, along with consideration of the reliability of this data for informing impact assessment in the updated assessment which will be provided to Natural England for review and submitted as part of the Examination. The Applicant will also provide assessment based on the alternative apportioning rates requested by Natural England.
3	Ascertainment of no adverse effects on the integrity for Red-throated diver (RTD) in the Greater Wash	RR-099 <i>(Table 5.2 -4)</i>	The Applicant notes Natural England's comment on this matter and deals with the specific points below (rows 21 – 25, 40, 41). In summary (and as set out below) the Applicant considers that AEoI can be ruled out on the basis of the assessment provided.
4	RTD displacement assessments for EIA and HRA  Mortality Rates	RR-099 <i>(Table 5.2 -4)</i>	The Applicant notes Natural England's clarification on this matter and also that the requested rates were provided in the original assessment.

Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
5	<p>Cautionary buffer distance for RTD in the evidence review.</p> <p>NE do not consider that assuming a magnitude of 100% out to 4km is over-precautionary</p>	<p>RR-099 <i>(Table 5.2 -4)</i></p>	<p>The Applicant notes Natural England's comment on this matter. However, as set out in the named review, the Applicant considers that Natural England's position on this is over precautionary.</p>
6	<p>In relation to HRA, cable installation in the Greater Wash SPA potential effects.</p> <p>Inclusion of displacement in the assessments.</p> <p>Mitigation for RTD disturbance.</p>	<p>RR-099 <i>(Table 5.2 -4)</i></p>	<p>The Applicant confirms that the same mitigation agreed for Norfolk Vanguard has been adopted for Norfolk Boreas, specifically:</p> <ul style="list-style-type: none"> <li>• Avoid and minimise maintenance vessel traffic, where possible, during the most sensitive time period for red throated diver (RTD) in January/ February/ March.</li> <li>• During the months of January to March inclusive, construction activities consisting of cable installation for Work No. 4A and Work No. 4B must only take place with one main cable laying vessel.</li> <li>• Restrict vessel movements where possible to existing navigation routes.</li> <li>• Avoid over-revving of engines (to minimise noise disturbance).</li> <li>• Avoid rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid disturbance to areas with consistently high diver density.</li> </ul> <p>This mitigation has been included in the Outline PEMP that was submitted as part of the Application (APP-705) the final version of which is secured through Condition 14(1)(d) of the Transmission DMLs (Schedules 9 and 10 of the DCO). Furthermore, Condition 14(1)(d)(vi) of these schedules secures that the final PEMP must include:</p> <p><i>“procedures to be adopted within vessels transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities.”</i></p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
7	Auk (razorbill and guillemot displacement assessments for EIA and HRA)  Mortality Rates	RR-099 <i>(Table 5.2 – 5)</i>	The Applicant notes Natural England's clarification on this matter and also that the requested rates were provided in the original assessment.
8	Ascertainment of no adverse effect regarding collision risk for features of the Alde Ore Estuary SPA, FFC SPA or Greater Wash SPA	RR-099 <i>(Table 5.2 – 6)</i>	The Applicant notes Natural England's overarching comments on this matter, however the Applicant considers that sufficient information was presented and that on this basis it is possible to conclude there will be no adverse effects on the integrity of any of these SPAs. More detailed responses are provided to the specific requirements in the rows below.
9	Uncertainty / Variability within CRM  Recommendation that if the Applicant undertakes any further collision risk modelling that this is undertaken using the Marine Scotland Science (MSS) stochastic collision risk model (sCRM) and that the log file produced by the sCRM is also included.	RR-099 <i>(Table 5.2 – 6)</i>	The Applicant had intended to provide stochastic collision mortality estimates using the Marine Scotland implementation of the Band model as requested. However, currently there remain concerns that this version of the model is generating slightly different outputs. The Applicant has brought this to the attention of Marine Scotland Science and the developers of the model and it is being investigated. Until this is completed it will not be possible to provide these additional outputs. It is important to note however that these outputs will only affect the distribution of estimates and not the mean or 95% confidence range as already provided in the Norfolk Boreas assessment.
10	Collision risk outputs to cover a range of nocturnal activity factors to account for the uncertainty/variability.	RR-099 <i>(Table 5.2 – 6)</i>	Collision outputs were provided in the assessment using a range of nocturnal activity factors as requested by Natural England.  It was agreed during the Evidence Plan process that the assessment would be based on option 2 outputs due to concerns the aerial survey contractor raised about large errors in the methods used to estimate seabird flight heights from their images (this was new information which came to light during the survey period). It was therefore necessary to

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	The assessments do not consider the CRM predictions from the Band Option 1 outputs, only those for Option 2.		use the flight height data presented by the BTO (Johnston et al. 2014), calculated from a very large dataset, in conjunction with option 2 of the Band collision model. As requested by Natural England, option 1 results were also presented in the Norfolk Boreas technical appendix, however for the reasons outlined above (and agreed with Natural England during a call between the Applicant and Natural England on the 10 <sup>th</sup> September 2019) these have not been used in the assessment, and this position remains unchanged.
11	It is not currently possible to ascertain no adverse effect on integrity on features of the Alde-Ore SPA, FFC SPA, and Greater Wash SPA.  The EIA information is insufficient.	RR-099 <i>(Table 5.2 – 7)</i>	The Applicant notes Natural England's overarching comments on this matter, however the Applicant considers that sufficient information was presented and that on this basis it is possible to conclude there will be no adverse effects on the integrity of any of these SPAs. More detailed responses are provided to the specific points made in the rows below.
12	Applicants approach to cumulative RTD displacement impacts (to Greater Wash SPA).	RR-099 <i>(Table 5.2 – 7)</i>	The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination. This includes presentation of the 'like for like' approach advised by Natural England. However, the Applicant disagrees that the submitted assessment used an inappropriate approach. This comment from Natural England was in relation to wind farms installed before 2012 being identified as 'part of the baseline' (Table 13.41 of the ES, APP-226). However, it is important to note that all wind farms (i.e. including those constructed before 2012) were in fact considered in the subsequent assessment (e.g. Table 13.42 of APP-226).
13	EIA and HRA level of information provided.	RR-099 <i>(Table 5.2 – 8)</i>	The Applicant notes Natural England's overarching comments in relation to the population modelling on this matter. Responses are provided to the specific points in the rows below.

Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
14	Population Viability Analysis (PVA) models.	RR-099 <i>(Table 5.2 – 9)</i>	The Applicant notes Natural England's comments on this matter. The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination. Updated PVA will also be provided and the PVA model recommended by Natural England has been used (noting that this model was not available at the time of the original assessment).
15	Conclusion of impacts and effects at the end of the Norfolk Vanguard examination.	RR-099 <i>(Table 5.2 – 10)</i>	The Applicant notes Natural England's comments on this matter. However, it should also be noted that the Applicant considered that it was possible to conclude there would be no adverse effects on integrity due to these in-combination impacts.
16	Recommendation of raising turbine draught height.	RR-099 <i>(Table 5.2 – 10)</i>	The Applicant notes Natural England's comments on this matter. Embedded mitigation has already been incorporated in the Norfolk Boreas project design, since the option to build the wind farm using a 9MW wind turbine was removed from the project design at the same time as this was removed from the design for Norfolk Vanguard, which reduced collision impacts by 10%. Additional mitigation measures are being considered by the Applicant and any options identified will be presented to Natural England for discussion.
17	HRA conclusions set out in the In Principle Monitoring Plan for Offshore Ornithology.	RR-099 <i>(Table 5.2 – 11)</i>	The Applicant notes Natural England's comments on this matter and deals with the detailed points below. However, the Applicant's overarching response, which corresponds with that agreed with Natural England in the Norfolk Vanguard Statement of Common Ground, is that the proposed monitoring, which will be developed through the Ornithological Monitoring Plan in accordance with the Offshore In Principle Monitoring Plan (document 8.12, APP-703), will: <ul style="list-style-type: none"> <li>• Aim to reduce uncertainty for future impact assessment and address knowledge gaps. To this end, Norfolk Boreas Limited will engage with stakeholders and the</li> </ul>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>methodology would be developed through the Ornithological Monitoring Plan (required under Condition 14(1)(l) of the Generation DMLs (Schedule 9 and 10 of the DCO)). As for marine mammals (section 4.5 of the IPMP), there may be little purpose or advantage in any site specific monitoring for offshore ornithology and therefore a strategic approach may be more appropriate in providing answers to specific questions where significant environmental impacts have been identified at a cumulative/in-combination level.</p> <ul style="list-style-type: none"> <li>Consider options for validation of key predictions within the ES regarding impact levels, including collision risks (e.g. improvements to modelling, options for mitigation and reduction), displacement (e.g. understanding the consequences of displacement) and improving reference population estimates and understanding of colony connectivity.</li> </ul>
18	Apportioning of 26.1% of kittiwake collisions in the breeding season to the Flamborough and Filey Coast (FFC) SPA	RR-099 <i>(Appendix 1 - 1)</i>	The Applicant notes Natural England's overarching comments on this matter, but considers that sufficient information was presented and that on this basis it is possible to conclude there will be no adverse effects on the integrity of this SPA. The Applicant has held discussions with Natural England on this matter and additional assessment will be submitted during the Examination which addresses this request.
19	Tracking data from 2017 indicate that birds from the FFC SPA do forage within the Boreas site	RR-099 <i>(Appendix 1 - 1)</i>	The Applicant notes Natural England's comment on this matter but considers that it is also important to take into account other sources of information, as discussed in the ES and HRA.
20	Advise that assessments should be done using baseline mortality calculations using the adult colony figures and adult mortality rates.	RR-099 <i>(Appendix 1 - 2)</i>	The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination.



**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			Although the Applicant also notes that robust sub-adult survival rates are in fact available for gannet (the species is unusual in this respect among seabirds).
21	<p>RTD displacement assessment (EIA &amp; HRA)</p> <p>As definitive mortality rates for seabirds (including RTDs), are unknown we advise a range of figures for mortality rates of between 1% and 10% are considered.</p>	<p>RR-099</p> <p><i>(Appendix 1 – 4.1)</i></p>	<p>The Applicant notes Natural England's comments on this matter and also notes that the full range of outputs was presented in the assessment as requested.</p>
22	<p>Natural England disagrees that the RTD evidence review in MacArthur Green (2019a) indicates that the SNCB recommended buffer distance is highly precautionary for divers.</p>	<p>RR-099</p> <p><i>(Appendix 1 - 4.1)</i></p>	<p>The Applicant notes Natural England's comments on this matter, but would also like to draw attention to the results of the 2018 aerial surveys of the Outer Thames Estuary SPA (Irwin et al. 2019) which appear to show high densities around offshore wind farms within the range that Natural England suggests red-throated divers are displaced. It therefore would seem that the distances proposed by Natural England are on the high side of precautionary.</p> <p>The Applicant is well aware of the Petersen et al. (2014) report cited by Natural England, but also considers the views of the authors of that report have been misinterpreted by Natural England. Petersen et al. (2014) state that the statistical analysis suggested a possible maximum displacement of red-throated divers of up to 13 km, but they clearly also stated that in their opinion this was unlikely to represent a biological effect. Petersen et al. (2014) state that the evidence they present does not give a clear measure of red-throated diver displacement by Horns Rev OWF. In particular they state 'the causes for decreased densities [of red-throated divers] at distances of 10 km from the Horns Rev wind farm are unclear' and 'significant reductions in density in the north eastern parts of the study area are unlikely to be related to the presence of the wind</p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>farm'. The Applicant agrees with Petersen et al. (2014) in their interpretation, and does not agree with Natural England's suggestion that their study presents evidence of displacement of red-throated divers by an offshore wind farm over these large distances.</p> <p>The Applicant also notes that there are studies showing the opposite pattern to the frequently reported displacement of red-throated divers by offshore wind farms. For example, the report published by Natural England on the distribution of red-throated divers in relation to London Array OWF (APEM 2016) found that red-throated diver density increased within the wind farm post-construction to about the same level as present before construction, with no evidence of any displacement of red-throated divers over the buffer zone outside the wind farm during wind farm operation. The authors concluded 'preliminary results from the post-construction period suggest that divers recolonize the wind farm quickly after construction has ceased'. Consequently, the Applicant's proposal that 90% of red-throated divers may be displaced from operational wind farms is considered to be precautionary in view of the varied results seen at different offshore wind farm sites and the fact that in some cases there is little or no displacement. The Applicant does not agree with Natural England's suggestion that 100% of red-throated divers are displaced from the buffer zone up to 4 km from offshore wind farms.</p> <p>The Applicant fully understands Natural England's desire to be precautionary in terms of displacement distance, percentage displaced and percent mortality caused by displacement. However, the Applicant continues to believe that a mortality rate of over 1%, as a direct consequence of displacement, is highly improbable given that red-throated divers are regularly displaced on a frequent basis by ships (for example by regular ferry services to/from Scottish islands), and yet the total annual mortality of adult red-throated divers is only about 10% p.a. (the only peer-reviewed research into red-throated diver survival estimated annual adult mortality at only 8% p.a. (Schmutz 2014), but an unpublished preliminary study in Sweden reported in a newsletter</p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>suggested annual mortality of slightly over 10% per annum (Hemmingsson and Eriksson 2002)). For example, based on vantage point surveys, focal bird observations and ferry transects, in Orkney in winter, Jarrett et al. (2018) report data suggesting that red-throated divers wintering in Orkney waters are displaced by ferries, fishing boats and other vessels on average probably several times per week and possibly sometimes several times within a day, with 75% of red-throated divers taking off and flying out of the area when approached by a vessel, and 54% doing so when the vessel was still 200-300 m away from the bird. The suggestion that displacement results in an increase in mortality of as much as 1% for every individual displacement, does not sit comfortably with the empirical evidence of frequent displacement of red-throated divers and their total annual mortality despite this regular displacement being only around 10% per annum. The Applicant therefore considers Natural England's assessment of between 1% and 10% mortality of red-throated divers being caused by displacement by cable-laying vessels to be extremely precautionary, even at the lower end of that precautionary range.</p> <p>References</p> <p>APEM 2016. Assessment of displacement impacts of offshore windfarms and other human activities on red-throated divers and alcids. Natural England Commissioned Report Number 227.</p> <p>Hemmingsson, E. and Eriksson, M.O.G. 2002. Wetlands International Diver Study Group Newsletter 4: 8-11.</p> <p>Jarrett, D., Cook, A.S.C.P., Woodward, I., Ross, K., Horswill, C., Dadam, D. and Humphreys, E.M. 2018. Short-term behavioural responses of wintering waterbirds to marine activity. <i>Scottish Marine and Freshwater Science</i> 9(7).</p>

Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			Schmutz, J.A.O. 2014. Survival of adult red-throated loons ( <i>Gavia stellata</i> ) may be linked to marine conditions. <i>Waterbirds</i> 37(S1): 118-124.
23	<p>Rate of 90% displacement and 1% mortality does not follow SNCB guidance (SNCBs 2017) for this species</p> <p>However, the range of impact figures produced by the Applicant covers the range recommended by Natural England.</p>	<p>RR-099</p> <p><i>(Appendix 1 - 4.1)</i></p>	The Applicant notes Natural England's comment on this matter and considers that an evidence based approach, using 90% displaced and 1% mortality, was taken in the assessment.
24	<p>For HRA for the Greater Wash SPA under the worst case scenario of 100% displacement and 10% mortality</p> <ul style="list-style-type: none"> <li>At this level, the predicted mortality is not insignificant and may not result in any<sup>1</sup> adverse effect on site integrity.</li> <li>We recommend that Norfolk Boreas consider mitigation options for RTD disturbance from offshore cable route laying, such as avoiding or reducing cable laying activities</li> </ul>	<p>RR-099</p> <p><i>(Appendix 1 - 4.1)</i></p>	In acknowledgement of Natural England's concerns, the mitigation adopted for Norfolk Vanguard will also be adopted for Norfolk Boreas (see response in row 6 of this table).

<sup>1</sup> This comment contained a mistake: 'Therefore, at this level, the predicted mortality is not insignificant and may not result in **any** adverse effect on site integrity.' The highlighted word 'any' should have been 'no' (confirmed by email from Natural England on 13th September 2019). The error has been corrected in the table.

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	during the non-breeding season/period of peak RTD numbers.		
25	<p>Commitments to reduce disturbance from operations and maintenance vessels.</p> <p>Inclusion of commitment in paragraphs 335 and 359 of the Report to Inform HRA to engage with Natural England to agree the terms of these vessel management measures in the final DCO.</p>	<p>RR-099 <i>(Appendix 1 - 4.1)</i></p>	<p>The Applicant welcomes Natural England's comments on this matter and confirms that these will be included in the next draft DCO and the relevant DMLs to be submitted.</p>
26	<p>Auk (razorbill and guillemot) displacement assessment ranges (EIA &amp; HRA)</p>	<p>RR-099 <i>(Appendix 1 - 4.1)</i></p>	<p>The Applicant notes Natural England's clarification on this matter and also highlights that the Applicant's preferred rates lie within the range advised by Natural England, which was provided in the original submission.</p> <p>Furthermore, the Applicant welcome Natural England's statement that mortality rates associated with displacement of auks are 'likely to be at the low end of this range' [1% to 10%], and therefore that mortality estimates based on a suggested 10% death rate of displaced auks will greatly overestimate likely impacts, perhaps by a factor of as much as ten. However, unlike Natural England, the Applicant still remains convinced by the evidence that displacement is unlikely to cause mortality of as much as 1% of displaced auks. Natural England state 'We also noted that the evidence review produced by the Vanguard Applicant (in their auk displacement update submitted at Deadline 1 of the examination) did not provide much support to their assertion that a 1% mortality rate is sufficiently precautionary.' The Applicant disagrees with this opinion. The review provided several carefully presented lines of evidence to suggest that it is highly unlikely</p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>that displacement of auks increases mortality by as much as 1%. In particular, the fact that displacement would only have a negligible influence on the density of auks at sea throughout the unaffected parts of the North Sea, so that any density-dependent effect of increased competition for food would be negligible at the North Sea scale of suitable habitat for auk survival. In contrast, there was absolutely no evidence whatsoever that displacement would be likely to cause mortality rates in excess of 1% either in auks, or in any comparable scenarios with other similar bird species. The Applicant agrees that there is no scientific 'proof' that auk mortality due to displacement will be less than 1%, but considers that the large amount of scientific evidence relevant to this question all supports the view that induced mortality caused by displacement is very unlikely to exceed 1%.</p>
27	<p><b>Parameters for the CRM</b></p> <p>Lower range of predictions for the lower 95% CI of the PCH for gannet - we suggest that the Applicant checks the calculation of 0 collisions.</p>	<p>RR-099 <i>(Appendix 1 – 5)</i></p>	<p>The Applicant notes this comment from Natural England. The gannet estimates have been updated to correct for this error in the updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination.</p>
28	<p><b>Nocturnal activity factors (NAFs)</b></p> <p>Uncertainty about the empirical activity levels and uncertainty about how these might translate into nocturnal factors applicable to the Band model</p>	<p>RR-099 <i>(Appendix 1 – 5)</i></p>	<p>The Applicant notes Natural England's comments on this matter. The Applicant considers that the empirically derived nocturnal activity rates, both published in the peer reviewed literature (e.g. Furness et al. 2018) and presented in reviews submitted for wind farm assessments (e.g. East Anglia THREE and Hornsea Project 3) represent a considerable improvement over the previous values, which were based on rather little evidence and were also used inappropriately since they were intended to indicate relative nocturnal activity levels between species, not absolute ones.</p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
29	<b>Nocturnal activity factors (NAFs)</b> Natural England advises that collision risk outputs covering a range of nocturnal activity factors are considered to account for the uncertainty/variability.	RR-099 <i>(Appendix 1 – 5)</i>	The Applicant notes Natural England's comments on this matter. Collision outputs were provided in the assessment (APP-201 and APP-226) using a range of nocturnal activity factors as requested by Natural England.
30	Table 2 of Annex 3 (%PCH for each species).	RR-099 <i>(Appendix 1 - 5)</i>	This was an error in the text. As is stated elsewhere in the assessment (Offshore Ornithology Technical Appendix 13, Annex 13.3 Collision Risk Modelling input parameters) the Norfolk Boreas survey data were used for this calculation.
31	General comments applicable to both displacement and collision risk regarding uncertainty, baseline data and cumulative / in-combination effects.	RR-099 <i>(Appendix 1 - 6.1)</i>	The Applicant will provide an updated assessment to Natural England as requested (this will also be submitted as part of the Examination), with cumulative and in-combination totals presented both including and excluding Hornsea Project 3, using the figures for the latter project advised by Natural England for use in the Norfolk Vanguard assessment (see Natural England submission for Hornsea Project 3 at Deadline 7) and confirmed in an email received from Natural England on 9 <sup>th</sup> October 2019. Natural England also suggested that an alternative option would be delaying inclusion of the Hornsea Project Three figures until the extended consultation for the latter project has concluded and an updated position from Natural England is available (expected early 2020), although Natural England acknowledged that this was complicated by the progression of the Norfolk Boreas Examination.
32	Cumulative and in-combination assessments - further updates required during the examination process.	RR-099 <i>(Appendix 1 - 6.1)</i>	Estimates from the final submissions for East Anglia ONE North and East Anglia TWO have now been included in the updated assessment (which will be provided to Natural England for review and will be submitted as part of the Examination), replacing the PEIR values used previously. However, Hornsea Project Four is still only included on the basis of the PEIR figures as this project has not yet submitted final estimates.

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
33	Inability to rule out a significant adverse effect for cumulative operational displacement on razorbill or guillemot at the EIA scale at Vanguard.	RR-099 <i>(Appendix 1 - 6.1)</i>	The Applicant notes Natural England's comments on this matter. However, the Applicant was not in agreement with Natural England and considered that it could be concluded that there would be no adverse effects on integrity on any of the SPAs with potential connectivity to the site.
34	Previously able to rule out adverse effect on integrity of the FFC SPA due to in-combination operational displacement on the razorbill and guillemot features, when Hornsea 3 was not included in the in-combination total.	RR-099 <i>(Appendix 1 - 6.1)</i>	The Applicant notes Natural England's comments on this matter. The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination, which presents cumulative and in-combination totals both with and without Hornsea Project 3 as requested.
35	Clarification request regarding collision risk figures used for Vanguard in the assessments.	RR-099 <i>(Appendix 1 - 6.1)</i>	The figures for Norfolk Vanguard presented in the original Norfolk Boreas application did not account for all the levels of mitigation which were included for Norfolk Vanguard by the close of the Examination. The figures for Norfolk Vanguard have been reviewed against the final figures (as submitted at Deadline 7.5; ExA; AS;10.D7.5.2_Deterministic CRM revised layout and draught height) and updated as necessary. The updates will be provided in the updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination.
36	Suggest that the figures included in the assessments for the Hornsea 3 project are those from our Deadline 7 response (Natural England 2019).	RR-099 <i>(Appendix 1 - 6.1)</i>	The Applicant notes Natural England's comments on this matter. The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination, this presents cumulative and in-combination totals both with and without Hornsea Project 3 as requested.



**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
37	<p>Approach used to conduct in combination assessments for OWFs</p> <p>Natural England also does not consider it is appropriate to apply the 30% calculated by Boreas to apportion figures from the other OWFs within 141km of the Alde-Ore during the breeding season.</p>	<p>RR-099 <i>(Appendix 1 - 6.1)</i></p>	<p>The Applicant notes this point and further consideration of this will be provided in the updated assessment submitted to Natural England. The Applicant is also keen to engage with Natural England on this matter to further discuss appropriate assessment for this SPA species. However, in the meantime, the Applicant considers that the estimate of the regional population size present in the breeding season (i.e. taking into account urban populations) is a robust basis for this assessment in terms of the proportion likely to originate from the Alde Ore Estuary SPA, and that this is equally applicable to Norfolk Boreas and the other wind farms included in the in-combination assessment.</p>
38	<p>At Vanguard, Natural England was unable to rule out a significant adverse effect for cumulative operational collision impacts on gannet, kittiwake or GBBG.</p> <p>Additionally unable to previously rule out adverse effect on integrity due to in-combination collision risk on the LBBG feature of the Alde-Ore Estuary SPA or the kittiwake feature of the FCC SPA.</p>	<p>RR-099 <i>(Appendix 1 - 6.1)</i></p>	<p>The Applicant notes Natural England's comments on this matter, However it is also noted that the Norfolk Vanguard Applicant was not in agreement with Natural England on this matter and was able to conclude no significant impacts or adverse effects on integrity on the Alde-Ore Estuary SPA and the kittiwake feature of the FCC SPA.</p>
39	<p>Natural England were able to rule out adverse effect on integrity of the FCC SPA due to in-combination operational displacement plus collision impacts on the gannet feature of the site when</p>	<p>RR-099 <i>(Appendix 1 - 6.1)</i></p>	<p>The Applicant notes Natural England's comments on this matter. The updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination presents cumulative and in-combination totals both with and without Hornsea Project 3 as requested.</p>

Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Hornsea 3 was not included in the in-combination total.		
40	RTD cumulative operational displacement assessment.	RR-099 <i>(Appendix 1 - 6.2)</i>	The Applicant notes this comment, however while wind farms constructed prior to 2012 were labelled as being part of the 'baseline' in Table 13.41 of the offshore ornithology assessment, in fact all wind farms for which data were obtained (i.e. including pre 2012 ones) were included in the CIA, so the results remain valid. Data for the recently submitted East Anglia ONE North and East Anglia TWO wind farms have also been included in the updated assessment that will be submitted to Natural England for review and will be submitted as part of the Examination
41	Cumulative RTD operational displacement mortality, inclusion of estimated displacement for other wider region projects.  Use of like for like approach.	RR-099 <i>(Appendix 1 - 6.2)</i>	The Applicant disagrees with Natural England's statement that the assessment is a 'massive under-estimate' of the level of displacement, and has presented evidence in support of this position. Nevertheless, the Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination using the 'like for like' approach Natural England has requested. As noted in row 22 the approach taken by the Applicant was based on a review of available evidence and is considered to be appropriate and precautionary.
42	Previously, Natural England were unable to rule out a significant adverse effect for cumulative operational displacement on RTD at the EIA scale.	RR-099 <i>(Appendix 1 - 6.2)</i>	The Applicant notes Natural England's comments on this matter, however it is also noted that the Norfolk Vanguard Applicant was not in agreement with Natural England on this matter and was able to conclude there would be no significant impacts or adverse effects on integrity.

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
43	Summing predicted mortalities, may result in double counting, which will incorporate a degree of precaution.	RR-099 <i>(Appendix 1 - 7)</i>	The Applicant notes Natural England's comments on this matter which is considered to represent an example of Natural England's over precautionary approach to assessment. While the Applicant is in agreement that precaution is sensible when impacts are subject to a degree of uncertainty (as is the case with aspects of offshore wind farm impacts on seabirds), the Applicant remains concerned that different sources of precaution are being combined without proper consideration for the extremely small probability that these individually rare events could actually occur together. Thus, two or more highly unlikely events (e.g. upper 95% confidence estimates) are being combined in a manner which means the final outcomes, presented as precautionary, are in fact highly unlikely and hence highly over-precautionary.
44	PVA models: significance of the predicted in-combination collision impacts.	RR-099 <i>(Appendix 1 - 8)</i>	The Applicant notes Natural England's comments on this matter.  The Applicant has undertaken an updated assessment which will be provided to Natural England for review and will be submitted as part of the Examination. This document includes the updated PVA outputs for the EIA gannet, kittiwake and great black-backed gull derived following Natural England's advice on this matter.
45	Concerns regarding predicted level of cumulative and in-combination impacts on North Sea seabirds.	RR-099 <i>(Appendix 1 – 9)</i>	The Applicant notes Natural England's comments on this matter, however the Applicant was able to rule out significant impacts for the project alone, cumulatively and adverse effects on integrity for the project alone and in-combination.
46	Three further offshore wind farm NSIPs are due to be submitted to PINS in the next twelve months (East Anglia One North, East Anglia Two, Hornsea Four).	RR-099 <i>(Appendix 1 – 9)</i>	The Applicant notes Natural England's comments on this matter, however the Applicant was able to reach conclusion that the impacts would not be significant. Furthermore, the final assessment estimates for the East Anglia ONE North and East Anglia TWO wind farms have been included in the updated assessment that will be submitted to Natural England for review and will be submitted as part of the Examination. and the Applicant

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Natural England therefore considers that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on seabird populations.		has remained able to conclude that there will be no significant cumulative or in-combination impacts.  Nevertheless, consideration is being given to additional mitigation options designed to further reduce predicted impacts where possible.
47	Natural England therefore recommends that the Boreas Applicant (and all relevant future projects located in the North Sea) considers raising turbine draught height, as has been done by other projects (e.g. Hornsea 2, East Anglia 3 and Vanguard), in order to minimise their contribution to the cumulative/in-combination collision totals by as much as is possible.	RR-099 <i>(Appendix 1 – 9)</i>	The Applicant notes Natural England's comments on this matter. The Applicant is giving consideration to additional mitigation options designed to further reduce predicted impacts where possible.
48	Whilst some methodological concerns remain, progress towards resolving a number of issues was made during the pre-application discussions for this project, and the examination of its sister project, Norfolk Vanguard.  However, we continue to have significant concerns relating to project's alone, in-	RR-054	The Applicant acknowledges the RSPB's comments on the assessment and the consultation which has taken place to date and is grateful for the advice and comments received. The Applicant is keen to maintain engagement with the RSPB and will continue attempting to address their concerns.

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	combination and cumulative collision risk and displacement impacts.		
49	Significant impacts / adverse effects on integrity of designated sites either alone or in-combination with other plans or projects.	RR-054	<p>The Applicant acknowledges the RSPB's position on these matters. However, the Applicant strongly disagrees with the RSPB's statement that Norfolk Boreas will have significant impacts or adverse effects on integrity of designated sites either alone or in-combination with other plans or projects and therefore does not consider that it is necessary to follow the steps suggested. The assessment presented a robust basis on which the Applicant was able to conclude that there would not be any significant project alone or cumulative impacts on seabirds and there would be no adverse effects on the integrity of any designated sites as a result of the project alone or in-combination. This assessment has been updated to address comments made by Natural England in their Relevant Representation (REP-099), that will be submitted to Natural England for review and will be submitted as part of the Examination, reaches the same conclusions that there will be no significant impacts or adverse effects.</p> <p>It is also important to note that for Norfolk Vanguard, Natural England did not conclude that there would be Adverse Effects on Integrity for any species or SPA, but rather that in a few instances these could not be ruled out (due in several cases to the unknown magnitude, in Natural England's view, of the impacts at Hornsea Project Three).</p> <p>The Applicant does not agree that insufficient evidence has been presented in the assessment to support ruling out significant impacts on the named North Sea populations. Nevertheless, the Applicant would also like to note that the updated assessment mentioned above will provide further support for the conclusions of non-significant impacts for the project alone and cumulatively and for no adverse effects on the integrity of designated populations due to the project alone or in-combination with</p>

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			other wind farms, as presented in the original assessment (document 5.3, APP-201 and document 6.1.13, APP-226).
50	<p><b>Concerns regarding the assessment of collision risk</b></p> <p>Apportioning of kittiwake collision mortality to FFC SPA.</p>	RR-054	The Applicant notes the RSPB's position with regard to this matter, however for the reasons set out in the assessment (e.g. the behavioural responses on tagged individuals) the Applicant considers that questions remain about the representativeness of the GPS tag data referred to by the RSPB. Nevertheless, in response to the request for consideration of higher levels of breeding season apportioning made by the RSPB (and Natural England) updated assessment has been undertaken and will be submitted as part of the Examination.
51	<p><b>Kittiwake tracking data</b></p> <p>Applicants issues regarding suitability of tracking data obtained as part of the FAME and STAR projects for use in the assessment.</p> <p>The Applicant's report contains a number of misinterpretations and erroneous assertions.</p>	RR-054	The Applicant notes the RSPB's comments with respect to the tracking data. However, the Applicant is not in agreement with the RSPB's assertions regarding the statements made in the assessment. The RSPB suggests there is no relationship between trip length and breeding success, however this is not correct: trip length and duration appear to be a response to lower prey abundances which also result in reduced breeding success. It is acknowledged that this is not always the case, but it is incorrect to state that this relationship has not been observed. The Applicant did not, as the RSPB indicates, state that tagged birds were more likely to be failed breeders. The Applicant actually repeated the information in the RSPB reporting which stated that there was no apparent effect of tagging, however the areas of the colony from which birds were caught were also those where breeding success was lower (e.g. the lower edge). Therefore the tagged birds will have been drawn from generally lower quality birds and the key aspect of this is that these may therefore not represent the foraging activity (e.g. trip length and duration) for other birds within the colonies. It is also incorrect to state that failed breeders cannot be retrapped (to retrieve the tags) as these birds often return to their nest location. While the use of lighter tags, as noted by the RSPB, is welcomed, these do not rule out the

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			possibility of tagged birds behaving differently from untagged birds, and therefore the potential that these birds do not represent the colony as a whole remains.
52	<p><b>Gannet avoidance rate</b></p> <p>Whilst the RSPB accepts the SNCBs' recommended amendment to the gannet avoidance rate (AR) from 98% to 98.9% for non-breeding birds, we do not agree that this figure should be applied to the breeding season due to the lack of available evidence relating to breeding birds.</p> <p>Recommend a more precautionary AR of 98% for the breeding season.</p>	RR-054	The Applicant notes the RSPB's position with regard to this matter, however the Applicant has followed Natural England advice for this model parameter value and used the industry standard avoidance rates for all species. To the best of the Applicant's knowledge there is no evidence for any species that avoidance behaviour varies at different times of year as suggested by the RSPB. Therefore, while it is true that most observations have been made outside the breeding season, the Applicant is not aware of any evidence that suggests that these observations do not provide a robust guide to the situation at other times of year.
53	<p><b>Lack of assessment of breeding seabird assemblage feature of FFC SPA</b></p> <p>Potential impacts on the breeding seabird assemblage feature of FFC SPA have not been assessed, noting that Natural England advised that this should have been assessed for Norfolk Vanguard and concluded that AEOI cannot be ruled out.</p>	RR-054	The Applicant acknowledges the RSPB's point with respect to the seabird assemblage, however this is currently a component of assessment for which no methodology has been proposed (for example, it is not possible to consider changes in mortality rates for an assemblage consisting of different species). Furthermore, four of the assemblage species have been assessed in their own rights (gannet, kittiwake, razorbill, guillemot) and the remaining species either have very low or negligible connectivity (shag, cormorant, herring gull), no impact pathway (fulmar), very low abundance on the wind farm (puffin), or in most cases a combination of these. Therefore, any potential impacts on the assemblage have already been considered through the individual species assessments. Following further discussion with Natural England on this matter, the Applicant has been advised to provide discussion of these points and how these can be

**Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			related to assessment of the assemblage. This will be included in the updated assessment to be provided to Natural England for review and will be submitted as part of the Examination.
54	<p><b>Consented capacity of windfarms</b></p> <p>Where windfarms still have their original DCOs and therefore the ability to construct more wind turbines, it is not appropriate to do anything less than consider the full extent of those DCOs when considering in-combination/cumulative effects.</p>	RR-054	The Applicant notes the RSPB's position on this matter follows the strict theoretical status of constructed wind farms. However, there are several reasons why this overstates the reality of potential seabird impacts. While there may be a theoretical possibility for additional turbines to be installed (within the confines of the project consent), this would almost certainly require additional consent for construction (as this would most likely fall outside the scope of the consented construction limits) and does not allow for the fact that in most cases turbines are distributed across the full extent of the site's lease boundary with strict turbine separation requirements (due to wind wake effects) which would not allow infilling of turbines. In addition, once a wind farm has constructed up to its generating capacity there would be no option to install additional turbines as no more power could be exported. For these reasons the Applicant considers it to be sensible to highlight this source of over-precaution in the assessment.
55	<p><b>Mitigation of collision risk through raising turbine draught height</b></p> <p>The RSPB recommends that mitigation is provided through raising the turbine draught height for the purposes of reducing the project's collision risk when considered alone, and its contribution to in-combination collision risk. We therefore request that collision risk to</p>	RR-054	The Applicant notes the RSPB's position on this matter. The Applicant is giving consideration to additional mitigation options designed to further reduce predicted impacts where possible.



Table 8 Applicant responses to Relevant Representations in relation to Offshore Ornithology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	key species for height rises up to and including 35m are modelled.		
56	<p><b>Resource Limitations</b></p> <p>RSPB regrets that it may not be able to attend the issue specific hearings covering ornithological impacts, mitigation and conditions, but will confirm this with the Examining Authority once dates and agendas are available.</p>	RR-054	The Applicant notes the RSPB's position on this matter and hopes that it remains possible to engage in constructive discussions with the RSPB during the examination process.

## 1.9 Commercial Fisheries

Table 9 Applicant responses to Relevant Representations in relation to Commercial Fisheries

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Impacts on Commercial Fisheries, Norfolk	RR-037, RR-110	Mitigation proposed in respect of commercial fisheries is set out in ES Chapter 14 Commercial Fisheries (document 6.1.14, APP-227). As addressed in the Statement of Common Ground with NCC, where there is likely to be a demonstrable impact (i.e. during: construction; operation and/or decommissioning) on commercial fishing affecting communities in Norfolk, individual agreements will be reached as necessary, with any agreements based on evidence and track record and in accordance with FLOWW Best Practice Guidance for Offshore Renewables Developments.
2	National Federation of Fishermen's Organisations (NFFO) intent on pursuing a statement of common ground with the Applicant.	RR-008	Noted. A consultation meeting was held between the Applicant and the NFFO on 12 <sup>th</sup> September 2019 to discuss the approach to the SoCG. NFFO expressed their intention to pursue a SoCG jointly with VisNed. A draft SoCG or position statement (to be confirmed) between the Applicant and NFFO and VisNed will be submitted at Deadline 2. Consultation between the Applicant and NFFO is on-going. Furthermore an outline of Norfolk Boreas Limited's approach to fisheries liaison and co-existence has been provided in the Outline Fisheries Liaison and Co-existence Plan (document 8.19, APP-710).
3	Impacts from wind farm projects on fishing offshore. Caister Fishermen's Association.	RR-091	The Applicant notes Caister Fishermen Association's concerns with regards to existing offshore wind farm projects off Caister.
4	Impacts of pile driving on fish in the Caister fishing area.	RR-091	As described in ES Chapter 11 Fish and Shellfish Ecology (document 6.1.11, APP-224a), a number of embedded mitigation measures have been incorporated as part of the design envelope to minimise the impacts of the project. These include the use of a soft start and ramp-up protocol for pile driving to enable mobile species to move away from the area of the highest noise impacts during foundation installation. In

**Table 9 Applicant responses to Relevant Representations in relation to Commercial Fisheries**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>the context of Norfolk Boreas, it is important to note that given the offshore location of the Norfolk Boreas site there is no potential for underwater noise associated with piling at the project to result in lethal/sub-lethal impacts on fish and shellfish in the areas targeted by Caister fishermen (i.e. within the 12 nm limit). The Applicant is not aware of the existence of any evidence to suggest that the nature of pulse beam trawling (which uses electric pulses) and its effects on fish may be similar or comparable to piling noise. A detailed assessment of the potential impact of Norfolk Boreas on the characteristics of the seabed is included in ES Chapter 8 Marine Geology, Oceanography and Physical Processes (document 6.1.11, APP 221). ES Chapter 8 identified either no impacts or impacts of negligible significance with regard to potential changes to the tidal, wave and sedimentary regime as a result of the operational phase of Norfolk Boreas.</p>
5	Installation of Cables <ul style="list-style-type: none"> <li>Impact on bottom feeding fish food supply</li> </ul>	RR-091	<p>A detailed assessment of the potential impact of the project on water and sediment quality is included within ES Chapter 9 Marine Water and Sediment Quality (document 6.1.9, APP-222). As described in ES Chapter 9, the available sediment data indicate that there is very little sediment contamination within the offshore project area, including in areas relevant to the export cable corridor. As such, detrimental impacts on fish and shellfish populations as a result of contaminated sediment are not expected as a result of the project.</p>
6	Increased marine traffic <ul style="list-style-type: none"> <li>Navigational conflict</li> </ul>	RR-091	<p>Due consideration has been given in ES Chapter 14 Commercial Fisheries (document 6.1.14, APP-227) to the potential for the construction/decommissioning and operational phase of the project to result in interference with fishing activities as a result of navigational conflict with construction/maintenance vessels.</p> <p>As described in ES Chapter 14, appropriate liaison will be undertaken with fisheries stakeholders to ensure that they are informed of the project development activities. This will include provisions for enabling awareness of construction/maintenance vessels' crews of the locations of static gears and fishermen's awareness of construction/maintenance vessel transit routes. Furthermore, as noted in the Outline</p>

**Table 9 Applicant responses to Relevant Representations in relation to Commercial Fisheries**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			Fisheries Liaison and Co-Existence Plan (document 8.19, APP-710) provisions will be made for the development of a Code of Good Practice for contracted vessels as well as procedures for claims of loss or damage of fishing gear.
7	<p>Impact on Dutch demersal fisheries</p> <ul style="list-style-type: none"> <li>• loss of fishing grounds</li> <li>• cumulative impacts with other projects</li> </ul>	RR-113	<p>Due consideration has been given in ES Chapter 14 Commercial Fisheries (document 6.1.14, APP-227) to the potential impact of the project on the Dutch fleet. The assessment presented in ES Chapter 14 includes consideration of the potential loss of/access to fishing grounds to the Dutch fleet associated with the construction/decommissioning and operation of the project. Similarly, the assessment presented in Chapter 14 takes account of the potential impact of the project cumulatively with other projects/activities. Consideration has also been given in ES Chapter 14 to the potential impacts of the project on static gear fisheries, including issues associated with the potential need for the relocation of static gear. An outline of the Applicant's approach to fisheries liaison and co-existence is included within the Outline Fisheries Liaison and Co-existence Plan (document 8.19, APP- 710). This includes considerations with regards to minimising snagging risk and providing response procedures for the safe recovery of lost or snagged fishing gear, post-lay surveys and cable monitoring, the use of guard vessels as well as ensuring timely and effective communications with the fishing industry. A consultation meeting was held between the Applicant and VisNed on 11th September 2019 to discuss project updates, an indicative examination programme and the approach to the SoCG. VisNed expressed their intention to pursue a SoCG jointly with NFFO. A draft SoCG (or position statement (to be confirmed)) between the Applicant and VisNed and NFFO will be submitted at Deadline 1. Consultation between the Applicant and VisNed is on-going.</p>

## 1.10 Shipping and Navigation

**Table 10 Applicant responses to Relevant Representations in relation to Shipping and Navigation**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Trinity House is the General Lighthouse Authority for England, Wales, the Channel Islands and Gibraltar with powers principally derived from the Merchant Shipping Act 1995 (as amended).	RR-002	The Applicant is currently engaging with the Cooperation of Trinity House with regards to the Statement of Common Ground (SoCG) and will continue this liaison throughout the Examination Process. If required, additional consultation meetings will be held.
2	The MCA's remit for offshore renewable energy development is to ensure that safety of navigation is preserved and the UK's search and rescue capability is maintained whilst progress is made towards government targets for renewable energy.	RR-007	The Applicant is currently engaging with the Maritime Coastguard Agency on the Statement of Common Ground (SoCG); the SoCG will detail how the Applicant meets the relevant requirements from Marine Guidance Note (MGN) 543. The Applicant will continue this liaison throughout the Examination Process and, if required additional consultation meetings will be held.

**Table 10 Applicant responses to Relevant Representations in relation to Shipping and Navigation**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
3	Operational Safety zone application	RR-085	<p>The Applicant welcomes the Statement of Common Ground (SoCG) completed with the Royal Yachting Association. This addresses the concerns raised in the RYA's representation as follows:</p> <ol style="list-style-type: none"> <li>1). The Applicant will submit an application for safety zones of up to 500 metres (m) during construction, major maintenance and decommissioning phases; and 50m pre-commissioning - no operational safety zones are proposed.</li> <li>2). The Applicant will complete a cable burial risk assessment. This will include assessment of any reductions in water depth arising from the implementation of cable protection (as per Marine Guidance Note 543).</li> </ol> <p>The Applicant will continue to liaise with the RYA directly should any further questions arise.</p>
4	The UK Chamber of Shipping is the primary trade association and representative body of the UK shipping industry	RR-030	<p>The Applicant welcomes the Statement of Common Ground (SoCG) completed with the Chamber of Shipping. The Applicant will continue to liaise with the Chamber of Shipping directly should any further questions arise.</p>

## 1.11 Aviation & Radar

**Table 11 Applicant responses to Relevant Representations in relation to Aviation & Radar**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Aviation warning lighting <ul style="list-style-type: none"> <li>Offshore turbines/ tall ancillary structures</li> </ul>	AS-013	The response has been noted and the Applicant and MOD have agreed the wording of Requirement 12 on Aviation Safety and Requirement 13 on MOD surveillance operations.

## 1.12 Offshore Archaeology

Table 12 Applicant responses to Relevant Representations in relation to Offshore Archaeology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	<p><b>Archaeological assessment</b></p> <p>Notification that a historic wreck site identified within the proposed project development boundary 'Xanthe' is now subject to consideration to determine whether this heritage asset has national importance.</p>	RR-022	<p>It is understood that two wrecks located within the proposed boundary of the export cable corridor - Xanthe and Seagull are currently under consideration by Historic England, on behalf of Secretary of State for Digital, Culture, Media and Sport, to determine whether they have national importance. Both wrecks were identified during the archaeological assessment of geophysical survey data undertaken for the Norfolk Boreas EIA, and Archaeological Exclusion Zones (AEZs) for both have been recommended as part of the embedded mitigation for Norfolk Boreas to ensure that all impacts to the wrecks are avoided. The extent of these AEZs will be a matter for consideration as part of ongoing consultation with Historic England and will reflect any considerations of national importance and any subsequent protected status which may be afforded to these wrecks by the Secretary of State.</p>
2	<p><b>Written Scheme of Investigation (WSI)</b></p> <p>Subsequent programmes for survey data acquisition, use of avoidance measures and analysis post-consent to be delivered in accordance with an archaeological</p>	RR-022	<p>An updated, final Offshore WSI, based upon the Outline WSI (DCO Document 8.6) will be developed in consultation with Historic England, post-consent to support the delivery of the agreed archaeological mitigation programme. This final WSI will be submitted at least four months prior to commencement of the licensed activities in accordance with the requirement for this set out in the draft Deemed Marine Licence, under DCO Schedules 9 and 10 condition 14(1)(h) and Schedules 11 and 12 condition 9(1)(h).</p>



Table 12 Applicant responses to Relevant Representations in relation to Offshore Archaeology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Written Scheme of Investigation (WSI).		
3	<b>Written Scheme of Investigation (WSI)</b>  Commitment to make data generated available in support of a strategic study.	RR-022	The final Offshore WSI will further confirm the commitment to delivery of archaeological analysis programmes, within defined time periods, to accepted professional standards with publication and access through public archives.

### 1.13 Infrastructure and Other Users

**Table 13 Applicant responses to Relevant Representations in relation to Infrastructure and Other Users**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
<p>1</p>	<p>Eni UK Limited holds offshore petroleum production licences in the vicinity of the proposed wind farm.</p> <p>We are keen to ensure our activities interface safely with those of Vattenfall, and that the siting of any wind farm infrastructure does not have a significant adverse impact on our ability to carry out those activities.</p>	<p>RR-063</p> <p>Noted. The Applicant will continue to liaise with Eni UK Limited to ensure that respective offshore activities are conducted safely where any interface occurs and that siting of infrastructure associated with the Applicant's development does not impact on the ability of Eni to conduct those activities</p>

## 1.14 Ground Conditions and Contamination

**Table 14 Applicant responses to Relevant Representations in relation to Ground Conditions and Contamination**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Impacts on the quality of surface waters fed by groundwater during construction	RR-095	<p>An assessment of potential impacts on the quality of surface water fed by groundwater during construction is presented in section 19.7.4.5 of ES Chapter 19. Targeted ground investigation have been undertaken within the onshore cable route at key crossing locations, these confirmed the presence of shallow groundwater in many areas along the onshore cable route. As such the assessment assumes that surface watercourses are in hydraulic connectivity with groundwater contained within superficial deposits throughout the study area. A Preliminary Conceptual Site Model has been developed and is included in ES Appendix 19.2 Land Quality Phase 1 Preliminary Risk Assessment (document 6.3.19.2, APP-583) which identifies potential sources of contamination, pathways by which the contaminant can cause harm and potential receptors and includes potential impacts to controlled waters.</p> <p>It is not possible to identify all locations where surface and groundwater systems are in hydraulic connectivity at this stage, and the assessment presented in the ES therefore assumes a worst case that surface and groundwaters are closely connected within the entire onshore cable route. More detailed ground investigations will be undertaken to inform the post-consent detailed design process to reduce the uncertainties associated with the Preliminary Conceptual Site Model. The ES identifies general mitigation measures which are sufficient to address the impacts associated with the worst case scenario. However, specific mitigation measures will be developed for each site following the ground investigation programme.</p>
2	Unlicensed water supplies	RR-095, RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079,	<p>It is acknowledged that groundwater receptors in the study area support abstractions for public and private water supply (both licensed and unlicensed and including shallow wells) which should be considered to have a high sensitivity unless information is collected to show mains water is available to a particular household and it is not the sole source of drinking water supply.</p> <p>Within the assessment in sections 19.7.4.3 and 19.7.4.4 in ES Chapter 19 Ground Conditions and Contamination (document 6.1.19, APP-232) the groundwater water receptors supporting water abstractions for public water supply is considered to have high vulnerability and high sensitivity.</p>

**Table 14 Applicant responses to Relevant Representations in relation to Ground Conditions and Contamination**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	As set out in section 20.07.4.3 of ES Chapter 20 Water Resources and Flood (document 6.1.20, APP-233) as groundwater receptors in the study area support abstractions for public water supply they are considered to have high vulnerability and have been assigned a high sensitivity and high value within the assessment.
3	Land Quality (contamination sources)	RR-095	<p>In addition to the information provided in section 19.6.1.4 of ES Chapter 19, details on Land Quality are presented in the Land Quality Phase 1 Preliminary Risk Assessment (PRA), Appendix 19.2 of the ES (document 6.3.19.2, APP-583). The PRA includes a preliminary conceptual site model which identifies potential pollutant linkages and provides information on potential sources of contamination, pathways by which the contaminant can cause harm and potential receptors.</p> <p>The PRA acknowledges that the current extent of contamination within the construction area is currently unknown, and recommends ground investigations and further assessments (including Human Health, Controlled Waters and Groundwater Risk Assessments) in the areas identified as having high risk prior to construction.</p>
4	Environment Agency piling guidance	RR-095	As detailed in section 19.7.4.4, paragraph 156, for all areas where piling works are proposed a piling risk assessment will be undertaken and discussed with the Environment Agency. The piling risk will be undertaken in accordance with guidance by the Environment Agency; 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention NC/99/73 (EA, 2001). This commitment will be captured within an update to the OCoCP.
5	Groundwater Abstractions	RR-095, RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062,	Within ES Chapter 19 Ground Conditions and Contamination (document 6.1.19, APP 232) section 19.7.4.3 assesses the potential impacts on groundwater quality in the principal aquifer, including Source Protection Zone (SPZ) areas and abstractions, as a result of shallow excavation construction activities. Mitigation measures will be adopted, such as ensuring cable excavations would be designed to minimise groundwater

**Table 14 Applicant responses to Relevant Representations in relation to Ground Conditions and Contamination**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	<p>disturbance and the use of best available techniques (BAT) in accordance with the Energy Network Association Guidance to minimise any potential impacts.</p> <p>The assessment has considered the location of all known groundwater abstractions. However, it is acknowledged that the data sets for unlicensed abstractions available from Broadland District Council, North Norfolk District Council and Breckland District Council are either unavailable, incomplete or insufficiently accurate to enable a detailed assessment of potential impacts on individual abstraction points to be undertaken prior to consent. However, the location of private water supplies within the construction area will be identified through discussions with affected landowners as part of the post-consent detailed design process. Suitable measures to mitigate impacts or compensate landowners will be identified at this stage.</p>
6	Request for Ground Investigation Reports	RR-095	A copy of the Terra Consult (2017) report were provided to the Environment Agency during the Norfolk Vanguard examination and appended to Norfolk Vanguard's Responses to the ExA's First Written Questions (Appendix 16.2 to- 16.7, Norfolk Vanguard reference REP1-023 to 028).
7	Onshore Substation (Potential Ground Contamination)	RR-109	<p>The Applicant received anecdotal information initially in Summer 2018 regarding reports of a plane crash within a few hundred metres of the proposed cable corridor. Further correspondence (late August and September 2018) was received from Breckland Council raising concerns regarding the potential presence of hydrazine fuel and radioactive materials at a site within this general area.</p> <p>The Applicant has set out the approach to assessing potential contaminated sites in the ES Chapter 19 Ground Conditions, which would be undertaken post-consent. The approach to assessment has been discussed and agreed with relevant stakeholders, for example the Environment Agency and Norfolk County Council, as part of the pre-application process, whereby expert topic groups were established to ensure that the assessments were being undertaken in a satisfactory way.</p> <p>The proposed mitigation provided in the Outline Code of Construction Practice (document 8.1, APP-692) includes a commitment to providing a written scheme for dealing with contamination of any land and</p>

**Table 14 Applicant responses to Relevant Representations in relation to Ground Conditions and Contamination**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>groundwater. The scheme will include site investigation at sites known to have a potential contamination risk, including the site of the plane crash. The written scheme will also set out protocols for dealing with any contamination, as required. These protocols will be set in place prior to construction to ensure that procedures are known and agreed with the Regulators should contaminated materials be encountered.</p> <p>This issue is also addressed in the SoCG with the Environment Agency.</p>

## 1.15 Water Resources and Flood Risk

Table 15 Applicant responses to Relevant Representations in relation to Water Resources and Flood Risk

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	River Wensum Restoration of the HDD compound within the River Wensum floodplain	RR-099	The River Wensum Restoration Strategy and River Wensum SAC conservation objectives will be reviewed during the development of the final Code of Construction Practice (CoCP) produced post-consent. In addition, where possible the HDD compound within the River Wensum floodplain will be restored to the current soil/ground moisture conditions so that water levels are similar to those pre-disturbance. The OCoCP will be updated to capture these points.
2	Watercourse Crossings Site specific water crossing plans to be produced in consultation with Natural England	RR-099, RR-095	As agreed during the Norfolk Vanguard examination, the Applicant will develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding sediment management and pollution, to be submitted to and approved by the relevant planning authority in consultation with Natural England. This is secured through Requirement 25 (Watercourse Crossings) of the DCO and this commitment will be captured within an update to the OCoCP.
3	Net Gain (watercourse restoration)	RR-099	<p>The Applicant will look to undertake localised improvements to geomorphology and in channel habitats where possible and details of reinstatement will be detailed within the site specific watercourse crossings plans post-consent. Any improvements will be restricted to within the DCO red line boundary, at locations disturbed by the proposed crossing activities.</p> <p>The proposals for net gain fall outside of the NSIP consenting regime. This is confirmed in the Government response to consultation dated July 2019, at page 5 as follows:</p> <p><i>"Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill."</i></p>

**Table 15 Applicant responses to Relevant Representations in relation to Water Resources and Flood Risk**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
4	Connections to water supply/public sewerage networks RR-090	<p>Any need for connections to the main water supply or public sewerage network during construction has not been identified but will be confirmed post-consent. The Applicant acknowledges the role of Anglian Water Services Ltd and the necessary application process for any connections required to the main water supply or public sewerage network.</p> <p>This is also addressed in the Statement of Common Ground with Anglian Water which will be submitted at deadline 2.</p>
5	Watercourse crossing consent RR-104, RR-037	<p>The position with regards to Land Drainage Consents is dealt with under the DCO pursuant to Article 7(3), Article 15, and Schedule 17, Part 7. It is governed in this way in order to include the appropriate measures within the control of the DCO itself. For instance, Article 7(3) provides for the disapplication of various additional consents which would otherwise be required from the Environment Agency, internal drainage boards or lead local flood authorities under the Water Resources Act 1991 and the Land Drainage Act 1991. The Order dis-applies this requirement for in-principle consent in order to ensure that the project can proceed and instead provides for approval of detailed plans in the protective provisions for the Environment Agency and the relevant drainage authorities in Schedule 17. Schedule 17, Part 7 provides control mechanisms to govern the interaction, such as the need for the Applicant to submit plans for approval prior to constructing the relevant works together with a process for the drainage authority to request further measures to safeguard flood defences and avoid damage to the watercourse, at the cost of the developer. In addition Requirement 25 of the DCO states that crossing, diversion and subsequent reinstatement of any designated main river or ordinary watercourse may not commence until a scheme and programme for any such crossing, diversion and reinstatement in that stage has been submitted to and, approved by the relevant planning authority in consultation with Norfolk County Council, the Environment Agency, relevant drainage authorities and Natural England.</p> <p>The Applicant therefore considers that necessary approvals are secured by the provisions within the dDCO. This follows the approach taken in the as-made Triton Knoll Electrical System Order 2016 and the draft Norfolk Vanguard Order [2019].</p>



**Table 15 Applicant responses to Relevant Representations in relation to Water Resources and Flood Risk**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
6	<p>Flooding and drainage</p> <p>The maximum land take areas for the construction of the project substation and National Grid substation extension and the permanent footprint of the substation extension have increased, which must be accounted for in any drainage calculations.</p>	<p>RR-037</p> <p>The maximum land take during construction for the onshore project substation and National Grid substation extension are unchanged, however the figures are presented differently in the ES than in the Preliminary Environmental Information Report. Previously the temporary works areas were shown separately to the operational footprints, however both areas would be used during construction, so to make this clear the ES shows the total 'maximum land take' which is these areas added together, rather than referring to the figures separately.</p> <p>In terms of the operational footprints for the National Grid extensions the worst case figures have increased very slightly as the figures have been rounded up i.e. Scenario 1 eastern extension 135m x 150m (formally 131m x 142m) and Scenario 2 western extension 200m x 150m (formally 199m x 142m). Any drainage calculations undertaken and included in the final Operational Drainage Plan, developed post-consent, will reflect the final design parameters and dimensions.</p>
7	<p>Watercourse crossing depths</p> <p>Clarification of minimum depths</p>	<p>RR-037</p> <p>At watercourse crossings the minimum depths below the bed level is dependent on the crossing methodology. As stated for trenched crossings, the minimum depth is 1.5m. However, at trenchless crossings this minimum depth is increased to 2m due to the requirements of the crossing method.</p>
8	<p>Increased risk of flooding at Necton/Ivy Todd</p>	<p>RR-038, RR-103, RR-109</p> <p>The Applicant has designed flood mitigation at the project substation site to ensure that there will be no negative impact on existing flood risk to the site, or surrounding areas. The onshore project substation and National Grid substation extension drainage strategy will be guided by the principle of Sustainable Urban Drainage Systems (SuDS).</p> <p>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 project.</p>

**Table 15 Applicant responses to Relevant Representations in relation to Water Resources and Flood Risk**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>The potential impacts associated with water resources and flood risk have been assessed in section 20.7 of Chapter 20 Water Resources and Flood Risk (document 6.1.20, APP-233).</p>
9	<p>Increase in surface run off of water from the haul road or the construction compounds</p> <p>Flood Risk</p>	<p>RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015</p>	<p>The Outline CoCP (document 8.1, APP-692) provides details of the principles of construction drainage, with an acknowledgement that a detailed Surface Water and Drainage Plan (Requirement 20(2)(i) of the DCO) will be developed post-consent and agreed with the relevant regulators.</p> <p>The Applicant has conducted a full cable route engineering visual inspection (where access allowed – approximately 85% of cable route length) to gather information of existing above ground drainage arrangements, and details of existing drainage arrangements (particularly subsurface) have been requested from landowners. This information will be used to develop the Surface Water and Drainage Plan in due course, in fulfilment of DCO requirement 20(2)(i).</p>
10	<p>Potential for contamination of chalk rivers and ponds in North Norfolk</p>	<p>RR-046</p>	<p>Potential Impacts with regard to Water Resources (including those in North Norfolk) have been assessed in section 20.7 of ES Chapter 20 Water Resources and Flood Risk (document 6.1.20, APP-233). This includes the potential impacts to rivers from increased sediment supply and accidental release of contaminants during construction and it was concluded that with mitigation that not significant impacts. The mitigation measures for protection of surface and groundwaters resources are detailed in section 11 of the OCoCP (document 8.1, APP-692), secured through DCO requirement 20.</p>

## 1.16 Land Use and Agriculture

Table 16 Applicant responses to Relevant Representations in relation to Land Use

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	<p>Countryside Stewardship or Environmental Stewardship agreements</p> <ul style="list-style-type: none"> <li>Natural England advises the Applicant to contact the Rural Payments Agency and the landowners at the earliest opportunity to discuss changes and financial implications of changes to schemes</li> </ul>	<p>RR-099 <i>(Appendix 4)</i></p>	<p>The Applicant notes the point raised in relation to the stewardship agreements. The private agreements being sought with all affected land interests set out the compensation provisions to cover the loss of any stewardship payments. For any land over which DCO powers are exercised, the provisions in the Order ensure any losses are compensated including in relation to stewardship schemes.</p>
2	<p>Land Drainage</p> <ul style="list-style-type: none"> <li>CoCP wording</li> </ul>	<p>RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077,</p>	<p>A local specialised drainage contractor will undertake surveys to locate drains and create drawings both pre- and post-construction and ensure appropriate reinstatement. The pre-construction drainage plan will include provisions to minimise water within the working area and ensure ongoing drainage of surrounding land (section 8.1 of the Outline CoCP, APP-692). Appendix C to the Outline CoCP sets out the proposals for field drainage and the wording for this has previously been agreed with the NFU and LIG. The wording includes: 'The services of a suitably qualified drainage consultant will be employed by</p>

**Table 16 Applicant responses to Relevant Representations in relation to Land Use**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	<p>the Applicant to act as a drainage expert during the detailed design process and liaise with landowners or occupiers (through the ALO) to consult on the pre and post drainage schemes required.'</p> <p>The Applicant has conducted a full cable route engineering visual inspection (where access allowed – approximately 85% of cable route length) to gather information of existing above ground drainage arrangements, and have requested details of existing drainage arrangements (particularly subsurface) from landowners. This information will be used to develop the Surface Water and Drainage Plan in accordance with Requirement 20(2)(i) of the DCO.</p> <p>The wording for the Option Agreement and draft Deed of Easement has now been agreed with the LIG and NFU.</p>
3	Treatment and reinstatement of soil during and after construction	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	Initial information has been set out in the Outline COCP (document 8.1, APP-692) which includes commitments to produce a Soil Management Plan prior to construction, in accordance with Requirement 20 (2)(f) of the DCO. Appendix A to the Outline COCP (document 8.1, APP-692) sets out the principles of a Soil Management Plan, the details of which have been previously discussed and agreed with the NFU and Landowner Interest Group (LIG).

**Table 16 Applicant responses to Relevant Representations in relation to Land Use**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
4	A formal agreement for the use of National Trust land for part of the cable corridor remains outstanding	RR-084	The Applicant is close to concluding a private agreement with the National Trust. Negotiations have been ongoing since the submission of the application and the Applicant hopes to conclude an agreement during the examination process.
5	Vattenfall proposes to acquire new permanent and temporary rights over land within the Estate, including a 100m wide easement through 4.5km of the Estate	RR-084	<p>The Norfolk Boreas cable route is up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction. The cable route can be seen in relation to the Historic areas of conservation in DCO Plan 2.9 Statutory or non-statutory historic or scheduled monument sites or features of the historic environment plan (APP-015). Sheets 15, 16 &amp; 17 of the plan identify the cable route through the Blicking Conservation area.</p> <p>The corridor will be 45m in width, and a 20m easement is being sought to include both Norfolk Vanguard and Norfolk Boreas infrastructure. The working area will be 25m in width.</p>

## 1.17 Onshore Ecology

Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	<p>River Wensum Horizontal Directional Drilling (HDD)</p> <ul style="list-style-type: none"> <li>Potential impacts on SAC and SSSI features of drilling fluid breakout at the River Wensum</li> </ul>	RR-099, RR-095	<p>Trenchless crossing techniques have been embedded within the scheme design to avoid impacts on the larger and most sensitive watercourses, including the main channels of the River Wensum, River Bure, King's Beck, Wendling Beck (two crossings) and the North Walsham and Dilham Canal.</p> <p>Section 20.7.4.3 of ES Chapter 20 provides an assessment of the potential impacts of the accidental release of potentially polluting substances, including the inert drilling fluids from trenchless crossings into the aquatic system during construction. Additional mitigation measures will be implemented to prevent any release as detailed in the Outline Code of Construction Practice (OCoCP) (document 8.1, APP-692). A commitment to use Best Available Techniques during HDD within the floodplain of main watercourses is in Section 11.1.4 of the OCoCP.</p> <p>Details on the mitigation proposed to manage breakout are presented in Section 11.1.6 the OCoCP, as agreed as part of the Norfolk Vanguard examination. A breakout contingency plan will be developed and will be included in the final CoCP and secured through DCO Requirement 20. The contingency plan will define the approach for responding to breakouts and will be informed by further ground investigation and the specific design of the trenchless crossing.</p> <p>The Applicant has agreed to produce a clarification note for Natural England to provide further information on the potential likelihood and the potential impacts on the River Wensum SSSI and SAC of drilling fluid breakout.</p>
2	<p>Net Gain (Onshore Ecology)</p> <ul style="list-style-type: none"> <li>There is currently no policy</li> </ul>	RR-099, RR-095	<p>The mitigation measures set out within Chapter 22 Onshore Ecology (document 6.1.22, APP-235) have been designed to result in no loss of biodiversity, with all habitats removed to be either reinstated or enhanced following construction (for example, hedgerows temporarily severed along the onshore cable route), or compensated for where permanently lost (for example, at the onshore substation). Furthermore, for selected species (for example commuting / foraging bats), the mitigation set out within</p>

Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	regarding net gain in the Application		<p>Chapter 22 Onshore Ecology (document 6.1.22, APP-235) has been designed to result in an overall enhancement in biodiversity through increasing the quality of foraging habitat provided following construction of the project.</p> <p>This will also apply to hedgerows at the substation site, ensuring there is no net loss of commuting / foraging habitat.</p> <p>The proposals for net gain fall outside of the NSIP consenting regime. This is confirmed in the Government response to consultation dated July 2019, at page 5 as follows:</p> <p><i>"Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill."</i></p>
3	<p>Environmental incident response and contingency</p> <ul style="list-style-type: none"> <li>Natural England would expect to be consulted within 24 hours if the incident occurs within proximity to a designated site.</li> </ul>	RR-099	<p>As detailed in the OCoCP (document 8.1, APP-692) a project specific environmental emergency / incident response plan will be prepared post-consent. The plan will include a response flow chart and detail how to report and deal with an environmental incident, including the measures available to contain/clean up an incident. A contact list for notifying relevant stakeholders will be appended to the plan.</p> <p>The OCoCP (document 8.1, APP-692) will be updated to include this reporting requirement i.e. Natural England to be consulted within 24 hours if any incident occurs within proximity to a designated site.</p>

Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology

Topic/ Issue	Relevant Representation Number	Applicant's Comments
<p>4</p> <p>Designated Sites</p> <ul style="list-style-type: none"> <li>The Zones of Influence for the study areas should be determined by the designated sites and features of interest and potential impact pathway</li> </ul>	<p>RR-099</p>	<p>A 2km buffer has been applied within the assessment detailed in Chapter 22 Onshore Ecology (APP-235), Chapter 23 Onshore Ornithology (document 6.1.23, APP-236), and the Information to Support Habitats Regulations Assessment Report (document 5.3, APP-201), where no interest features which require larger buffer zones have been identified. Where the need for larger buffers have been identified (for example, for barbastelle bats of Paston Great Barn SAC, or bird species of the Broadland SPA/Ramsar site), this has been set out within the Information to Support Habitat Regulations Assessment Report (APP-201) (which Chapter 22 Onshore Ecology (document 6.1.22, APP-235) and Chapter 23 Onshore Ornithology (document 6.1.23, APP-236) draw on).</p> <p>A general 2km buffer for designated sites has been agreed with Natural England during the Evidence Plan Process.</p>
<p>5</p> <p>Ancient woodlands</p> <ul style="list-style-type: none"> <li>Zones of influence</li> </ul>	<p>RR-099</p>	<p>Ancient woodlands have been considered under statutory designated sites within the assessment presented in Chapter 22 Onshore Ecology (document 6.1.22, APP-235) - therefore all sites located within 2km of the onshore project area and 200m of the road transport network (in relation to air quality impacts) have been considered.</p> <p>Natural England's standing advice in relation to ancient woodland have been considered within paragraphs 307 - 325, Section 22.7.5.1, Chapter 22 Onshore Ecology (document 6.1.22, APP-235).</p>
<p>6</p> <p>Designated Sites</p> <ul style="list-style-type: none"> <li>Broads SAC and Broadland</li> </ul>	<p>RR-099</p>	<p>As Natural England have noted, these sites have been considered within the Information to Support Habitats Regulations Assessment Report (document 5.3, APP-201). As noted within Section 22.6.1 of Chapter 22 Onshore Ecology (document 6.1.22, APP-235), the Broads SAC is included within the</p>



**Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	SPA not included in Table 22.10 Designated sites for nature conservation of relevance to onshore ecology.		assessment presented in the Chapter, following consultation with Natural England as part of the Norfolk Vanguard project. Assessment of impacts in relation to the Broadland SPA and Ramsar site is included within Section 23.7.5.1 of Chapter 23 Onshore Ornithology (document 6.1.23, APP-236).
7	Environmental Stewardship Schemes	RR-099	Impacts on Environmental Stewardship Schemes (ESSs) are considered within Section 21.7.4.5 of Chapter 21 Land Use and Agriculture (document 6.1.21, APP-234). A commitment will be made within the private agreements between Norfolk Boreas Limited and the landowner/occupier to compensate for losses incurred due to potential impacts on ESS during the construction phase of the project.
8	Agricultural Land Classification	RR-099	The Applicant can confirm that this methodology has been adopted in the Norfolk Boreas assessment and that as a worst case all Grade 3 land has been assumed good quality agricultural of high sensitivity (see sections 21.4.1, 21.7.4.2 and 21.7.5.2 ES Chapter 21 Land Use and Agriculture).
9	Paston Great Barn SAC and SSSI Commuting/ foraging areas for Bats	RR-099	The clarification note presented during the Norfolk Vanguard Examination has been provided in Appendix 2 of this document. This note includes core commuting foraging areas of the Paston Great Barn SAC.

**Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
10 Paston Great Barn SAC and SSSI  Indirect effects	RR-099	<p>An assessment of indirect effects has been included within paragraphs 1407-1409 of the Information to Support Habitats Regulations Assessment (document 5.3, APP-201).</p> <p>The commitments outlined in the OLEMS for the Norfolk Vanguard application will be carried across into an updated Norfolk Boreas OLEMS.</p>
11 Paston Great Barn SAC and SSSI  Hedgerow reinstatement and monitoring	RR-099	<p>The OLEMS (document 6.2.10.9, APP-698) includes outline details of how hedgerows will be reinstated, including gapping up of hedgerows and tree management. Full details of hedgerow reinstatement will be developed in consultation with Natural England and detailed within the Hedgerow Mitigation Plan provided with the Ecological Management Plan (Requirement 24 of the dDCO).</p> <p>As agreed during the Norfolk Vanguard Examination consideration will be given to the planting of more mature hedge plants to reduce recovery time and this will be included within an updated version of the OLEMS.</p> <p>Post construction monitoring of hedgerows in the Paston Great Barn SAC and SSSI is included within Section 7.2.3.3 of the OLEMS (document 6.2.10.9, APP-698), which will apply for 7 years or until the hedgerow has recovered fully.</p>
12 Bats  Temporary planting/ fencing for gaps in hedgerows of medium to high importance for bats during construction	RR-099	<p>As noted in Outline Landscape Management Strategy (OLEMS) (document 6.2.10.9, APP-698), hedgerows will be replanted in the first winter after their removal where they are removed to facilitate duct installation, with the exception of the 6m gap retained for the running track. This is the earliest time after removal when they are mostly likely to take successfully. Therefore there would be no advantage in employing temporary planting or fencing in these areas. In addition, the 6m gap is considered likely to be too small to act as a barrier to commuting / foraging activity (JNCC, 2001; BCT, 2012), therefore temporary planting is not considered to provide an ecological benefit in this area either.</p>

**Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
13 Post construction monitoring	RR-099	<p>Post-construction monitoring for reinstated habitats and for specific species is set out within the OLEMS (APP-698). This includes details of the required aftercare period for all replanted trees and hedgerows, and post-construction monitoring requirements for water voles subject to displacement and for great crested newts subject to mitigation and translocation.</p> <p>Note also that further detail on the monitoring and maintenance requirements specifically for hedgerows will be detailed in the Hedgerow Mitigation Plan, which will be developed in consultation with Natural England post-consent, under Requirement 24 of the draft DCO (document 3.1, APP-020).</p> <p>Monitoring of UKHPI and Norfolk LBAP grasslands will be included within an updated OLEMS to include 1 year of post-construction monitoring.</p>
14 Fish Potential impact of water crossings on fish	RR-099	<p>Mitigation with respect to fish is proposed to be agreed in consultation with Natural England and included in the Ecological Management Plan (under Requirement 24 of the draft DCO (document 3.1, APP-020), following post-consent surveys of the river substrate at open trench crossings of Booton watercourse, Reephams Stream (eastern branch) and Reephams Stream (western branch).</p> <p>This is the document which will capture this mitigation for the project.</p>
15 Designated Sites Air Quality Impacts No mitigation regarding potential air quality impacts from traffic and transport	RR-099	<p>An assessment of the impacts from air quality emissions arising from vehicle movements is detailed in Chapter 26 Air Quality (APP-239) and in Section 22.7.5.1 of Chapter 22 Onshore Ecology (document 5.1.4.4, APP-235). Cumulative air quality effects, which considered traffic flows from construction of Hornsea Project Three, upon designated sites and ancient woodland are detailed in Section 22.8.1.1 of Chapter 22 Onshore Ecology (document 5.1.4.4, APP-235), and Section 26.8.1.2 of Chapter 26 Air Quality (document 5.1.9.2, APP-239). Nitrogen deposition is not predicted to breach the critical load at any site. At two sites, nitrogen deposition is predicted to be 2% of the critical load, which is above the 1% threshold in the Environment Agency guidance for considering potential effects further. The further assessment presented in Section 22.8.1.1 of Chapter 22 Onshore Ecology (document 5.1.4.4, APP-235)</p>

**Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments	
		concludes that an effect of at most negligible magnitude is predicted, and as such no mitigation is required.	
16	Protected Species Licenses	RR-099	Letters of No Impediment have been obtained from Natural England for all protected species licences which have been identified as being required based on the survey data obtained to date. If any further licences are identified as being required following pre-construction surveys, these will be sought from Natural England post-consent.
17	Broadland SPA Mitigation agreed as part of Norfolk Vanguard	RR-099	The OLEMS (document 8.7, APP-698) was prepared prior to agreement of the mitigation with respect to the Broadland SPA agreed for Norfolk Vanguard. The OLEMS will be updated to include the mitigation with respect to Broadland agreed as part of the Norfolk Vanguard Examination.
18	Broadland SPA Severe winter weather	RR-099	The severe winter weather guidelines are set out within the OLEMS (document 8.7, APP-698) and will be included within the final EcoMP, which will be developed in consultation with Natural England post-consent.
19	Provision of Ecological Management Plan (EcoMP)	RR-099	The EcoMP is the post-consent document submitted to discharge Requirement 24 of the draft DCO which will be submitted to and approved by the relevant planning authority in consultation with Natural England.
20	Birds Habitat Reinstatement	RR-099	No post-construction monitoring has been identified as required with respect to the bird habitat temporarily disturbed during construction. This is because the habitat in question is active arable habitat (e.g. sugar beet fields) which will be returned to their use as active arable land following construction.

**Table 17 Applicant responses to Relevant Representations in relation to Onshore Ecology**

Topic/ Issue	Relevant Representation Number	Applicant's Comments
		Post-construction monitoring of hedgerow habitat reinstated following construction will be undertaken to ensure that the habitat successfully establishes. Post-construction monitoring of UKHPI / Norfolk LBAP grassland habitats will also take place, and the OLEMS (document 8.7, APP-698) will be updated to include this.
21 Rivers Chalk rivers are defined as priority habitat under the UK Biodiversity Action Plan.	RR-095	Rivers are not listed within Norfolk Biodiversity Partnership's list of priority habitats ( <a href="http://www.norfolkbiodiversity.org/habitats-and-species/">http://www.norfolkbiodiversity.org/habitats-and-species/</a> ).  All rivers are noted as UKHPI within Chapter 22 Onshore Ecology (document 6.1.22, APP-235), including chalk streams.
22 Mitigation	RR-095	This measure of ramps in trenches or pits to enable mammals to escape should they fall into these excavations at night is included within section 7.4.3 of the OLEMS (document 8.7, APP-698).
23 Hedgerow Removal Hedgerow Regulations 1997	RR-028	Hedgerows surveyed to date have been assessed against the criteria set out in the Hedgerow Regulations 1997. For those hedgerows located within unsurveyed areas of the onshore project area, these will be surveyed post-consent. An assessment of all hedgerows against the criteria in the Hedgerow Regulations 1997 will be presented within the Ecological Management Plan submitted to discharge Requirement 24 of the draft DCO (document 3.1, APP-020) post consent.
24 Tree and Hedgerow re-planting North Norfolk	RR-101	The Applicant is committing to a 10 year period of aftercare for trees and hedgerows replanted within North Norfolk, as agreed during the Norfolk Vanguard examination. The OLEMS will be updated to include this commitment.

## 1.18 Onshore Ornithology

**Table 18 Applicant responses to Relevant Representations in relation to Onshore Ornithology**

	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Broadland SPA/Ramsar site  Screening Matrices	RR-099	<p>The screening matrix for Broadland SPA / Ramsar referred to in Natural England's comment (p.33) is the matrix for offshore effects.</p> <p>The screening matrices (document 5.3.5.3, APP-204) will be updated to screen in impacts upon the Broadland SPA / Ramsar site and mitigation will be included in an updated OLEMS, to reflect discussions during the Norfolk Vanguard examination.</p>

## 1.19 Traffic and Transport

Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Construction traffic Potential impacts	RR-011, RR-027, Rep048, RR-053, RR-019, RR-032, RR-037, RR-105, RR-110	<p>An assessment of potential impacts associated with traffic is considered in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 24 Traffic and Transport (document 6.1.24, APP-237), an assessment of potential impacts is included in section 24.7 of this chapter and includes impacts to pedestrian amenity from construction traffic</li> <li>• ES Chapter 25 Noise and Vibration (document 6.1.25, APP-238), an assessment of potential impacts is included in section 25.8 of this chapter</li> <li>• ES Chapter 26 Air Quality (document 6.1.26, APP-239), an assessment of potential impacts is included in section 26.7 of this chapter</li> <li>• ES Chapter 27 Human Health (document 6.1.2.7, APP240) an assessment of potential effects is included in section 27.6 of this chapter</li> </ul> <p>Mitigation measures associated with any potential impacts are included in the following submission documents:</p> <ul style="list-style-type: none"> <li>• Outline Code of Construction Practice (OCoCP) (document 8.1, APP-692).</li> <li>• Outline Traffic Management Plan (document 8.8, APP-699)</li> <li>• Outline Travel Plan (document 8.9, APP-700)</li> <li>• Outline Access Management Plan (document 8.10, APP-701)</li> </ul> <p>Construction traffic will be managed in agreement with the local highway authority through the Traffic Management Plan, which will be produced in line with the Outline Traffic Management Plan.</p> <p>The OTMP will be updated to be consistent with the final OTMP submitted as part of the Norfolk Vanguard application, at Deadline 8 of their examination.</p> <p>The Applicant is carrying out further engagement with NCC Highways pursuant to a joint Statement of Common Ground to inform the examination.</p>

Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
2	Construction Traffic Blickling Estate	RR-084	The Outline Traffic Management Plan (document 8.8, APP-699) contains measures specific to the Blickling Estate to mitigate potential impact on visitor business.
3	Construction Traffic Cawston	RR-011, RR-016, Rep018, RR-019, RR-023, RR-037 RR-046	<p>ES Chapter 24 Traffic and Transport considers potential impacts of traffic (document 6.1.24, APP-237) and the OTMP (document 8.8, APP-699) outlines mitigation measures including those specifically for Cawston.</p> <p>During the course of the Hornsea Project Three examination a highway intervention scheme was developed by Orsted for the objective of mitigating the construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard/Norfolk Boreas through Cawston.</p> <p>The scheme was subsequently adopted by Vattenfall as suitable mitigation for Norfolk Vanguard and Norfolk Boreas (and cumulatively with Hornsea Project Three). A commitment to the highway intervention scheme is contained in ES Chapter 24 Traffic and Transport (document 6.1.24, APP-237) paragraph 253, the final scope of which, is to be agreed with Norfolk County Council.</p> <p>On close of the Norfolk Vanguard examination, Norfolk County Council confirmed in their final Statement of Common Ground (REP9-047) <i>"The intervention scheme drawings and proposal before us are very much 'work in progress'. In short, the scheme needs several changes, but they will be amendments rather than a complete re-think."</i></p> <p>The Applicant will continue to develop the highway intervention scheme by engaging with Cawston Parish Council/Norfolk County Council and seeking input as the detailed design progresses.</p>
4	Cumulative Impacts of Construction Traffic Cawston	RR-028, RR-018, RR-016, RR-017	ES Chapter 24 Traffic and Transport (document 6.1.24, APP-237), Section 24.8.1.2 confirms no cumulative construction traffic impacts between Norfolk Boreas and Norfolk Vanguard with respect to



Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>Scenario 2. It also confirms any cumulative effects relating to Scenario 1 are confined to the onshore project substation and landfall and therefore, will not impact on the village of Cawston.</p> <p>Section 24.8.2 considers the cumulative construction traffic effects of Norfolk Boreas Scenario 2 and Hornsea Project Three. Table 24.49 confirms link no. 34 B1145 [Cawston] is included within the cumulative impact assessment study area. The Section continues to assess the cumulative impacts on link no. 34 for the effects of pedestrian severance, pedestrian amenity, road safety and driver delay and following the application of mitigation, determines no significant residual impacts.</p> <p>An assessment of cumulative noise, vibration and air quality effects associated road traffic for Norfolk Boreas and Norfolk Vanguard / Hornsea Project Three has been assessed and included in the Application (section 25.9 of ES Chapter 25 (document 6.1.25, APP-238) and section 26.8 of ES Chapter 26 (document 6.1.26, APP-239)), and with mitigation measures no significant residual impacts are identified.</p> <p>Measures to mitigate any potential cumulative impacts associated with traffic through Cawston (Link no 34) are detailed within section 4.3.1 of the OTMP (document 8.8., APP-699) and secured through DCO Requirement 21.</p>
5	Construction Traffic Oulton	RR-017	<p>During the course of the Hornsea Project Three examination a highway intervention scheme was developed by Orsted and agreed with NCC for the objective of mitigating the construction traffic impacts of Hornsea Three and cumulative impacts with Norfolk Vanguard/Norfolk Boreas.</p> <p>The scheme was subsequently adopted by Vattenfall as suitable mitigation for Norfolk Vanguard and Norfolk Boreas (and cumulatively with Hornsea Project Three).</p> <p>ES Chapter 24 Traffic and Transport (document 6.1.24, APP-237) paragraph 497 confirms "<i>Norfolk Boreas Limited is committed to adopting the preferred mitigation scheme option for Norfolk Boreas S2 in isolation to ameliorate the potential disruption relating to the temporary roadworks required to implement the scheme.</i></p>

**Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<i>This scheme of mitigation, on the shared part of Link 68, would be sufficient to mitigate impacts for Norfolk Boreas Scenario 2 alone, Hornsea Project Three alone or for both projects together."</i>
6	Cumulative Impacts of Construction Traffic  Oulton	RR-028, RR-017	<p>ES Chapter 24 Traffic and Transport (document 6.1.24, APP-237), Section 24.8.1.2 confirms no cumulative construction traffic impacts between Norfolk Boreas and Norfolk Vanguard with respect to Scenario 2. It is also confirmed any cumulative effects relating to Scenario 1 are confined to the onshore project substation and landfall and therefore, will not impact on the village of Oulton.</p> <p>Section 24.8.2 considers the cumulative construction traffic effects of Norfolk Boreas Scenario 2 and Hornsea Project Three. Table 24.49 confirms link no. 68 The Street/Heydon Rd [Oulton] is included within the cumulative impact assessment study area. The Section continues to assess the cumulative impacts on link no. 68 for the effects of pedestrian severance, pedestrian amenity, road safety and driver delay and following the application of mitigation, determines no significant residual impacts.</p> <p>An assessment of cumulative noise, vibration and air quality effects associated with road traffic for Norfolk Boreas and Norfolk Vanguard / Hornsea Project Three has been assessed and included in the Application (section 25.9 of ES Chapter 25 (document 6.1.25, APP-238) and section 26.8 of ES Chapter 26 (document 6.1.26, APP-239)), and with mitigation measures no significant residual impacts are identified.</p> <p>Measures to mitigate any potential cumulative impacts associated with traffic through Oulton (Link no. 68) are detailed within section 4.3.2 of the OTMP (document 8.8, APP-699) and secured through DCO Requirement 21.</p>
7	Interaction with Hornsea Three project export cable corridor	RR-102	<p>The Applicant can confirm that the cable route is the same cable route proposed for Norfolk Vanguard.</p> <p>The Applicant will continue to work together with Ørsted in relation to areas of overlap and cable route interaction.</p>

Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<p>and the Norfolk Boreas cable corridor.</p> <ul style="list-style-type: none"> <li>• Cable corridor</li> <li>• Interaction of road networks</li> </ul>		<p>The Applicant has included protective provisions for the benefit of Hornsea Project Three Limited at Schedule 17, Part 8 which govern the interaction with Hornsea Project Three's apparatus and rights in relation to the areas in which the cables cross.</p> <p>The Applicant is at an advanced stage of entering into a Co-operation Agreement with Orsted Hornsea Project Three (UK) Limited, Ørsted Wind Power A/S, Cerulea Limited, Norfolk Vanguard Limited and Vattenfall Wind Power Limited. Whilst the terms of that agreement are confidential, the purpose of the agreement is to ensure there is cooperation between the projects and to ensure both projects continue to work together and exchange information. The agreement is intended to cover matters pertinent to construction management and implementation extending to the sharing of survey data; cooperation on programme, milestones, and communication with stakeholders; engineering methods at the crossing point to complement the other scheme; and rights of access. In relation to the interaction on the road network, the Applicant can confirm that the Applicant has been in correspondence with Hornsea Project Three and Norfolk County Council in relation to mitigation schemes for the areas of overlap. These mitigation measures have been captured within the outline Traffic Management Plan (document 8.8, APP-699).</p>
8	<p>Public Rights of Way (PROW)</p> <p>To manage impacts on PROW, Ørsted advocates consistent approaches to the management of Reepham footpaths FP18 and FP34.</p>	RR-102	<p>The Applicant agrees with this comment and will continue to work with Hornsea Project Three to put in place a consistent approach in relation to managing public rights of way for footpaths FP18 and FP34.</p>

**Table 19 Applicant responses to Relevant Representations in relation to Traffic and Transport**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
9	Construction Traffic Working hours	RR-048	Information on working hours are outlined in section 3.1 of the Outline Code of Construction Practice (OCoCP) (document 8.1, APP-692). The OCoCP also includes the following text:  'Parish Councils in the relevant area will be contacted (in writing) in advance of the proposed works and ahead of key milestones. This information will include indicative details for timetable of works, a schedule of working hours, the extent of the works, and a contact name, address and telephone number in case of complaint or query.'
10	Alternative Access routes	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	The Applicant is engaged in ongoing discussions with a small number of parties with regards to preferred alternative access routes as put forward by the landowner and their representative. The majority of access routes have been agreed with landowners through the signed Heads of Terms.

## 1.20 Noise

Table 20 Applicant responses to Relevant Representations in relation to Noise

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Construction noise	RR-004, RR-018, RR-023, RR-027, RR-038, RR-105	<p>Issues related to noise from construction traffic and construction works have been considered in the following submission documents:</p> <ul style="list-style-type: none"> <li>• Section 25.8.5 of ES Chapter 25 Noise and Vibration (document 6.1.25, APP-238)</li> <li>• The Outline CoCP (OCoCP) (document 8.1, APP-692) which includes a commitment to produce a Construction Noise Management Plan prior to construction as required under Requirement 20(2)(e) of the DCO.</li> </ul> <p>The assessment concludes that with the adoption of best practice measures (BPM) as currently set out in the OCoCP (DCO Requirement 20), enhanced mitigation measures and BPM, residual impacts are predicted to be of negligible impact.</p>
2	Substation operational impacts	RR-004, RR-103, RR-109	<p>The development will comply with the requirements (conditions) of Breckland Council which is summarised as not exceeding 35 dB LAeq (5minutes) at any time at a free field location immediately adjacent to any noise sensitive location. A further limit of 32 dB Leq (15minutes) also applies to the 100Hz third octave band. Detailed noise assessments have shown that with proven noise reduction technology or procurement of low noise emitting equipment, this requirement can be readily achieved, and no impacts will occur.</p> <p>Potential impacts relating to substation operational noise have been considered in section 25.8.6 ES Chapter 25 Noise and Vibration (document 6.1.25, APP-692)</p>

## 1.21 Air Quality

**Table 21 Applicant responses to Relevant Representations in relation to Air Quality**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Dust/ air pollution during construction	RR-004, RR-018, RR-023, RR-105, RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015, RR-018, RR-105	<p>The construction works will be conducted in line with the Outline CoCP (OCoCP) (document 8.1, APP-692), Requirement 20. The OCoCP gives details on air quality management control measures to be implemented which includes dust management. This document informs the final CoCP to be agreed with the relevant planning authority through Requirement 20 of the DCO.</p> <p>Issues related to dust have been considered in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 26 Air Quality (document 6.1.26, APP-239)</li> <li>• Outline CoCP (document 8.1, APP-692)</li> </ul>

## 1.22 Human Health

Table 22 Applicant responses to Relevant Representations in relation to Human Health

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Electromagnetic Fields/Radiation	RR-038, RR-103	<p>The Applicant has considered the potential impacts of Electro-Magnetic Fields (EMF) as a result of proposed project transmission infrastructure and at the point of connection to the National Grid. The decision to use High Voltage Direct Current (HVDC) technology to transmit power from the wind farm site to the national grid eliminates many potential impacts associated with EMF radiation. The available evidence from studies of humans and animals has been reviewed by Public Health England and internationally by the World Health Organization and the International Agency for Research on Cancer. None of these expert bodies has identified any health risk for humans or animals exposed to DC magnetic fields. A Converter Station is proposed to convert DC to AC power so that it can connect to the National Grid. The DC Converter station requires some specialised equipment which could potentially exceed the exposure limits if located close to the perimeter fence. This will be considered in the detailed design to ensure that the design fully complies with the public exposure limits. In relation to the High Voltage Alternating Current (HVAC) cables connecting the onshore project substation (converter hall) to the National Grid substation, Vattenfall's policy is only to design and install equipment that is compliant with the relevant exposure limits. To ensure this, all of the equipment for Norfolk Vanguard, capable of producing EMFs, has been assessed in accordance with the provisions of the Government's Code of Practice on Compliance.</p> <p>Issues related to EMF have been considered in part or in full in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 27 Human Health (document 6.1.27, APP-240)</li> <li>• Appendix 4.2 of the Consultation Report - FAQ documents (document 5.1.4.2, APP-033)</li> <li>• The analysis of potential EMF effects, undertaken by National Grid for Vattenfall Wind Power Limited and Ørsted, is presented in two documents; Vattenfall EMF information sheet and Vattenfall and Ørsted EMF information sheet and have been provided in Appendix 1 of this document.</li> </ul>

**Table 22 Applicant responses to Relevant Representations in relation to Human Health**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
2	Health impacts due to stress/impact of project on way of life	RR-019, RR-029, RR-031, RR-034	<p>Potential impacts on human health have been considered in part or in full in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 27 Human Health (document 6.1.27, APP-240)</li> <li>• Chapter 18.7 of the Consultation Report (document 5.1, APP-027) - Summary of responses to Norfolk Vanguard Section 47 and regard had by Vattenfall Wind Power Limited</li> <li>• Appendix 4.2 of the Consultation Report - FAQ documents (document 5.1.4.2, APP-033)</li> </ul>



## 1.23 Onshore Archaeology

Table 23 Applicant responses to Relevant Representations in relation to Onshore Archaeology

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Potential impacts on archaeological remains  Blickling Estate	RR-084	<p>A complete archaeological assessment of the land associated with the development has been undertaken, as outlined in ES Chapter 28 Onshore Archaeology and Cultural Heritage (APP-241).</p> <p>Commitments in the Outline Written Scheme of Investigation (Onshore) (document 8.5, APP-696), section 8.6, state: <i>"A comprehensive programme of post-consent archaeological survey work (in-line with proportionate and appropriate approaches to be adopted elsewhere across the onshore project area) is also anticipated to take place across the relevant parts of the wider National Trust Blickling Estate, associated with the onshore project area and onshore works. This programme of archaeological work will be undertaken in consultation (planning and engagement) with the National Trust, their archaeologist and NCC HES due to the sub-surface archaeological interests potentially associated with this landscape."</i></p> <p><i>"With respect to the finds archive from any archaeological works undertaken, it is acknowledged that certain finds may warrant bespoke display or that the National Trust may wish for finds to form part of public engagement activities (e.g. exhibitions or similar). Norfolk Boreas Limited welcomes collaborative working in this regard, as part of associated public engagement, involvement and interest in the scheme, especially where opportunities exist to enhance current understanding of the historic environment in a publicly accessible and engaging way. Any potential funding mechanisms for such activities will be discussed with the Trust during the post-consent stages of the project, if/when consent is achieved."</i></p> <p>These commitments are in line with those agreed for the Norfolk Vanguard Offshore Wind Farm Project, with which the National Trust were in agreement.</p>
2	<b>Cable crossing</b>  Geophysical Survey if required where the cable corridors cross, Hornsea Three	RR-102	<p>The Applicant will continue to work with Hornsea Project Three to ensure a consistent approach to targeted geophysical survey and trial trenching within the common land parcel.</p>

**Table 23 Applicant responses to Relevant Representations in relation to Onshore Archaeology**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<p>advocates a consistent approach to targeted geophysical survey and trial trenching through a consistent approach to (Archaeological) Written Schemes of Investigation (WSI) being agreed with the relevant authorities prior to commencement of the consented works where the cables cross.</p>		
3	Onshore Archaeological matters	RR-022	Onshore archaeology and cultural heritage are considered in the Onshore WSI (document 8.5, APP-696).

## 1.24 Landscape and Visual

Table 24 Applicant responses to Relevant Representations in relation to Landscape and Visual

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	The visual and environmental impacts of the respective cable corridors crossing north of Reepham	RR-028	<p>A cumulative impact assessment of Norfolk Boreas and Hornsea Project Three has been included within each onshore chapter of the Environmental Statement.</p> <p>ES Chapter 29 Landscape and Visual Impact Assessment section 29.8.1 sets out a detailed assessment of the potential cumulative impacts of the onshore cable route in combination with the Hornsea Project Three onshore cable route. Under Scenario 2, the construction of the Norfolk Boreas onshore cable route in addition to the Hornsea Project Three onshore cable route could have a short term significant cumulative effect on the views of walkers on an approximate 200m section of Marriott's Way, but would not have significant effects on the remaining parts of this route or on any other landscape or visual receptors. However, land and hedgerows will be reinstated post construction therefore the effect will be short and reversible, resulting in no residual impact.</p>
2	Light pollution	RR-038, RR-053	<p>The Outline CoCP (document 8.1, APP-692) includes commitment to produce an Artificial Light Emissions Management Plan prior to construction as required under Requirement 20(2)(c) of the DCO.</p> <p>Issues related to lighting have been considered in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 29 Landscape and Visual Impact Assessment (document 6.1.29, APP-242)</li> <li>• ES Chapter 30 Tourism and Recreation (document 6.1.30, APP-243), which addresses issue related to dark skies (Section 30.6.4.7)</li> <li>• Appendix 3.1 of the Consultation Report - Hearing Your Views I (document 5.1.3.1, AP-028)</li> </ul> <p>There will not be any permanent operational lighting at the onshore project substation.</p>

**Table 24 Applicant responses to Relevant Representations in relation to Landscape and Visual**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
3	Decommissioning	RR-031	<p>Visual impacts associated with the decommissioning phase have been outlined in ES Chapter 29 Landscape and Visual Impact Assessment (document 6.1.29, APP-242).</p> <p>The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. A decommissioning plan will be provided. As such, impacts during the decommissioning stage are assumed to be no worse than those identified during the construction stage.</p> <p>In accordance with Requirement 29 of the DCO, a Decommissioning Plan must be agreed with the relevant planning authority.</p>
4	Visualisations Limitations in 3D modelling for use in detailed design	RR-109	<p>The visualisations are intended to illustrate the scale and extent of development and not the detailed design. The assessment in ES Chapter 29 uses the most up-to-date, accurate spatial data that is available to produce these visualisations, but like any data there can be subtle differences between the modelled landform and the landform shown in the existing photographs. To model the landform, OS Terrain 5 DTM data was used.</p> <p>A 3D model of the onshore substation has been used to give an indication of what the substation will look like and a blue dotted box represents the Rochdale envelope, within which the substation elements can move. By showing the blue Rochdale envelope alone, we may overestimate the extents to which the development could be visible. By showing just the substation model alone, we may underestimate visibility. Hence, the use of both techniques in the visualisations.</p>
5	Onshore project substation visual impact mitigation	Rep-109, AS-014	<p>The Applicant will work to ensure that mitigation proposed is proportional to the scale of the substation infrastructure, and that it mitigates the overall impact on the local area. The final design of the onshore project substation and National Grid substation extension are subject to detailed design post-consent. In order to minimise visual impacts as far as possible, the appropriate building design and materials will be considered, to ensure blending with the local</p>

Table 24 Applicant responses to Relevant Representations in relation to Landscape and Visual

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>environment and minimisation of impacts as far as possible. The Design and Access Statement (document 8.3, APP-694) includes a set of Design Principles for the onshore project substation and National Grid substation extension (Table 4.3) which will set out the process to develop the final design.</p> <p>The growth rates applied to estimate tree heights in the Norfolk Boreas visualisations are cautionary to ensure a worst case scenario is represented. As the operational lifespan of the project is 30 years, the reality will be that by this stage the fast growing nurse species will have reached maturity and many of the slower growing core species will be between middle and full maturity.</p> <p>In terms of the removal of mitigation planting at Dudgeon Substation, only a small proportion of the overall area will be removed. This loss will be more than offset by a larger amount of landscape planting implemented as part of the mitigation measures associated with the Norfolk Boreas National Grid Substation Extension.</p>

## 1.25 Socio-economics, Tourism & Recreation

Table 25 Applicant responses to Relevant Representations in relation to Socio-economics, Tourism & Recreation

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Local Cumulative Impact Assessment	RR-028, RR-027	A cumulative impact assessment that includes Norfolk Vanguard and Hornsea Project Three has been included within each onshore chapter of the Environmental Statement. Potential and cumulative impacts on local communities have been assessed in ES Chapter 30 Tourism and Recreation (APP-243) and ES Chapter 31 Socio-economics (document 6.1.11, APP-244).
2	Skills and Employment & Community Benefit	RR-110, RR-028, RR-037, RR-048, RR-017	<p>The Applicant is working closely with local communities, communities of interest and stakeholders to explore means of local optimisation of supply chain, jobs and skills opportunities associated with the project. The Applicant has committed to producing a Skills and Employment Strategy which is secured through Requirement 33 of the draft DCO and an outline Skills and Employment Strategy (document 8.22, APP-713) has been produced and submitted as part of the DCO application.</p> <p>Only mitigation which addresses impacts directly associated with the Project should be considered in the planning and DCO process. The Applicant is and continues to address wider community benefit, however this will be undertaken separately and outside of the DCO process.</p>
3	Disruption to local residents and businesses	RR-048, RR-004, RR-019, RR-032, RR-038, RR-103, RR-105, RR-109, RR-047, RR-018, RR-009, RR-108	<p>Issues related to disruption to local residents and businesses have been considered in part or in full in the following submission documents:</p> <ul style="list-style-type: none"> <li>• ES Chapter 30 Tourism and Recreation (document 6.1.30, APP-243)</li> <li>• ES Chapter 31 Socio-economics (document 6.1.31, APP-244)</li> <li>• Appendix 3.3 of the Consultation Report - Hearing Your Views III (document 5.1.3.3, APP-030)</li> <li>• Appendix 24.1 of the Consultation Report - Section 42 responses (document 5.1.24.1, APP-180)</li> <li>• Appendix 25.1 of the Consultation Report - Section 47 responses (document 5.1.25.1, APP-181)</li> </ul> <p>With reference to businesses at or near the Landfall, as a result of the decision to use a long HDD at the landfall, there will be a much reduced impact on Happisburgh, with no closure of the beach.</p>

**Table 25 Applicant responses to Relevant Representations in relation to Socio-economics, Tourism & Recreation**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
4	Business disruption due to closure of or restricting access along the road between Blickling and Aylsham	RR-084	The Applicant is close to concluding a private agreement with the National Trust. These points will be discussed and captured in the agreement documentation between both parties.

## 1.26 DML and DCO

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Outline Scour protection and Cable Protection Plan	RR-099	The Applicant can confirm that any new areas of cable protection required during the operation stage would be subject to a separate marine licence. The EIA and HRA assess the placement of up to 10% of the export cable not being buried and therefore requiring cable protection. This is a precautionary worst case scenario and the Applicant has since committed to 5%. Therefore, the Applicant believe that in the unlikely event that new areas of cable protection are required during the operation phase this has been accounted for within the assessment. Furthermore, the Applicant has made the post application commitment to attempt to rebury any exposed cables first before applying for a marine licence for new areas of cable protection.
2	Level of Detail provided within the outline Scour protection and cable protection plan	RR-099	<p>Document 8.16 (APP-707) has been prepared as an outline plan and therefore in the interests of keeping the document as brief and concise as possible it refers to the EIA rather than repeating the full assessment. This format has been accepted for Outline Scour Protection and Cable Protection Plans submitted for previous projects such as Norfolk Vanguard.</p> <p>As secured under Condition 14(e) of the generation DMLs the Applicant must produce: A scour protection and cable protection plan (in accordance with the outline scour protection and cable protection plan) providing details of the need, type, sources, quantity, distribution and installation methods for scour protection and cable (including fibre optic cable) protection.</p> <p>These parameters will only be known at the detailed design stage and therefore will be included in the actual Scour Protection and Cable protection plan. It should be noted that the HHW SAC SIP will cover these parameters and assessment of impacts in more detail were relevant to the HHW SAC.</p> <p>Further detail would be added to the HHW SAC SIP at the detailed design stage.</p>
3	<b>DCO Schedule 1 General</b>	RR-099, RR-069	The Applicant notes this and will amend the definition throughout the next version of the dDCO and DMLs.



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	All references to Natural England should be amended to the Statutory Nature Conservation Body		
4	<p><b>DCO Schedule 1 General</b></p> <p>Natural England requests that a requirement be added to the DCO for the Applicant to confirm in writing to the MMO and Relevant Local Planning Authorities once the construction phase has ended and the operations and maintenance phase has commenced.</p>	RR-099	<p>The Applicant notes this comment. The Applicant, however, does not consider that this amendment is necessary for the following reasons:</p> <ol style="list-style-type: none"> <li>1. The Applicant must provide the MMO with a Construction Programme and Monitoring plan in accordance with the Offshore In Principle Monitoring Plan, as secured by Condition 14(1)(b) (Schedule 9-10), Condition 9(1)(b) (Schedule 11-12) and Condition 7(1)(b) (Schedule 13). This will set out the proposed construction programme;</li> <li>2. The Applicant must also provide an offshore operations and maintenance plan at least four months prior to commencement of operation of the licensed activities, pursuant to Condition 14(1)(j) (Schedule 9-10), Condition 9(1)(j) (Schedule 11-12), and Condition 7(1)(i) (Schedule 13);</li> <li>3. The Applicant must notify the MMO (including Kingfisher Information Service of Seafish and the UK Hydrographic Office) upon completion of licensed activities (for example, Condition 9 (Schedule 9-10)). In the case of the Kingfisher Information Service of Seafish notification, this must be no later than 24 hours of completion of construction of all offshore activities. The MMO will therefore be notified accordingly and will be in a position to share the information with relevant stakeholders, such as Natural England. This approach is also in line with precedent, following as made offshore wind DCOs; and</li> <li>4. In respect of the onshore works, the Applicant must submit a scheme to the LPA setting out the stages of onshore transmission works (Requirement 14). The detail of the stages and construction measures for each stage will then be secured through the Code of Construction Practice (Requirement 20), to be</li> </ol>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>submitted to the LPA in consultation with Norfolk County Council, the Environment Agency and (as per the latest version of the dDCO) Natural England.</p> <p>Accordingly, there are sufficient measures contained in the DCO to provide control and transparency for the enforcement bodies - in consultation with their statutory advisers - in relation to commencement, construction, and stages of works.</p>
5	<p><b>DCO Schedule 1 General</b></p> <p>Net Gain</p>	RR-099	<p>The Applicant does not consider this necessary or appropriate for a project of this nature. The proposals for net gain fall outside of the NSIP consenting regime. This is confirmed in the Government response to consultation dated July 2019, at page 5 as follows:</p> <p><i>"Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill."</i></p> <p>This document can also be located at the following link:  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf</a></p>
6	<p><b>DCO Schedule 1 part 3 page 55, 5 and 11</b></p> <p>The total volumes for cable protection and scour protection do not match the ES.</p> <p>Clarification required.</p>	RR-099	<p>The Applicant notes this and will review the dDCO and make any changes accordingly. The Applicant, however, anticipates that the figures Natural England are referring to can be explained by reference to the Reconciliation Document (document 6.7, APP-689). This document explains how the "worst case scenario" as assessed within the EIA has been adequately secured within the DCO and DMLs. For many of the parameters secured within the DCO it is clear that the same values have been assessed within the ES, for example the minimum gap between turbines - which is stated at requirement 2 in Schedule 1 of the DCO and also presented throughout. However, due to the fact that the DMLs are defined by a group of assets and the EIA takes a geographical approach to assessing impacts, values for other parameters,</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			such as the maximum quantities of cable protection and/or scour protection, are not so easily cross referenced between the ES and the DCO. This is explained further in the Reconciliation Document.
7	<p><b>DCO Schedule 1 Part 3 Page 59, 20</b></p> <p>The code of construction practice details Environment Agency for consultation, but not Natural England.</p>	RR-099	The Applicant has agreed to include Natural England within the list of consultees for Requirement 20 and this will be reflected within the next version of the dDCO.
8	<p><b>DCO Schedule 1 Part 3</b></p> <p>Maximum hammer energy to be used while piling to be included within the requirements and within the Deemed Marine Licences.</p>	RR-099	<p>The maximum amount of hammer energy is secured within the dDCO at Condition 14(3) (Schedule 9-10), and Condition 9(3) (Schedule 11-12) of the DMLs, which states the following:</p> <p><i>..."(3) In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed 5,000kJ."</i></p> <p>The Applicant does not therefore consider it necessary to amend this condition further.</p>
9	<p><b>DML Schedule 9/10/13 General</b></p> <p>No mention of boulder relocation work as a licensed activity nor of</p>	RR-099	Disposal volumes have been separated into drill arisings and dredged sediment in the dDCO. Any boulders of significant size would be relocated as assessed in the ES. These would not be lifted to the surface and are therefore not considered in the volumes for disposal. The Applicant considers that it is not practicable or necessary to distinguish between sand and mud volumes.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	the limits of this licensed and potentially damaging activity within any of the DMLs.		Notwithstanding this, the Applicant has secured the amount of boulders to be cleared within the HHW SAC within the Outline HHW SAC SIP (document 8.20 APP-711). This is secured within condition 9(1)(m) of the Transmission DMLs (Schedule 11-12).
10	<p><b>DML Schedule 9/10/13 General</b></p> <p>Natural England considers that a condition should be included to ensure that monitoring of Marine Mammals occurs.</p>	RR-099	<p>The Applicant must produce a marine mammal mitigation protocol, in accordance with the draft marine mammal mitigation protocol, prior to commencement of any piled foundations (Condition 14(1)(f) (Schedule 9-10) and Condition 9(1)(f) (Schedule 11-12)).</p> <p>Pursuant to Condition 20 (Schedule 9-10) and Condition 14 (Schedule 11-12), the Applicant must then submit further details, in accordance with the Offshore In Principle Monitoring Plan (document 8.12, APP-703), for approval by the MMO in consultation with the relevant SNCBs. This submission must cover any proposed monitoring, including methodologies and timings, to be carried out during the construction of the authorised scheme. Noise monitoring results must be provided to the MMO within six weeks of the installation of the first four piled foundations of each piled foundation type and, if in the opinion of the MMO in consultation with Natural England, the assessment shows significantly different impacts to those assessed in the environmental statement or failures in mitigation, then all piling activity must cease until an update to the marine mammal mitigation protocol and further monitoring requirements have been agreed.</p> <p>The Applicant therefore considers that these measures cover Natural England's concerns in relation to marine mammal monitoring.</p>
11	<p><b>DML Schedule 9/10/13 Part 4 Condition 12 (5)</b></p>	RR-099	The Applicant considers that all material dredged or drilled from the seabed would be of natural origin. Furthermore, all material would be disposed of within the vicinity of the dredge location and therefore

**Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Any material of non-natural origin must be disposed of to an appropriate disposal site onshore.		would not be transported far from source. Therefore, the wording of the DCO should remain in keeping with the precedent set by previous DCO projects.
12	<b>DML Schedule 9/10/13 Part 4 Condition 14 (g) (iii)</b>  Natural England does not agree that cable protection can be deployed under this licence for the duration of operation.	RR-099	The Applicant can confirm that any new areas of cable protection required during the operation stage would be subject to a separate marine licence. The wording of the current DCO does not allow for the Applicant to install new areas of cable protection during operation. The Outline Operations and Maintenance Plan (OOOMP) (document 8.12, APP-703) demonstrates this in the Table in Appendix 1 that has a “yes” in the Additional licence likely to be required column against cable protection.
13	<b>DML Schedule 9/10/13 Part 4 Condition 15 (4)</b>  Natural England does not consider 4 months an appropriate timeframe to approve all plans and documentation.	RR-099	The Applicant notes Natural England's comments. The Applicant, however, considers that the four month time frame conditioned within the DMLs is appropriate and proportionate to allow the MMO, in consultation with statutory bodies, sufficient time for stakeholder consultation and the provision of comments, whilst ensuring no unnecessary delay to the commencement of development and completion of construction works.  This time period is contained on a number of other Offshore Wind Farm (OWF) DCOs (including The East Anglia Three Offshore Wind Farm Order 2017, the Hornsea Two Offshore Wind Farm Order 2016, the draft Norfolk Vanguard Offshore Wind Farm Order [2019], and the draft Hornsea Project Three Offshore Wind Farm Order [2020]). Four months is, therefore, well-established as an appropriate time frame for OWF schemes and one that ensures a balance is struck between the expedient discharge of the relevant conditions attached to the DML whilst allowing a reasonable period of time for consideration by the

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>MMO and its consultees.</p> <p>The Applicant is aware that it has, in some recent cases, taken much longer than 4 months to discharge certain DML conditions on other OWF projects and it should be recognised that with no mechanism to encourage the determination of applications within a reasonable period (such as arbitration or appeal) the developer is then left in a position which is wholly unsatisfactory. With such highly competitive and fixed Contracts for Difference milestones, and where offshore construction can only be undertaken in safe and optimal weather conditions, wind farm developers need the certainty and confidence of a reliable and consistent approval process. This is also one of the reasons why the Applicant sought to insert an appeal provision within the dDCO. In this context, the Applicant refers the MMO to its response in relation to arbitration (row 21 of this table) and the Norfolk Vanguard Ltd and MMO Joint Position Statement (Appendix 3 of this document).</p> <p>Accordingly, there is a strong public interest argument in favour of timely approvals in order to ensure that Nationally Significant (renewable energy) Infrastructure Projects are not unduly delayed. Accordingly, the Applicant considers that the dDCO strikes the balance between allowing the MMO (and Natural England) to properly discharge their statutory duties whilst ensuring renewable energy development is unlocked in a timely manner.</p>
14	<p><b>DML Schedule 9/10/13 Part 5 Appeals Process</b></p> <p>Natural England notes this condition implies only 1 survey will be conducted. Natural England recommend that this condition be altered to reflect that</p>	RR-099	<p>The obligations in condition 20(2)(a) are in respect of the surveys referred to in sub-paragraph (1) (i.e. all the post-construction surveys) and condition 14(1)(b) (the construction programme and monitoring plan).</p> <p>The construction programme and monitoring plan, submitted pursuant to condition 14(1)(b), must accord with the IPMP. As stated in the IPMP (document 8.12, APP-703), "post-construction survey(s) will be undertaken at a frequency to be agreed with the MMO (e.g. 3 years non-consecutive e.g. 1, 3 and 6 years or 1, 5 and 10 years)".</p>

**Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	more than 1 survey may be needed.		In any event, the MMO must be satisfied and approve both the construction programme and monitoring plan and the post-construction surveys under condition 20. The MMO (and, by extension, Natural England) therefore has sufficient opportunity to raise any further points during this approval process. Accordingly, the Applicant does not consider it necessary to change the wording of the condition.
15	<b>DML Schedule 9/10/13 Part 4 Condition 20 (2) (a)</b>  The MMO raised concerns regarding this process and Natural England support and agree with the MMO position on these concerns.	RR-099	The Applicant notes Natural England's comments. The Applicant's position remains the same as that put forward during the Norfolk Vanguard examination and through the joint position statement with the MMO (Appendix 3 of this document).
16	<b>DML Schedule 11/12 Interconnector General</b>  All issues raised on Schedule's 9 and 10 also apply to this schedule where similar conditions exist.	RR-099	The Applicant notes this and has interpreted the representations accordingly.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
17	<p><b>DML Schedule 11/12 Interconnector Part 4 Condition 9 (1) (m)</b></p> <p>Natural England would refer to the advice we provided on Vanguard on the appropriateness of including a site integrity plan given that the maximum impacts of this project on the site are known. It is important that any decision made should be made on the worst case scenario and not deferred to post consent.</p>	RR-099	The Applicant refers Natural England to the responses in section 1.5 (specifically rows 20 and 22 of Table 5).
18	<p><b>Offshore Operations and Maintenance Plan Appendix 1</b></p> <p>The definition of maintain within the DCO and DMLs does not include construction of new</p>	RR-099	The Applicant agrees that new areas of cable protection installed during the operation phase of the project would be subject to a separate marine licence and the next version of the OOOMP will be updated accordingly.



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	works such as new areas of cable protection.		
19	<p><b>Offshore Operations and Maintenance Plane Appendix 2</b></p> <p>Replacement of a failed foundation is listed as amber. Natural England considers this should be marked as red. Any need for removal and reinstallation of a foundation will require a new Marine Licence.</p>	RR-099	This will be updated to red in the next version of the OOOMP.
20	Natural England recommends that a condition be included in the DCO for the Applicant to produce a net gain DCO plan demonstrating how	RR-099	<p>The Applicant does not consider this necessary or appropriate for a project of this nature. The proposals for net gain fall outside of the NSIP consenting regime. This is confirmed in the Government response to consultation dated July 2019, at page 5 as follows:</p> <p><i>"Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill."</i></p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	the proposed project will deliver net gain.		<p>This document can also be located at the following link:  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf</a></p> <p>The mitigation measures set out within Chapter 22 Onshore Ecology (document 6.1.22, APP-235) have been designed to result in no loss of biodiversity, with all habitats removed to be either reinstated or enhanced following construction (for example, hedgerows temporarily severed along the onshore cable route), or compensated for where permanently lost (for example, at the onshore substation). Furthermore, for selected species (for example commuting / foraging bats), the mitigation set out within Chapter 22 Onshore Ecology (document 6.1.22, APP-235) has been designed to result in an overall enhancement in biodiversity through increasing the quality of foraging habitat provided following construction of the project.</p>
21	<p><b>Arbitration and Appeal Mechanisms</b></p> <p>Discussions during the Norfolk Vanguard Examination (joint position at deadline 9)</p> <p><b>Part 5 of Schedules 9-13</b></p> <p>Changes to the Marine Licensing (Licence Application Appeals)</p>	RR-069	<p>The Applicant notes the MMO's comments.</p> <p>The Applicant's position remains the same as that put forward during the Norfolk Vanguard examination and through the joint position statement with the MMO (Appendix 3 of the Applicant's Comments on Relevant Representations). In short, given that the MMO's position is that arbitration should not apply to the MMO, the Applicant considers that there should be a pragmatic alternative for resolving disputes and/or non-determinations under the DMLs; judicial review is, in the Applicant's view, not a suitable avenue for determining a dispute or non-determination under a DML related to a Nationally Significant (offshore wind) Infrastructure Project. The Applicant proposes that the MMO would instead be subject to an appeal process similar to the Marine Licensing (Licence Application Appeals) Regulations 2011, which would apply to any refusal or non-determination under the DMLs in Schedule 9-13.</p> <p>The Applicant can confirm that the MMO's understanding is correct in that the MMO are excluded from arbitration in the draft DCO, on the basis that an the appeals process is included in Part 5 of the DMLs, as set out in the current draft of the DCO.</p> <p>The Applicant considers that the decision from the Secretary of State on the Norfolk Vanguard DCO will</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Regulations 2011 (Appeal Regulations).		<p>also be a useful indication of the direction of travel for arbitration and the appeals process The Applicant refers to the joint position statement with Norfolk Vanguard Limited (Appendix 3 of the Applicant's Comments on Relevant Representations document).</p> <p>In addition, by way of further background, following Model Article 42, previous DCOs have applied the concept of arbitration to the MMO and relevant consultees. However, such arbitration mechanisms based on the model provision did not contain any structure, timings or outcomes so as to provide the detail of how the arbitration process would operate. The Norfolk Vanguard Limited Applicant (together with the applicants of Hornsea Project Three and Thanet Extension Offshore Wind Farms) therefore inserted more detail on the timeframes and steps associated with the arbitration process. To this end, the MMO (and its consultees including Trinity House) made submissions that the arbitration Article (and related schedule) should not apply to the MMO, and to determination of any matter under the DMLs in particular.</p> <p>The MMO are subject to an appeals process in respect of Marine Licences granted under Part 4 of the Marine and Coastal Access Act 2009 (MCAA 2009). Section 73 of the MCAA provides an appeals process for applicants of Marine Licences by way of the Marine Licensing (Licence Application Appeals) Regulations 2011 (the Appeal Regulations). However, the Applicant agrees with the MMO, that the appeals process does not apply to any non-determination or refusal to approve conditions under a Marine Licence (or a DML) and, under Regulation 4 of the Appeal Regulations, is limited to appeals concerning:</p> <ol style="list-style-type: none"> <li>(1) the grant of a marine licence subject to conditions;</li> <li>(2) the refusal to grant a marine licence;</li> <li>(3) the time period for which activities are authorised; and/or</li> <li>(4) the applicability of the licence conditions to transferees.</li> </ol> <p>Accordingly, if any determination under the DMLs is excluded from arbitration and/or an appeals</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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			<p>process then the only recourse to an undertaker is to seek judicial review of a decision made by the MMO. However, it is noted that in order to seek judicial review there must first be a decision by the MMO. To the extent that there has been no determination in relation to approval requested under a condition, this places the undertaker in a state of limbo where it has no remedy to move matters forward. Even if a decision has been made to refuse approval of a condition, which is therefore capable of judicial review, this is not an adequate remedy. The court would not be able to consider the merits of the determination, and to the extent that the decision had not lawfully been made, the remedy would be only to remit the decision back to the MMO for its re-determination.</p> <p>In relation to deemed refusal, the Applicant does not consider this to be a fair or transparent mechanism for determining an application. As the MMO recognise, the emphasis of the MMO's duties lie in the fact that Parliament has vested public law functions such as discharging marine licence conditions upon the MMO. It should therefore naturally follow that the MMO does indeed reach a decision on the discharge of a condition, with justifiable reasons (for approval or disapproval), within the timeframes stipulated in a (deemed) marine licence. The MMO has a public duty to do so. This is increasingly pressing in the case of offshore wind. There is a strong public interest argument in favour of timely approvals in order to ensure that nationally significant (renewable energy) infrastructure projects are not unduly delayed. Accordingly, the Applicant considers that the appeal mechanism inserted within the dDCO strikes the balance between allowing the MMO (and its consultees) to properly discharge their statutory duties whilst ensuring development is unlocked in a timely manner.</p> <p>In response to the MMO's concerns that the Planning Act 2008 does not allow for such an approach, the Applicant draws the MMO's attention to section 120 of the Planning Act 2008, which provides that a Development Consent Orders may:</p> <ul style="list-style-type: none"> <li>(a) apply, modify or exclude statutory provisions;</li> <li>(b) amend, repeal or revoke statutory provisions of local application; and</li> <li>(c) include any provision that appears to the Secretary of State to be necessary or expedient for giving</li> </ul>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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			<p>full effect to any other provision of the order.</p> <p>The draft DCO is drafted as a Statutory Instrument, which itself involves in-depth consultation and scrutiny from stakeholders, and already seeks to modify and dis-apply certain statutory provisions, as set out at article 7, article 23, and Schedule 7 of the dDCO. To the extent that this is a concern, additional drafting could be included in the dDCO at article 7 to apply the modified 2011 Regulations (as set out in Part 5 of the DMLs) or a bespoke appeals process could be used, such that the 2011 Regulations are not modified. In any event, including an appeal mechanism for the DMLs within the dDCO does not alter the Marine Licensing process, or the way that decisions are determined under that process. The MMO's stakeholders have no legitimate expectation in how DMLs are dealt with and, as is agreed between the MMO and the Applicant, it is proposed that a consistent approach is taken in respect of all future offshore wind farm DCOs/DMLs in this respect.</p> <p>It should also be noted that under Schedule 15 of the dDCO, the relevant planning authorities (who have a statutory function analogous to that of the of MMO) are subject to a bespoke arbitration/appeals procedure.</p> <p>The Applicant refers the MMO to its Comments on Relevant Representations document for a further justification relating to nationally significant energy projects departing from the standard marine licences.</p>
22	<p><b>Conditions 14 (1) and 15 (3)</b></p> <ul style="list-style-type: none"> <li>• Timescales throughout the DMLs of four months and within Part 5 of the DMLs</li> </ul>	RR-069	<p>The Applicant notes the MMO's comments. The Applicant, however, considers that the four month time frame conditioned within the DMLs is appropriate and proportionate to allow the MMO, in consultation with statutory bodies, sufficient time for stakeholder consultation and the provision of comments, whilst ensuring no unnecessary delay to the commencement of development and completion of construction works.</p> <p>This time period is contained on a number of other Offshore Wind Farm (OWF) DCOs (including The East Anglia Three Offshore Wind Farm Order 2017, the Hornsea Two Offshore Wind Farm Order 2016, the draft Norfolk Vanguard Offshore Wind Farm Order [2019], and the draft Hornsea Project Three Offshore</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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	<p>that refers to an appeal process</p> <ul style="list-style-type: none"> <li>• Insufficient time to consider all the relevant issues and seek appropriate feedback from statutory bodies</li> <li>• Adoption of more rigid timescales necessarily reduces this flexibility and restrictive timetabling may create an increased risk of non-compliance with submission deadlines of conditions</li> </ul> <p>Part 4, Condition 15(5)</p> <ul style="list-style-type: none"> <li>• Removal of condition</li> </ul>		<p>Wind Farm Order [2020]). Four months is, therefore, well-established as an appropriate time frame for OWF schemes of this nature and one that ensures a balance is struck between the expedient discharge of the relevant conditions attached to the DML whilst allowing a reasonable period of time for consideration by the MMO and its consultees.</p> <p>The Applicant acknowledges that it has, in some recent cases, taken much longer than 4 months for the MMO to discharge certain DML conditions on other OWF projects and it should be recognised that with no mechanism to encourage the MMO to determine applications within a reasonable period (such as arbitration or appeal) the developer is then left in a position which is wholly unsatisfactory. With such highly competitive and fixed Contracts for Difference milestones, and where offshore construction can only be undertaken in safe and optimal weather conditions, wind farm developers need the certainty and confidence of a reliable and consistent approval process. This is also one of the reasons why the Applicant sought to insert an appeal provision within the dDCO. In this context, the Applicant refers the MMO to its response below and the Norfolk Vanguard Ltd and MMO Joint Position Statement (Appendix 3 of the Applicant's Comments on Relevant Representations document).</p> <p>Accordingly, there is a strong public interest argument in favour of timely approvals in order to ensure that Nationally Significant (renewable energy) Infrastructure Projects are not unduly delayed. Accordingly, the Applicant considers that the dDCO strikes the balance between allowing the MMO (and its advisers) to properly discharge their statutory duties whilst ensuring renewable energy development is unlocked in a timely manner.</p> <p>In addition, in response to the MMO's comment at paragraph 2.1.6 that it is very common for documents to require multiple rounds of consultation to address stakeholder concerns, the Applicant envisages that discussions will be held with the MMO, and its stakeholders (where relevant), once the final Project design has been agreed and in advance of seeking formal discharge of conditions. This dialogue, which is also in the Applicant's own interest, would reduce the need for multiple rounds of consultation post-plan-submission. The In Principle SIP (document reference 8.17, APP-708), for example, contains an indicative timeline for consultation and agreement of the SIP post-consent; this includes several rounds of consultation with the MMO prior to the formal submission of the final SIP. It is expected that other key plans would follow a similar consultation and approval process. Furthermore,</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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			<p>it will be in the Applicant's interest to engage the MMO, and relevant stakeholders, at an early stage in this way to ensure the discharge process is as efficient as possible. In practice, the Applicant will have engaged in consultation activities with the MMO, and relevant stakeholders, well in advance of submission of the final version for approval; this means that the relevant stakeholders should be very familiar with its terms and effect at the point an application for discharge is made. By extension, the standard and level of detail within the final plan is expected to be of a high-quality.</p> <p>The Applicant agrees that any delays in document sign-off could lead to project delays and significant cost implications. Accordingly, in view of the tight construction programmes coupled with the time and investment that the Applicant will have committed to pre-submission consultation, the Applicant considers that there needs to be a consistent time frame (set at four months) for discharge in accordance with previous projects - including other Round 3 projects of a similar scale, together with a transparent appeals process in the event of refusal or non-determination.</p> <p>In view of the above, the Applicant does not consider it necessary or appropriate to adjust the time periods for discharge within the DML conditions.</p>
23	<p><b>Part 4, Condition 15(5)</b></p> <ul style="list-style-type: none"> <li>• Marine Licences</li> <li>• A Deemed Marine Licence should be treated equal to a marine licence and the conditions imposed should be equivalent to those that would be granted on a marine licence</li> </ul>	RR-069	<p>The Applicant notes that marine licences tend to be for matters that are on a wholly different scale to that of an offshore wind farm under an NSIP; marine licences may be required for activities such as depositing substances, to undertake dredging, and/or removing items from the seabed (Part 4 of the Marine and Coastal Access Act 2009). The difference in scale of marine licences is also exemplified in that marine licences tend to have a much shorter timetable for discharge of conditions.</p> <p>It is therefore appropriate to distinguish DMLs connected to a renewable energy NSIP from that of a standard Marine Licence.</p> <p>In any event, it is also commonplace for DCOs to modify or vary statutory functions - see for instance Article 6 and Schedule 6 of the as made East Anglia Three Order and Article 7 and Schedule 7 of the draft Norfolk Vanguard Offshore Wind Farm Order [2019], which modifies the legislation in relation to, for</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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			example, the Hedgerows Regulations, compulsory acquisition legislation, and the Neighbourhood Planning Act.
24	<p><b>Transfer of benefit</b></p> <ul style="list-style-type: none"> <li>• What mechanisms would be in place to ensure two different windfarms developers working in the same area work in cooperation especially with regard to in-combination effects</li> </ul>	RR-069	<p>In this context it should be noted that the Applicant has included a mechanism to govern co-operation between Norfolk Vanguard and Norfolk Boreas in respect of the offshore areas of overlap (Condition 18 (Schedule 11-12) and Condition 15 (Schedule 13)). This provides that Norfolk Boreas must send relevant schemes, plans, documents, and/or protocols to the Norfolk Vanguard offshore undertaker prior to submitting them to the MMO for approval, in order to allow Norfolk Vanguard the opportunity to comment on the documents. Norfolk Boreas must also participate in liaison meetings with the undertaker of the offshore element of the Norfolk Vanguard Offshore Wind Farm as requested from time to time by the MMO. These meetings may consider such matters as are determined by the MMO relating to the efficient operation of the offshore element of both of the authorised projects.</p> <p>In relation to any transfer of benefit pursuant to Article 6, the general position is the same as that which would apply under any other offshore wind scheme. As with previous offshore wind schemes of this nature, including the East Anglia One Limited and East Anglia Three Limited projects, the cooperation between a transferee and transferor following any transfer of benefit is governed through a private commercial agreement. This type of agreement will apportion the obligations and liabilities between each respective party. A cooperation agreement would be entered into between the respective parties in the event that Norfolk Boreas Limited transferred part of the benefit of the Order to another entity. This, rather than a Requirement or condition in the DCO, provides a more comprehensive avenue to govern the relationship and cooperation between the parties. In the event of any Transfer of Benefit, the Applicant will therefore carefully apportion liability and responsibility for the respective marine area and the associated plans, schemes and protocols.</p> <p>Pursuant to Article 6(14), the MMO will be provided with notice stating: the name and contact details of the transferee, the date on which the transfer will take effect, the exact provisions to be transferred or granted together with the restrictions, liabilities and obligations that will apply to the person/entity</p>



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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			<p>exercising the powers transferred, a plan showing the works or areas affected, and a copy of the document effecting the transfer.</p> <p>The MMO will therefore be provided with sufficient documentation to enable the MMO to comply with its statutory duties in relation to monitoring and enforcement.</p> <p>The Applicant therefore considers that this approach is not materially different from previously consented schemes and, accordingly, the Applicant does not consider it necessary to change the DCO in this respect.</p>
25	<p><b>Concurrent Piling</b></p> <ul style="list-style-type: none"> <li>The MMO requires a condition is added to the DMLs to prevent concurrent piling within the project and between Norfolk Boreas and Norfolk Vanguard</li> </ul>	RR-069	<p>The Applicant does not consider it to be appropriate to have a condition within its DCO that relates to another project. Norfolk Boreas has assessed for up to two concurrent piling events within the Norfolk Boreas project and therefore the DCO application is for up to two piling events to occur concurrently. The commitment to the SNS SIP will ensure that adequate mitigation will be put in place and developing the SNS SIP pre-construction will ensure that this is based on the latest scientific evidence, information and requirements. Within the current In Principle SNS SIP the Applicant considers Scheduling of pile driving with other projects as a potential mitigation measure and as required under Condition 14(1)(m) of Schedules 9 and 10 of the DCO the MMO are required to be satisfied that the SNS SIP provides adequate mitigation as is necessary to avoid adversely affecting the integrity of the Southern North Sea SAC. If required, and to the extent that the MMO did not consider the mitigation measures in the SNS SIP to be sufficient, an agreement not to pile drive at the same time as Norfolk Vanguard could be included in the final SNS SIP, to be agreed with (and approved by) the MMO.</p> <p>The responsibility to define the management framework and potential methodologies for management of multiple projects piling at the same time is largely outside of the Applicant's control; this responsibility lies with the regulator (MMO) to ensure no adverse effect on the integrity of the Southern North Sea SAC.</p>
26	<b>Cable Protection</b>	RR-069	The Applicant can confirm that new areas of cable protection required during the operation stage would

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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	<ul style="list-style-type: none"> <li>Subsequent activities once the construction period has ended will need to be separately licenced</li> <li>Part 4, condition 14 (1) (g) (iii)</li> </ul>		<p>be subject to a separate marine licence. The wording of the current DCO does not allow for the Applicant to install new areas of cable protection during operation.</p> <p>The OOOMP (document 8.12, APP-703) demonstrates this in the Table in Appendix 1 that has a "yes" in the 'Additional Licence' likely to be required column against cable protection.</p>
27	<p><b>Cable Protection</b></p> <ul style="list-style-type: none"> <li>Consideration of the impacts from deploying cable protection up to twenty-five years following construction</li> <li>No specific cable layout currently provided</li> </ul>	RR-069	<p>The Applicant wishes to highlight that the assessments presented in the ES are based upon the worst case scenario relevant to a given potential impact, as drawn from details pertaining to the type, quantity and location of scour and cable protection specified in the Project Description. Table 3 of the Outline Scour and Cable protection plan (document 8.16, APP-707) details the ES chapters and relevant impact assessments which consider these impacts. Impacts were assessed as negligible or minor significance (i.e. not significant) based on the worst case scenario at the time of the DCO submission. The worst case scenario has been further refined, as presented in Sections 2 and 3 of the Outline Scour and Cable protection plan (document 8.16, APP-707). It is important that an assessment is made within the ES to comply with the EIA regulations and the worst case scenario has a high degree of contingency. It is very much the aim of the Applicant to undertake sufficient sand wave levelling to ensure that cables remain buried for the life time of the project. Furthermore, the Applicant would always attempt to rebury cables should they become exposed before applying to the MMO for a separate licence to install cable protection. In order to obtain the licence, the Applicant would need to satisfy the MMO that there would be no further significant impacts.</p> <p>New areas of cable protection installed during the operation phase of the project would be subject to a separate marine licence. It is unreasonable to expect a project to have a detailed cable array layout at this stage of the project; the Applicant is unaware of any offshore windfarm that has made its DCO application with a final array layout fixed at the point of submission.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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28	<p><b>Outline operation and maintenance plan</b></p> <ul style="list-style-type: none"> <li>• clarity on the difference between 'Additional cable laying' and 'New cable protection'</li> </ul>	RR-069	Subsea cable repairs may involve cutting out a short section of damaged cable and inserting a new section of cable which is usually slightly longer than the section it replaces. Therefore, the Applicant cannot commit to 'no additional cable'.
29	<p><b>Outline operation and maintenance plan</b></p> <ul style="list-style-type: none"> <li>• new cable protection is changed to Red</li> <li>• Foundation replacement' should be changed to Red</li> <li>• amending the 'Replacement or addition to cable protection in the same area as cable protection installed during construction' to just include replacement and remove addition</li> </ul>	RR-069	This will be updated to red in the next version of the OOOMP.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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30	<p><b>Outline operation and maintenance plan</b></p> <p>Use of specific number when referring to meterage of interconnector and project interconnector cables subject to repair.</p>	RR-069	The Applicant can now confirm that the amount of cable which may be subject to repair is up to 300m. This would apply to both the interconnector and project interconnector cables. The OOOMP will be updated accordingly.
31	<p><b>Outline operation and maintenance plan</b></p> <p>Confirmation within the document that the scour protection would be limited to a maximum area and dept</p>	RR-069	<p>The DCO contains the maximum area and volume of scour protection that could be installed around foundations (Schedule 1 Requirement 11, and Condition 8 of the Generation DMLs (Schedule 9-10) and Condition 3 of the Transmission DMLs (Schedule 11-12)). Any additional scour protection placed around the foundations would be limited to those figures secured within the DCO.</p> <p>As described in Chapter 5 project description of the ES (APP-218) the maximum area of scour protection that would be placed around a single foundation would be five times the diameter of the foundation and the scour protection would be installed up to a maximum height of five meters. For the largest foundations, which are 50m gravity base foundations the maximum area would be 49,087m<sup>2</sup> and the maximum volume would therefore be 245,435m<sup>3</sup>. These are considered precautionary estimates for the purposes of establishing the worst case scenario and these figures will not be exceeded at any stage during the lifespan of the project. Appendix 1 of the OOOMP will be updated to include the following <i>"The values per foundation presented in the Outline Scour Protection and Cable Protection Plan (document 8.16, APP-707) must not be exceeded over the life of the project" in line covering "Additional scour protection around foundations"</i>.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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32	<p><b>Outline operation and maintenance plan</b></p> <p>Simultaneous use of sidescan sonar or multi-beam echo sounder acoustic methods</p>	RR-069	The Applicant can confirm that data using both SSS and MBES will be employed simultaneously, along with drop down video. This will be updated in the next version of the IPMP.
33	<p><b>Fisheries Liaison and Coexistence plan</b></p> <p>The MMO recommends it is made clear within the document that 'the MMO will not act as arbitrator and will not be involved in discussions on the need for, or amount of, compensation being issued'.</p>	RR-069	The Applicant welcomes the feedback provided by the MMO. Further detailed information with regard to the Applicant's approach to fisheries liaison and co-existence will be included in the Fisheries Liaison and Co-Existence Plan which will be submitted post-consent for MMO approval (as specified under Schedules 9 and 10, Part 4, Condition 14.d (v) of the dDCO (document 3.1, APP-020)). In line with the recommendation made by the MMO this will include a clear reference to the fact that the MMO will not act as arbitrator and will not be involved in discussions on the need for, or amount of, compensation, should economic compensation be required.
34	<p><b>HHW SAC SIP</b></p> <p>Use of updated data for HRA to conclude no adverse effect on</p>	RR-069	The Applicant has set out the worst case scenario within the HRA and the SIP. The Applicant considers that it is possible without the SIP to conclude no adverse effect on integrity of the SAC because:

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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	integrity (AEoI) due to the cable protection within the HHW SAC.		<p>1. The Applicant believes that neither the dredging of sand waves nor the introduction of cable protection will change the form and function of the Annex 1 sand banks as they will rapidly recover (as concluded in Appendix 7.1, APP-206 of the HRA)</p> <p>2. The Applicant believes that the project will have the ability to microsite around confirmed <i>S.spinulosa</i> reef. The only locations where this will not be possible is at cable crossings</p> <p>3. The Applicant believes that there is enough evidence to suggest that <i>S.spinulosa</i> reef would colonise cable protection</p> <p>4. If <i>S.spinulosa</i> reef is present at cable crossings, by Natural England's definitions, this is not Annex 1 reef.</p> <p>However, the Applicant acknowledges that Natural England do not agree with this conclusion and therefore the SIP has been developed for Natural England and the MMO to manage any potential effects of the project on the HHW SAC.</p>
35	<b>HHW SAC SIP</b> Appropriate that this process to be deferred to post consent	RR-069	The Appropriate Assessment (AA) would be completed pre-consent, and a decision made based on the fact that a SIP would be implemented. The SIP would include the final design, most recent survey data and any mitigation required to ensure that the features of the SAC would not result in AEoI.
36	<b>HHW SAC SIP</b> Difference in the need for a SIP between the impact alone within the HHW SAC and for the in-combination noise impact within	RR-069	The Applicant believes that due to the ephemeral nature of <i>S.spinulosa</i> reef and the unique position of the Norfolk Boreas project i.e. the opportunities to work synergistically with Norfolk Vanguard to minimise impacts and the fact that in order to maximise these synergies the Applicant has three different electrical solutions, the appropriate time to agree mitigation measures is at the pre-construction stage and through a SIP.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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	the Southern North Sea (SNS) SAC		
37	<b>HHW SAC SIP</b> In combination impacts from multiple SIPs from multiple developments in the same marine protected area	RR-069	The Applicant is in the unique position of being developed in tandem with Norfolk Vanguard and therefore as the SIP has been accepted for that project, it would not be suitable to take a different path for Norfolk Boreas.
38	The MMO would prefer that the concept of a SIP for a single project be rejected and these impacts known via a worst case scenario dealt with at the time of consent through a benthic plan clearly describing possible mitigation for known scenarios..	RR-069	The Applicant believes that the worst case scenarios across Norfolk Boreas and Norfolk Vanguard have been adequately defined to in order to undertake the Cumulative impact assessments within the ES. However, the Applicant is in discussions with the MMO as to what further information they require.
39	<b>Proposed Sediment Disposal Sites- Site</b>	RR-069	The Applicant do not believe that the commitment to modelling disposal material at this stage is appropriate. The Applicant does not believe that the results of such modelling would provide any more clarity than the modelling that was undertaken for EA ONE which have been used to inform the Norfolk

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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	<p><b>Characterisation Report</b></p> <p>Sediment dispersal modelling</p>		Boreas assessment. Other projects such as Norfolk Vanguard did not include such a commitment. It should also be noted that the Applicant is in discussions with the MMO and Natural England over making the commitment to dispose of dredged material at the seabed by using a fall pipe
40	<p><b>Proposed Sediment Disposal Sites- Site Characterisation Report</b></p> <p>Use of method where suspended sediment based on the modelling undertaken for East Anglia Three Offshore Wind Farm</p>	RR-069	This approach was agreed through the evidence plan process. In the EPP agreement log the MMO state <i>"The East Anglia ONE site provides a reasonable environmental proxy for the Norfolk Boreas site. At this time, the MMO consider that this is likely to be sufficient."</i> Following that statement the Norfolk Boreas worst case scenario for volumes in a single release were significantly reduced to be much less than those modelled for EA ONE and therefore the approach became even more precautionary. The use of EA ONE as a proxy was included in the method statement which was agreed, although further justification was requested as to why it is appropriate for the Norfolk Boreas site, this was provided in the application documents. The Applicant believe that no amount of modelling will come up with a different conclusion from that of the ES.
41	<p><b>Proposed Sediment Disposal Sites- Site Characterisation Report</b></p> <p>The MMO is currently working with the Applicant on the disposal sites that will be used.</p>	RR-069	An updated Site Characterisation report was provided to the MMO for review in September 2019. This will be submitted to the Norfolk Boreas Examination at an appropriate deadline and the site disposal references, once known, will be secured within the DCO.



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

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42	<p><b>Licensing works</b></p> <ul style="list-style-type: none"> <li>• Consideration of impact assessment prior to licensing such works</li> </ul>	RR-069	<p>The worst case scenario for the extent of cable protection and cable repairs has been assessed and is clearly stated within the DCO application documents. The same worst case scenario was also clearly stated within the PEIR which was consulted on as part of the Applicant's section 42 consultation. Further consultation would be undertaken as part of the application process for the additional marine licence if required.</p>
43	<p><b>Definition of Maintain</b></p> <ul style="list-style-type: none"> <li>• Deployment of cable protection is not covered by this definition of maintain</li> <li>• Deployment at any time during the operational lifespan is to be approved through separate licence applications</li> </ul>	RR-069	<p>The Applicant agrees and acknowledges that a separate marine licence would be required for such activity and therefore the DCO, as currently drafted, does not allow for new areas of cable installation.</p> <p>The Applicant does not consider it necessary to amend the DCO or the definition of maintain, which states:</p> <p>"maintain" includes inspect, upkeep, repair, adjust and alter and further includes remove, reconstruct and replace (but only in relation to any of the ancillary works in part 2 of Schedule 1 (ancillary works), any cable and any component part of any wind turbine generator, offshore electrical substation, accommodation platform or meteorological mast described in Part 1 of Schedule 1 (authorised development) not including the alteration, removal or replacement of foundations), to the extent assessed in the environmental statement; and "maintenance" is construed accordingly."</p> <p>It is clear from this definition that construction of new cable protection in new areas is not permitted within the definition of maintain.</p> <p>In addition, the outline Offshore Operations and Maintenance Plan (document 8.11, APP-702) makes it clear that, in order to install new areas of cable protection, a separate licence would need to be granted. This plan is secured as an outline plan under Article 37 and the final version must be in accordance with the outline plan and submitted to the MMO prior to commencement of licensed activities (condition 14(1)(j) of Schedule 9-10, condition 9(1)(j) of Schedule 11-12 and condition 7(1)(i) of Schedule 13)). The detail is therefore secured within the plans and the Applicant does not consider that the DCO needs amending further.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
44	<p><b>Scour Protection</b></p> <p>The inclusion of "scour protection" as equipment in the interpretations for "gravity base", "jacket foundation", "monopile foundation" and "tetrabase foundation" is questioned as this is a separate entity</p>	RR-069	<p>The Applicant considers that the definitions are appropriate and in line with precedent.</p> <p>Notwithstanding this, the Applicant proposes to amend the wording in each of the respective definitions in order to address the MMO's concern. By way of example, the Applicant has included the revision in the context of "gravity base" below:</p> <p><i>"gravity base" means a structure principally of steel, concrete, or steel and concrete which rests on the seabed either due to its own weight with or without added ballast or additional skirts and associated <b>materials and</b> equipment including scour protection, J-tubes, transition piece, corrosion protection systems, fenders and maintenance equipment, boat access systems, access ladders and access and rest platform(s) and equipment;</i></p> <p>The Applicant will make this change in the next version of the dDCO.</p>
45	<p><b>Drill Arisings</b></p> <p>Drill arisings figure does not match the worst case scenario within ES Chapter 5 Project Description</p>	RR-069	<p>The Maximum total of drill arisings within the DCO is correct, these would comprise of</p> <ul style="list-style-type: none"> <li>• Monopile wind turbine foundations = 397,608m<sup>3</sup> (see para 92 of the project description)</li> <li>• Offshore Service platform 848m<sup>3</sup> (not specified in the project description)</li> <li>• Met masts 565.5 (single) 1,131m<sup>3</sup> for both (not specified in the project description);</li> <li>• Lidar monopiles 188.5m<sup>3</sup>;</li> </ul> <p>All of the above is secured within the total for Schedules 9 and 10 Generation assets with the total of 399,776m<sup>3</sup>.</p> <ul style="list-style-type: none"> <li>• Piles for electrical platforms 7,069m<sup>3</sup> (for a single pile, see Table 5.16 of the Project description, APP-218), 14,137m<sup>3</sup> for both.</li> </ul>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			All of which adds up to a grand total of 413,913m <sup>3</sup> which is the total used in the EIA, document 6.7 EIA and DCO Reconciliation Document (document 6.7, APP-689) and the document 8.15 site characterisation report.
46	<p><b>Maximum Parameters</b></p> <p>All licensed activities should be limited to the maximum parameters assessed within the ES, and these should be clearly defined on the Deemed Marine Licence's (DML).</p>	RR-069	<p>The Applicant would refer the MMO to Document 6.7 EIA and DCO Reconciliation Document (document 6.7, APP-689) which illustrates how the worst case parameters assessed within the ES cannot be exceeded by the conditions secured within the DCO.</p> <p>The key parameters within the ES are all secured within the Requirements and/or DML conditions within the dDCO.</p>
47	<p><b>Cable Crossings</b></p> <p>Inclusion of the cable crossings in the total cable protection within the DCO</p>	RR-069	<p>The Applicant does not consider it necessary to include a maximum number of cable crossings in the DMLs. The cable protection figures are the salient measures in this respect. The figures for cable protection have been based on the parameters assessed in the ES. Whilst the Applicant does of course not intend to exceed the maximum parameters assessed in the ES, the Applicant has used available data to estimate the number of cable crossings, and there is potential for historic cables to be unregistered. Therefore, if crossings can be achieved using cable protection up to the maximum area and volume included in the DCO then these should be permissible. Accordingly, flexibility is sought within the parameters assessed (i.e. maximum cable protection figures) to confirm the maximum number of cable crossings at the pre-commencement stage once this further detail is known and can be confirmed. The Applicant considers that the level of detail regarding the precise number of cable crossings would be</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>agreed as part of the final scour protection and cable protection plan (Condition 14(1)(e) of the Generation DMLs and Condition 9(1)(e) of the Transmission DMLs).</p> <p>Notwithstanding the Applicant's view above, the Applicant has included the total number of cable crossings for the HHW SAC given its status as a European site. This detail is stated in the proposed outline Norfolk Boreas Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan (at Table 3.1 and Section 5.5.1), which is to be secured pursuant to Condition 9(1)(m) of the Transmission DMLs.</p>
48	<p>Undertake activities that are outside the maximum parameters assessed and considered under the original DCO</p> <ul style="list-style-type: none"> <li>• A request to vary the DML</li> </ul>	RR-069	The Applicant agrees with this statement that if the works or activity fall outside of that assessed in the ES then they will need to apply to vary the current DML, save that the Applicant may also be entitled to apply for a separate marine licence for the specified works.
49	Recommendations that the individual structure volumes and areas should be included within the face of the DCO	RR-069	The Applicant's position is that as the DML conditions specifically require that the final plan must accord with the outline plan it is not necessary to include the level of detail sought by the MMO on the face of the DMLs. The DMLs and the DCO would become unwieldy if the details within the plans were placed on the face of the DCO. Provided the figures contained within the plan are fixed as a worst case (which is the position here), the worst case cannot be changed without a variation of the DMLs; if it was changed the final plan would not be in accordance with the certified outline plan as the relevant condition requires. Therefore, the Applicant does not consider it necessary to further amend Condition 14(1)(e) (Schedule 9-10) or Condition 9(1)(e) (Schedule 11-12) to include a breakdown of scour protection figures on the face of the DMLs.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
50	<p>Assessment of specific volumes of boulder relocation work</p> <ul style="list-style-type: none"> <li>Request to include within DML's</li> </ul>	RR-069	<p>Disposal volumes have been separated into drill arisings and dredged sediment in the dDCO. Any boulders of significant size would be relocated as assessed in the ES. These would not be lifted to the surface and are therefore not considered in the volumes for disposal. The Applicant considers that it is not practicable or necessary to distinguish between sand and mud volumes.</p> <p>Notwithstanding this, the Applicant has secured the amount of boulders to be cleared within the HHW SAC within the Outline HHW SAC SIP (document reference 8.20, APP-711). This is secured within condition 9(1)(m) of the Transmission DMLs (Schedule 11-12).</p>
51	Any reference to a condition applies to all schedules where similar conditions exist.	RR-069	The Applicant agrees save for where a condition is relevant only to the respective DML. For instance, the Outline HHW SAC SIP (document 8.20, APP-711) is only relevant for the Transmission DMLs and is therefore only referred to within Schedule 11-12.
52	<p><b>Disposal Sites</b></p> <ul style="list-style-type: none"> <li>Material containing contaminants cannot be disposed of within the disposal sites</li> </ul>	RR-069	<p>The contaminant sampling showed no exceedance of any contaminants above Cefas Action level 2 (Chapter 9 Marine Water and Sediment Quality APP-222) and therefore the Applicant does not believe there to be any significant contamination within the offshore project area. The low levels of contamination the MMO refer to here are for that of Arsenic. These exceedances are considered to be marginal as they are only just over the Action Level 1 concentration. Elevated levels of arsenic are typical of this region of the southern North Sea. These are associated with estuarine and geological inputs and seabed rock weathering therefore they are in line with sample results for metals. It should be noted that all material would be placed back on the seabed as close to the dredging location as possible albeit avoiding <i>S.spinulosa</i> reef.</p> <p>The wording used within schedules 9-13 of the DCO to describe disposal of material follows the precedent set by previous offshore wind farm DCOs such as East Anglia THREE and Norfolk Vanguard, therefore the Applicant does not propose to amend the wording.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
53	Inconsistency of formatting of units throughout the DMLs	RR-069	The Applicant notes this and will review the dDCO and make any changes accordingly.
54	<p><b>Cumulative sound exposure level scenarios</b></p> <p>the risk assessment is only valid under the assumption of a single pile being installed per 24- hour period</p>	RR-069	<p>The Southall et al. (2019) paper, which includes the same NOAA (NMFS, 2018) thresholds and criteria but is a peer-reviewed and more recent paper states:</p> <p><i>“There are insufficient direct measures of TTS from different exposure intermittency patterns in marine mammals to define an explicit duration of intermittency between exposures following which they should be considered discrete exposures and, thus, no longer accumulated using a single SEL value. While Southall et al. (2007) suggested a 24-h period for this interval, some of the basis for that distinction was related to behavioural issues rather than explicitly hearing effects. Limited available data on exposure intermittency and recovery from a hearing perspective would suggest that a shorter than 24-h exposure intermittency would be appropriate to reset the cumulative SEL calculations for multiple exposures (see Finneran, 2015). It is unlikely that a simple and uniform relationship exists across all species and exposure scenarios and that case-specific evaluations will likely be required to evaluate an appropriate reset duration.”</i></p> <p>Therefore Southall et al. (2019) note <i>“that in many realistic exposure conditions, the 24-h rule for SEL “reset” may be inappropriately long and further scientific investigation of these issues, especially for species with some existing TTS data, is clearly needed.”</i></p> <p>Therefore, the Applicant considers that this will be taken into account, if required, when developing the MMMP and SIP pre-construction based on the latest guidance, scientific evidence and information. The MMMP and SIP are secured in the DCO through Condition 14(1)(f) and Condition 14(1)(m).</p> <p>It should also be noted that piling is not continuous for subsequent piles, even pin-piles for jackets, as there are breaks between piling in order to move to and get the next pile into position.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
55	Wildlife licence for European Protected Species (EPS)	RR-069	The Applicant refers the MMO to the Consents and Licences document (document 5.4, APP-213) which outlines that any EPS licence will be applied for, as necessary, post-DCO consent and when the design of the wind farm is being finalised.
56	<p><b>Part 4, condition 9 (8)</b></p> <ul style="list-style-type: none"> <li>the word 'working' needs to be added: 'A notice to mariners must be issued at least ten working days prior...'</li> </ul>	RR-069	This suggested change is not consistent with precedent. Previous DCOs, including the draft Norfolk Vanguard Order [2019], the draft Hornsea Project Three Order [2020] and the as made East Anglia Three Order 2017 all include a time period of ten days. To amend this to working days has the effect of adding 4 extra days to the timeframe, which is not considered proportionate in the circumstances.
57	<p><b>Part 4, condition 9 (12)</b></p> <ul style="list-style-type: none"> <li>the time scale needs to be changed from five days to three days.</li> </ul>	RR-069	This suggested change is not consistent with precedent. Previous DCOs, including the draft Norfolk Vanguard Order [2019] refer to a period of five days and there is no justification for departing from this. This is also not consistent with the other timeframes in the DML (of five days) for similar notifications.
58	<p><b>Part 4, condition 12 (4)</b></p> <ul style="list-style-type: none"> <li>the MMO recommends the following text be added at the end of the condition: <i>"When no activity has taken place a</i></li> </ul>	RR-069	The Applicant will update the next version of the DCO accordingly.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	<i>null (0) return must be provided"</i>		
59	<p><b>Part 4, condition 12 (5)</b></p> <ul style="list-style-type: none"> <li>Should be amended to ensure that any material of non-natural origin must be disposed of to an appropriate disposal site onshore. Subject to any requirements under the appropriate archaeological conditions.</li> </ul>	RR-069	The Applicant considers that all material dredged or drilled from the seabed would be on natural origin. Furthermore, all material would be disposed of within the vicinity of the dredge location and therefore would not be transported far from source. Therefore, the wording of the DCO should remain in keeping with the precedent set by previous DCO projects.
60	<p><b>Part 4, condition 14 (1)</b></p> <ul style="list-style-type: none"> <li>Requests that this condition is more explicit for each sub condition, notwithstanding the MMO comments on the specific timescales (four vs six months)</li> </ul>	RR-099	The general position is that stated under Condition 15(3) in that each programme, statement, plan, protocol or scheme required to be approved under condition 14 must be submitted for approval at least four months prior to the intended commencement of licensed activities (unless stated otherwise). Condition 14(b) is an exception where it is necessary to 'otherwise state' the timeframe. The express reference to a timeframe within condition 14(1)(b) is necessary given that the four month deadline is relevant for the submission of details at different stages and prior to certain events (as opposed to that under the general Condition 15(3) position) – for instance, prior to the first survey, prior to construction, and prior to commissioning. Equally, Condition 14(1)(j) secures the Operation and Maintenance plan. This plan is not applicable for the construction stage; it must be submitted at least four months prior to



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			commencement of operation of the licensed activities. Condition 14(1)(j) therefore falls outwith the general rule under Condition 15(3).
61	<p><b>Part 4, condition 16</b></p> <ul style="list-style-type: none"> <li>The MMO requests to be added to this condition to receive notification of this data being sent, within five days of submission.</li> </ul>	RR-069	The Applicant will update the next version of the dDCO accordingly.
62	<p><b>Part 4, condition 20 (2) (a)</b></p> <ul style="list-style-type: none"> <li>Alter condition to reflect that more than 1 survey may be needed</li> </ul>	RR-069	<p>The obligations in condition 20(2)(a) are in respect of the surveys referred to in sub-paragraph (1) (i.e. all the post-construction surveys) and condition 14(1)(b) (the construction programme and monitoring plan).</p> <p>The MMO must be satisfied and approve both the construction programme and monitoring plan (pursuant to Condition 14) and the post-construction surveys under condition 20. The MMO therefore has sufficient opportunity to raise any further points during this approval process.</p> <p>Accordingly, the Applicant does not propose to change the DCO.</p>
63	<p><b>Part 4, condition 22</b></p> <ul style="list-style-type: none"> <li>Amend condition to include the final location of scour protection</li> </ul>	RR-069	The Applicant does not consider that this change is necessary; the additional wording in relation to scour protection is not in line with precedent following as-made Development Consent Orders and the Norfolk Vanguard draft DCO and the Hornsea Project Three draft DCO. In addition, the Applicant's understanding is that reporting of cable protection is required as this could be deployed anywhere along the cable routes, whereas for scour protection this will be deployed around foundations and is, in any

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			event, controlled through the Scour Protection and Cable Protection Plan (secured under Condition 14(1)(e) Schedule 9-10, and Condition 9(1)(e) Schedule 11-12).
64	<b>Part 1:</b> "Development Principles" & "Defence Infrastructure Organisation Safeguarding" are in a different order on each schedule.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.
65	<b>Part 2, 6,</b> the words "are specified below" are not included in S9.	RR-069	The Applicant can confirm that the wording is consistent throughout all the DMLs. Paragraph 6 of Part 2 states that: "The grid coordinates for the authorised scheme are specified below-"—
66	<b>S9, Part 3, 1(d) (f)</b> needs to include "up to a total of " within the wording of the condition.	RR-069	Whilst the Applicant sees this wording as slightly superfluous, the Applicant is willing to update this condition in the dDCO accordingly.
67	<b>Part 4, condition 6, (1),</b> should include "each foundation using piles" within the condition.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.

**Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
68	<b>S10, Part 4, condition 9, (8)</b> the notice should be provided to MCA as well as the MMO/UKHO as per S9.	RR-069	The Applicant notes this comment and will amend this condition in Schedule 11, 12, and 13 of next version of the dDCO.
69	<b>S9, Part 4, condition 9, (9)</b> the notice should be provided to MCA as well as the MMO/UKHO as per S10.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.
70	<b>S9, Part 4, condition 14, (1)(h)</b> the word "and" needs to be removed from the section of the condition below:  "...seaward of mean low water, which and must accord with the outline written scheme of..."	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
71	<b>S10, Part 4, condition 15, (7)</b> the words "approved" and "deemed" need to be added to the condition as per S9.	RR-069	<p>The Applicant notes this comment. However, the Applicant considers that these additional words are superfluous. The Condition should read as follows:</p> <p>"(7) The licensed activities must be carried out in accordance with the <del>approved</del> plans, protocols, statements, schemes and details approved under condition 14 or <del>deemed to be</del> approved following an appeal under sub-paragraph (6) above, unless otherwise agreed in writing by the MMO."</p> <p>It is clear from this (revised) wording that the licensed activities must be carried out in accordance with the approved plans.</p> <p>Further, the Applicant does not consider that the appeal process referred to in sub-paragraph (6) and Part 5 of the DMLs provides a mechanism for an approval to be deemed. The reference to deemed approval can therefore be removed.</p> <p>This Condition is correctly worded (as shown above) within Schedule 10-13. The Applicant will therefore make the necessary updates to Condition 15(7) in Schedule 9.</p>
72	<b>S10, Part 4, condition 20, (4)</b> the wording needs reviewing, and any additional wording removed.	RR-069	<p>The Applicant notes this comment and will remove the additional wording from Schedule 10, Condition 20(4) in the next version of the dDCO.</p>
73	<b>S12 Part 1:</b> "cable protection" the word "conditions" needs to be added after "ground" as per S11.	RR-069	<p>The Applicant notes this comment and will amend in the next version of the dDCO.</p>

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
74	<b>S12, Part 1</b> , does not include "generation licence" interpretation.	RR-069	<p>"Generation licence" is referenced in Schedule 11 (Transmission DML, Phase 1) . However, reference to "generation licence" is not included within Schedule 12 (Transmission DML, Phase 2).</p> <p>The reference to generation licence in Schedule 11 is necessary in the context at Condition 3(2). The condition provides that the undertaker must notify the MMO whether the project will be commenced under Scenario 1 or Scenario 2. In order to avoid duplication of the same notice, the wording at Condition 3(2) makes it clear that the undertaker does not need to provide a notice under Schedule 11 where the equivalent notification has already been provided under the "generation licence" (at Schedule 9).</p> <p>It therefore follows that this wording is not necessary within the Schedule 12, Phase 2 licence given that the notification will have either been provided under (1) the generation licence, or (2) Phase 1 of the transmission licence.</p> <p>The Applicant does not therefore propose to update the dDCO.</p>
75	<b>Part 1</b> : "outline fisheries liaison and co-existence plan" & "outline offshore operations and maintenance plan" are in a different orders on each schedule.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.
76	<b>S12, Part 4, condition 1, (2) (c)</b> the word "combined" needs to	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	be added to the condition as per S9.		
77	<b>S12, Part 4, condition 9, (1) (k)</b> the word "appropriate" needs to be removed as per S11.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.
78	<b>S11, Part 4, condition 12</b> needs to be updated to include the missing information as shown in S12.	RR-069	The Applicant notes this comment and will amend in the next version of the dDCO.
79	Protective Provisions <ul style="list-style-type: none"> <li>• Cadent Gas</li> </ul> Ensure no adverse effect upon statutory obligations	RR-024	The Applicant will continue to negotiate protective provisions with Cadent Gas Limited and expects agreement before the close of examination. Draft provisions have been included within the DCO under Schedule 17 Part 3.
80	Protective Provisions <ul style="list-style-type: none"> <li>• National Grid</li> </ul>	RR-052	The Applicant will continue to negotiate protective provisions with National Grid and expects agreement before the close of examination. Draft provisions have been included within the DCO at Schedule 17 Part 2.

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	Ensure no adverse effect upon statutory obligations		
81	Protective Provisions <ul style="list-style-type: none"> <li>• Network Rail</li> </ul> Ensure no adverse effect upon statutory obligations	RR-100	The Applicant will continue to negotiate protective provisions with Network Rail and expects agreement before the close of examination. Draft provisions have been included within the DCO under Schedule 17 Part 5.
82	The draft protective provisions contained within part 7 of Schedule 17 of the draft DCO do not correspond with the latest version of the Environment Agency's model protective provisions.	RR-095	Protective Provisions for the Environment Agency are set out in Schedule 17, Part 7 of the draft DCO. The Protective Provisions set out in the draft DCO are consistent with those agreed and included in the Norfolk Vanguard draft DCO and for other similar projects such as the draft DCO for Hornsea Project Three and Triton Knoll Electrical System Order 2016.
83	The National Trust would like to be a consultee along with Norfolk County Council and Historic England as	RR-084	Commitments are included in the Outline Written Scheme of Investigation (Onshore) (document 8.5, APP-696) with respect to the National Trust and their Archaeologist's involvement in the planning of the archaeological works across the relevant parts of the Blickling Estate. Requirement 23 of the draft Development Consent Order (document 3.1, APP-020) secures the commitments as outlined in the

Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
	set out in Condition 23 of the draft DCO.		<p>Outline Written Scheme of Investigation (Onshore) (document 8.5, APP-696), specifically Section 6.8 which directly addresses the National Trust Blickling Estate.</p> <p>The outline Written Scheme of Investigation (Onshore) must be submitted to the Secretary of State after the making of the Order, as required by Article 37. This procedure ensures that the outline plans are certified and secured within the DCO. Pursuant to the wording of Requirement 23, the final plan must be in accordance with the outline plan. This, therefore, secures the commitments (including those made with the National Trust) from the outline plan into the final plan.</p>
84	HVDC Assurance	RR-046, RR-020, RR-041, RR-012, RR-053, AS-012	The HVDC export infrastructure was assessed under the Environmental Statement. Accordingly, the project to be consented is for an HVDC export infrastructure system only and an HVAC export system could not be constructed under the terms of the draft DCO.
85	NNDC would respectfully request that positions are updated by the applicant as soon as possible.	RR-101	A Statement of Common Ground has been prepared with North Norfolk District Council which is consistent with that agreed for Norfolk Vanguard and includes matters of agreement relating to coastal erosion, impacts from construction activities including potential impacts on tourism and recreation.
86	It is recognised that, at the start of the Norfolk Boreas examination, there is some catching up to do with the final positions set out for Norfolk Vanguard.	RR-101	The Applicant has looked to incorporate developments and commitments from Norfolk Vanguard throughout the project including those occurring during the Norfolk Vanguard Examination. However, changes to the DCO and other documents towards the end of Norfolk Vanguard's examination process were not captured in the Application due to the timescales dictated by the submission deadline of the Norfolk Boreas application. However, in the time elapsed since the closure of Norfolk Vanguard's examination and submission of the Norfolk Boreas application the Applicant has been proactive in



Table 26 Applicant responses to Relevant Representations in relation to DML and DCO and supporting DCO documents

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			updating and tracking these changes into the relevant Norfolk Boreas application documents. A number of these changes will be submitted at deadline 1 and subsequent deadlines as appropriate. .
87	Natural England recommends that a condition be included in the DCO for the Applicant to produce a net gain DCO plan demonstrating how the proposed project will deliver net gain.	RR-099 <i>Appendix 5 DCO and DML</i>	<p>The Applicant does not consider this necessary or appropriate for a project of this nature. The proposals for net gain fall outside of the NSIP consenting regime. This is confirmed in the Government response to consultation dated July 2019, at page 5 as follows:</p> <p><i>"Government will continue to work on exploring potential net gain approaches for these types of development, but nationally significant infrastructure and net gain for marine development will remain out of scope of the mandatory requirement in the Environment Bill."</i></p> <p>This document can also be located at the following link:  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819823/net-gain-consult-sum-resp.pdf</a></p> <p>The mitigation measures set out within Chapter 22 Onshore Ecology (document 6.1.22, APP-235) have been designed to result in no loss of biodiversity, with all habitats removed to be either reinstated or enhanced following construction (for example, hedgerows temporarily severed along the onshore cable route), or compensated for where permanently lost (for example, at the onshore substation). Furthermore, for selected species (for example commuting / foraging bats), the mitigation set out within Chapter 22 Onshore Ecology (document 6.1.22, APP-235) has been designed to result in an overall enhancement in biodiversity through increasing the quality of foraging habitat provided following construction of the project.</p>

## 1.27 Consultation

Table 27 Applicant responses to Relevant Representations in relation to Consultation and Requests for Additional Information

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Landowner comments regarding ongoing negotiations	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	Negotiations have now concluded on the format of the Option Agreement and Deed of Easement with the Landowner Interest Group (LIG) and the lead solicitors. These documents will now be prepared and issued to all those who have signed HoTs. To date 78% of the affected landowners have signed HoTs for an Option Agreement.
2	Consultation process	RR-013, RR-042	<p>Since 2016, the Applicant has followed a programme of extensive pre-application consultation with local communities and statutory and non-statutory consultees. This was recorded in the Consultation Report (document 5.1, APP-027) which has been submitted as part of the application. The Applicant has responded to comments related to the adequacy of consultation and the consultation process in the Consultation Report. Issues related to the consultation process have been considered in part or in full in the following submission documents:</p> <ul style="list-style-type: none"> <li>• Chapter 1 of the Consultation Report - Executive Summary</li> <li>• Chapter 4 of the Consultation Report - Regulatory Context</li> <li>• Chapter 17 of the Consultation Report - Overview of phase 0 - phase IIb non-statutory consultation and influence on the project</li> </ul>

**Table 27 Applicant responses to Relevant Representations in relation to Consultation and Requests for Additional Information**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<ul style="list-style-type: none"> <li>• Chapter 18 of the Consultation Report - Phase III non-statutory consultation (having regard to Norfolk Vanguard Statutory Consultation)</li> <li>• Chapter 25 of the Consultation Report - Summary of responses under section 47 of the Act</li> <li>• Chapter 28 of the Consultation Report - Post-formal consultation engagement</li> <li>• Appendix 3.2 of the Consultation Report - Hearing Your Views II (document 5.1.3.2, APP-029)</li> <li>• Appendix 3.3 of the Consultation Report - Hearing Your Views III (document 5.1.3.3, APP-030)</li> <li>• Appendix 3.4 of the Consultation Report - Hearing Your Views IV (document 5.1.3.4, APP-031)</li> <li>• Appendix 4.2 of the Consultation Report - FAQ documents (document 5.1.4.2, APP-033)</li> <li>• Appendix 12.4 of the Consultation Report - October 2016 newsletter (document 5.1.12.4, APP-089)</li> <li>• Appendix 12.7 of the Consultation Report - Phase I non-statutory public exhibition materials (document 5.1.12.7, APP-092)</li> <li>• Appendix 12.9 of the Consultation Report - Phase II non-statutory public exhibition materials (document 5.1.12.9, APP-094)</li> <li>• Appendix 13.2 of the Consultation Report - March 2017 newsletter (document 5.1.13.2, APP-096)</li> <li>• Appendix 14.2 of the Consultation Report - June 2017 newsletter (document 5.1.14.2, APP-126)</li> <li>• Appendix 14.4 of the Consultation Report - Cable Relay Station workshop presentations (document 5.1.14.4, APP-128)</li> <li>• Appendix 14.8 of the Consultation Report - Necton substation workshop presentations (document 5.1.14.8, APP-132)</li> <li>• Appendix 18.3 of the Consultation Report - Phase III non-statutory public exhibition materials (document 5.1.18.3, APP-137)</li> <li>• Appendix 18.4 of the Consultation Report - February 2018 newsletter (document 5.1.18.4, APP-138)</li> <li>• Appendix 22.8 of the Consultation Report - October 2018 newsletter (document 5.1.22.8, APP-167)</li> </ul>

**Table 27 Applicant responses to Relevant Representations in relation to Consultation and Requests for Additional Information**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<ul style="list-style-type: none"> <li>• Appendix 22.13 of the Consultation Report - Consultation Summary Document (document 5.1.22.13, APP-172)</li> <li>• Appendix 22.14 of the Consultation Report - Formal consultation exhibition boards (5.1.22.14, APP-173)</li> <li>• Appendix 25.1 of the Consultation Report - Section 47 responses (document 5.1.25.1, APP-181)</li> <li>• Appendix 28.4 of the Consultation Report - February 2019 newsletter (document 5.1.28.4, APP-195)</li> </ul>
3	Concerns regarding property devaluation	RR-038, RR-103	<p>All claims in relation to reduction in value to property will be assessed in line with the Compensation Code. A useful set of Government guidance booklets set out the basics of the Code <a href="https://www.gov.uk/government/collections/compulsory-purchase-system-guidance">https://www.gov.uk/government/collections/compulsory-purchase-system-guidance</a>.</p> <p>Dialogue in relation to focused community benefit associated with permanent above ground onshore infrastructure will be undertaken independently of and without prejudice to the concurrent DCO process.</p>
4	Impacts on Necton Farms'	RR-009	The Applicant is continuing to engage with landowners to reach agreement by negotiation where possible.
5	Impacts on Clan Farms Limited	RR-108	Clan Farms Limited are an occupier of land owned freehold by William and Jennifer Donald (as referenced in the Book of Reference, APP-026). The owners of the land are also the owners of the occupying company. HoTs for an Option Agreement have been signed with the owners of the land, and the Option Agreement will set out the compensation payable. Please also refer to the OCoCP (document 8.1, APP-692) for more detail on the accesses, link boxes and construction.

## 1.28 Other

Table 28 Applicant responses to Relevant Representations in relation to Other comments

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
1	Potential impacts on the Natural Environment in Norfolk	RR-004, RR-031, RR-039, RR-103, RR-110, RR-111, RR-112	Potential impacts on the natural environment in Norfolk have been considered within the Onshore Chapters 20 Water Resources (document 6.1.20, APP-233), Chapter 21 Land Use and Agriculture (document 6.1.21, APP-234), Chapter 22 Onshore Ecology (document 6.1.22, APP-235), Chapter 23 Onshore Ornithology (document 6.1.23, APP-236) and Chapter 29 Landscape and Visual Assessment (document 6.1.29, APP-242) of the Environmental Statement (ES).
2	Opportunities to facilitate the use of the electricity generated within local electricity distribution networks	RR-110, RR-028, RR-037	The onshore connection point was determined through a statutorily mandated process involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. This mechanism is described in document 6.3.4.3 'Appendix 4.3 Strategic approach to selecting a grid connection point' of the Application (document 6.3.4.3, APP-539). There are no planning or regulatory mechanisms through which the Applicant could identify direct 'infeeds' into the regional distribution network in Norfolk.
3	Offshore Ring Main	RR-013, RR-018, RR-031, RR-036, RR-103, RR-106, RR-046	<p>The Applicant is currently at an advanced stage in the consenting process for both Norfolk Boreas and Norfolk Vanguard and must work within the constraints of the current regulatory framework in order to deliver the project. At present there is no appointed coordinator for offshore wind grid development nor any reference to coordinated offshore development in the National Policy Statement (EN-5) for Electricity Networks. That said, the Applicant considers that the Project, and the Norfolk Vanguard project – including the associated transmission infrastructure – are an excellent example of 'co-ordinated development' which will minimise as far as possible the impacts on local residents.</p> <p>National Grid coordinated a study to look at an Offshore Ring Main (ORM), and representatives from developers of the three largest offshore wind zones off the coast of England at the time – Forewind (Dogger Bank), Smart Wind / DONG Energy (now called Ørsted) (Hornsea) and Scottish Power Renewables / Vattenfall (East Anglia) took part in the study (Appendix 4 of this document). The project was primarily concerned with examining if providing interconnections between the offshore wind farm</p>

Table 28 Applicant responses to Relevant Representations in relation to Other comments

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			<p>development zones, predominantly using High Voltage Direct Current (HVDC) technology, could alleviate the need for reinforcements to the onshore system and deliver greater overall value for consumers.</p> <p>The findings outlined a number of issues associated with an integrated design philosophy. Among the issues systemic solution(s) would need to consider, include:</p> <ul style="list-style-type: none"> <li>• Regulatory framework</li> <li>• Technical and deliverability (financial) considerations</li> <li>• Consenting</li> </ul> <p><b>Onshore infrastructure</b> associated with reinforcement of the onshore distribution system in order to allow electricity from the coast to reach the end user.</p> <p><b>Offshore infrastructure</b> which either anticipates future developments or sequential rounds of new consents and construction to build-up transmission capacity over time. Offshore infrastructure would need to include at least one connection into the ORM, from every windfarm. Currently available technical solutions, are offshore substation platforms. Such platforms would be relatively nearshore, and therefore potentially visible from large lengths of the Norfolk and Suffolk coast.</p> <p>In conclusion, a new approach to connecting offshore power generating projects to onshore end-users must be allowed time and resource, for a systemic UK solution to be achieved, involving all appropriate stakeholders.</p> <p>Considering the use of an ORM is not currently feasible in the time allowed; the Applicant has applied the statutorily mandated process to determine the onshore connection point involving both the Applicant and National Grid, to identify a direct connection to the 400kV national transmission system. This mechanism is described in '6.3.4.3 Environmental Statement – Appendix 4.3 Strategic approach to selecting a grid connection point'.</p>

Table 28 Applicant responses to Relevant Representations in relation to Other comments

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
4	Compensation/Community benefit	RR-032	<p>Wider community benefits associated with the Project include opportunities for the local population across Norfolk in areas such as jobs, skills and employment. From January 2017, extensive work has been undertaken by the Applicant to understand and contribute, where appropriate, to existing skills, training and education initiatives. The Applicant is working with education skills providers in the area (including the local authorities, NALEP, EEEGR) to develop an appropriate skills strategy, which will facilitate direct employment in the offshore wind industry and in its supply chain. From Spring 2018, the Applicant has engaged with the potential local supply chain. In September 2018, the Applicant held a successful stakeholder event which brought together stakeholders from the local authorities, business support organisations and skills providers to discuss how Vattenfall could promote the local supply chain capitalising on the opportunities that Offshore Wind will present in the East Anglia NALEP area. Work is ongoing to support the local supply chain to maximise the benefits that offshore wind will bring to the area.</p> <p>Specific landowner compensation amounts will be addressed as part of the commercial agreements that the Applicant will negotiate with landowners. All claims in relation to reduction in value to property will be assessed in line with the Compensation Code. A useful set of Government guidance booklets set out the basics of the Code <a href="https://www.gov.uk/government/collections/compulsory-purchase-system-guidance">https://www.gov.uk/government/collections/compulsory-purchase-system-guidance</a>.</p> <p>It should be noted, that dialogue in relation to focused community benefit associated with permanent above ground onshore infrastructure will be undertaken independently of and without prejudice to the concurrent DCO process.</p>
5	Concerns regarding property devaluation	RR-038, RR-103	<p>All claims in relation to reduction in value to property will be assessed in line with the Compensation Code. A useful set of Government guidance booklets set out the basics of the Code <a href="https://www.gov.uk/government/collections/compulsory-purchase-system-guidance">https://www.gov.uk/government/collections/compulsory-purchase-system-guidance</a>.</p>

**Table 28 Applicant responses to Relevant Representations in relation to Other comments**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
			Dialogue in relation to focused community benefit associated with permanent above ground onshore infrastructure will be undertaken independently of and without prejudice to the concurrent DCO process.
6	As Norfolk Boreas is planned in such close proximity to Dudgeon Offshore Windfarm related cables and substation, Equinor, as current operator of the Dudgeon Offshore Windfarm asset, is a vested stakeholder and would like to declare an interest.	RR-096	The Applicant is aware of the location and proximity of Dudgeon Offshore Windfarm's related cables and substation; and the Applicant continues to work with Equinor UK Ltd in this respect.
7	Cumulative Impact Assessment	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083,	ES Chapters 19 (document 6.1.19, APP-232) to 31 (document 6.1.31, APP-244) provide an assessment of relevant (onshore) cumulative impacts. A summary of each assessment is provided in ES Chapter 33 Onshore Cumulative Impacts (document 6.1.33, APP-246).



**Table 28 Applicant responses to Relevant Representations in relation to Other comments**

No.	Topic/ Issue	Relevant Representation Number	Applicant's Comments
		RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015, AS-016	
8	Funding requirements for the project	RR-044, RR-049, RR-050, RR-051, RR-055, RR-057, RR-058, RR-059, RR-060, RR-061, RR-062, RR-064, RR-065, RR-066, RR-067, RR-068, RR-070, RR-071, RR-072, RR-073, RR-074, RR-075, RR-076, RR-077, RR-078, RR-079, RR-080, RR-081, RR-082, RR-083, RR-086, RR-087, RR-088, RR-089, RR-092, RR-093, RR-094, RR-097, RR-098, RR-114, AS-015	Please refer to the application document Funding Statement (document 4.1, APP-025). The Applicant has made clear that it is its intention to bid for a Contract for Difference (CfD) at the earliest opportunity following a successful decision to grant development consent.
9	General support for the scheme as proposed	RR-043	Noted. The Applicant is grateful for the support of the local community.

## Annex A Relevant Representation Numbers

RR-no.	Interested Party
RR-001	<u>Borough Council of Kings Lynn and West Norfolk</u>
RR-002	<u>Corporation of Trinity House</u>
RR-003	<u>NATS Safeguarding Office</u>
RR-004	<u>Penelope Malby</u>
RR-005	<u>The Coal Authority</u>
RR-006	<u>Jenny Smedley</u>
RR-007	<u>Maritime and Coastguard Agency</u>
RR-008	<u>National Federation of Fishermen's Organisations</u>
RR-009	<u>Brown and Co on behalf of Necton Farms Ltd</u>
RR-010	<u>East of England Energy Group (EEEGR) (East of England Energy Group (EEEGR))</u>
RR-011	<u>Brian Schuil</u>
RR-012	<u>Mrs G Watson</u>
RR-013	<u>Alice Spain</u>
RR-014	<u>Necton Substation Action Group</u>
RR-015	<u>Rijkswaterstaat</u>
RR-016	<u>Cawston Parish Council</u>
RR-017	<u>Oulton Parish Council</u>
RR-018	<u>Polly Brockis</u>
RR-019	<u>The Monk Family</u>
RR-020	<u>N2RS (No to Relay Stations) (N2RS (No to Relay Stations))</u>
RR-021	<u>Public Health England</u>
RR-022	<u>Historic England</u>
RR-023	<u>Helen Savage</u>
RR-024	<u>Cadent Gas Limited</u>
RR-025	<u>Highways England</u>
RR-026	<u>Vanessa Long</u>
RR-027	<u>Alison Shaw</u>
RR-028	<u>Broadland District Council</u>
RR-029	<u>Tony Barnett</u>
RR-030	<u>UK Chamber of Shipping</u>

RR-no.	Interested Party
RR-031	<u>Diana Lockwood</u>
RR-032	<u>Steffan Aquarone</u>
RR-033	<u>Clive Searson</u>
RR-034	<u>Corpusty and Saxthorpe Parish Council</u>
RR-035	<u>Eastern Inshore Fisheries and Conservation Authority</u>
RR-036	<u>Jan Burley</u>
RR-037	<u>Norfolk County Council</u>
RR-038	<u>Paul King</u>
RR-039	<u>Norma Albinson</u>
RR-040	<u>The Wildlife Trusts</u>
RR-041	<u>No name provided on behalf of East Ruston Parish Council</u>
RR-042	<u>George Freeman MP</u>
RR-043	<u>James Smith</u>
RR-044	<u>National Farmers Union</u>
RR-045	<u>The Crown Estate</u>
RR-046	<u>CPRE Norfolk</u>
RR-047	<u>Glenn Berry</u>
RR-048	<u>Happisburgh Parish Council</u>
RR-049	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr Charles Sayer</u>
RR-050	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr Cubit Siely</u>
RR-051	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mrs C B Hart</u>
RR-052	<u>National Grid Electricity Transmission &amp; National Grid Gas</u>
RR-053	<u>Peter Soldan</u>
RR-054	<u>RSPB</u>
RR-055	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Thomas Love</u>
RR-056	<u>Whale and Dolphin Conservation</u>
RR-057	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Albanwise Ltd</u>

RR-no.	Interested Party
RR-058	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Bradenham Hall Farms</u>
RR-059	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Church Farm (Gimingham) Ltd (Church Farm (Gimingham) Ltd)</u>
RR-060	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Diocese of Norwich</u>
RR-061	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Dr G Cubitt</u>
RR-062	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of E H Wenn (Happisburgh) Ltd (E H Wenn (Happisburgh) Ltd)</u>
RR-063	<u>Eni UK Limited</u>
RR-064	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Farnham Farms Ltd</u>
RR-065	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of G F de Feyter &amp; Partners</u>
RR-066	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of HBSH Pension Scheme</u>
RR-067	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Heydon Estate</u>
RR-068	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of L Padulli</u>
RR-069	<u>Marine Management Organisation</u>
RR-070	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr &amp; Mrs M Jones</u>
RR-071	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr G Anderson</u>
RR-072	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr G Hales and Mrs P Riches</u>
RR-073	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr J Carrick</u>
RR-074	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr Kyle White</u>
RR-075	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr M and Mrs J Ditch</u>
RR-076	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr M Howell</u>
RR-077	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr P Bunting</u>

RR-no.	Interested Party
RR-078	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr P Mutimer</u>
RR-079	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mr R Baldwin</u>
RR-080	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mrs A Green</u>
RR-081	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mrs A Jones</u>
RR-082	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mrs P Hinton</u>
RR-083	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of National Trust</u>
RR-084	<u>National Trust</u>
RR-085	<u>Royal Yachting Association</u>
RR-086	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Trustees of Salle Park Trust</u>
RR-087	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Trustees of Stinton Hall Trust</u>
RR-088	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Trustees of WM &amp; SJ Bulwer Long 1983 Settlement</u>
RR-089	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of William Youngs &amp; Son (Farms) Ltd (William Youngs &amp; Son (Farms) Ltd)</u>
RR-090	<u>Anglian Water Services Ltd</u>
RR-091	<u>Caister Inshore Fisherman's Association</u>
RR-092	<u>Bidwells on behalf of Christopher S Wright</u>
RR-093	<u>Cruso &amp; Wilkin on behalf of David Perry Warnes</u>
RR-094	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Ditch Household</u>
RR-095	<u>Environment Agency</u>
RR-096	<u>Equinor UK Ltd</u>
RR-097	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Jones Household</u>
RR-098	<u>Savills (UK) Ltd (Savills (UK) Ltd) on behalf of Mrs P Riches</u>
RR-099	<u>Natural England (Appendix 1 Ornithology)</u>
RR-099	<u>Natural England (Main Letter)</u>

RR-no.	Interested Party
RR-099	<u>Natural England (Appendix 2 Benthic)</u>
RR-099	<u>Natural England (Appendix 3 Marine Mammals)</u>
RR-099	<u>Natural England (Appendix 4 Terrestrial)</u>
RR-099	<u>Natural England (Appendix 5 DCO and DML)</u>
RR-099	<u>Natural England (Appendix 6 Legislative and Policy Framework)</u>
RR-100	<u>Addleshaw Goddard LLP on behalf of Network Rail Infrastructure Limited</u>
RR-101	<u>North Norfolk District Council</u>
RR-102	<u>Orsted</u>
RR-103	<u>Patricia Lockwood</u>
RR-104	<u>Water Management Alliance (Internal Drainage Board)</u>
RR-105	<u>Nicola Banham</u>

RR-no.	Interested Party
RR-106	<u>Andrew Lockwood</u>
RR-107	<u>WS Atkins International Ltd. on behalf of BBL Company VOF</u>
RR-108	<u>Clan Farms Ltd</u>
RR-109	<u>Colin King</u>
RR-110	<u>Great Yarmouth Borough Council</u>
RR-111	<u>Lucy Sheringham</u>
RR-112	<u>Paul Haddow</u>
RR-113	<u>VisNed</u>
AS-012	<u>Norman Lamb MP</u>
AS-013	<u>MOD</u>
AS-014	<u>Julian Pearson</u>
AS-015	<u>Mr Geoffry Vout</u>
AS-016	<u>Greg Peck.</u>