Norfolk Vanguard Offshore Wind Farm

Statement of Common Ground

Natural England

Applicant: Norfolk Vanguard Limited
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Photo: Kentish Flats Offshore Wind Farm

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Glossary

AEoI	Adverse Effect on Integrity
ALC	Agricultural Land Classification
BDMPS	Biologically Defined Minimum Population Size
BMV	Best and Most Versatile
CIA	Cumulative Impact Assessment
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CoCP	Code of Construction Practise
CRM	Collision Risk Model
DCO	Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESS	Entry Level Stewardship Scheme
ETG	Expert Topic Group
ExA	Examining Authority
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
LiDAR	Light Detection and Ranging
LSE	Likely Significant Effect
MarESA	Marine Evidence based Sensitivity Assessments
MarLIN	Marine Life Information Network
MCZ	Marine Conservation Zone
MMMP	Marine Mammal Mitigation Protocol
MMMZ	Marine Mammal Mitigation Zone
MMO	Marine Management Organisation
NV East	Norfolk Vanguard East
NV West	Norfolk Vanguard West
OCoCP	Outline Code of Construction Practice
OLEMS	Outline Landscape and Environmental Management Strategy
O&M	Operation and Maintenance
OWF	Offshore Wind Farm
PBR	Potential Biological Removal
PEI	Preliminary Environmental Information
PEIR	Preliminary Environmental Information Report
PVA	Population Viability Analysis
pSPA	potential Special Protection Area
RoC	Review of Consents
SAC	Special Area of Conservation
SCI	Site of Community Importance
SMP	Soil Management Plan
SNCB	Statutory Nature Conservation Bodies
SPA	Special Protection Area

SSSI	Site of Special Scientific Interest
SoCG	Statement of Common Ground
UXO	Unexploded Ordnance
WCS	Worst Case Scenario

Terminology

Array cables	Cables which link the wind turbines and the offshore electrical platform.
Landfall	Where the offshore cables come ashore at Happisburgh South.
Mobilisation area	Areas approx. 100 x 100 m 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.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400 kV overhead lines.
Necton National Grid substation	The existing 400 kV substation at Necton, which will be the grid connection location for Norfolk Vanguard.
Offshore accommodation platform	A fixed structure (if required) providing accommodation for offshore personnel. An accommodation vessel may be used instead.
Offshore cable corridor	The area where the offshore export cables would be located.
Offshore electrical platform	A fixed structure located within the wind farm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which bring electricity from the offshore electrical platform to the landfall.
Onshore cable route	The 45 m easement which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from high voltage direct current (HVDC) to high voltage alternating current (HVAC), to 400 kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
The OWF sites	The two distinct offshore wind farm areas, Norfolk Vanguard East and Norfolk Vanguard West.
Trenchless crossing zone	Temporary areas required for trenchless crossing works (e.g. HDD).

1 INTRODUCTION

1. This Statement of Common Ground (SoCG) has been prepared between Natural England and Norfolk Vanguard Limited (hereafter 'the Applicant') to set out the areas of agreement and disagreement in relation to the Development Consent Order (DCO) application for the Norfolk Vanguard Offshore Wind Farm (hereafter 'the project').

2. This SoCG comprises an agreement log which has been structured to reflect topics of interest to Natural England on the Norfolk Vanguard DCO application (hereafter 'the Application'). Topic specific matters agreed and not agreed between Natural England and the Applicant are included.

1.1 The Development

3. The Application is for the development of the Norfolk Vanguard Offshore Wind Farm (OWF) and associated infrastructure. The OWF comprises two distinct areas, Norfolk Vanguard (NV) East and NV West ('the OWF sites'), which are located in the southern North Sea, approximately 70 km and 47 km from the nearest point of the Norfolk coast respectively. The location of the OWF sites is shown in Chapter 5 Project Description Figure 5.1 of the Application. The OWF would be connected to the shore by offshore export cables installed within the offshore cable corridor from the OWF sites to a landfall point at Happisburgh South, Norfolk. From there, onshore cables would transport power over approximately 60 km to the onshore project substation and grid connection point near Necton, Norfolk.

4. Once built, Norfolk Vanguard would have an export capacity of up to 1800 MW, with the offshore components comprising:

- Wind turbines;
- Offshore electrical platforms;
- Accommodation platforms;
- Met masts;
- Measuring equipment (Light Detection and Ranging (LiDAR) and wave buoys);
- Array cables;
- Interconnector cables; and
- Export cables.

5. The key onshore components of the project are as follows:

- Landfall;
- Onshore cable route, accesses, trenchless crossing technique (e.g. Horizontal Directional Drilling (HDD)) zones and mobilisation areas;

- Onshore project substation; and
- Extension to the existing Necton National Grid substation and overhead line modifications.

1.2 Consultation with Natural England

6. This section briefly summarises the consultation that the Applicant has had with Natural England. For further information on the consultation process please see the Consultation Report (document reference 5.1 of the Application).

1.2.1 Pre-Application

7. The Applicant has engaged with Natural England on the project during the pre-Application process, both in terms of informal non-statutory engagement and formal consultation carried out pursuant to Section 42 of the Planning Act 2008.

8. During formal (Section 42) consultation, Natural England provided comments on the Preliminary Environmental Information Report (PEIR) by way of a letter dated 11th December 2017.

9. Further to the statutory Section 42 consultation, several meetings were held with Natural England through the Evidence Plan Process.

10. Table 1 to Table 11 provide an overview of meetings and correspondence undertaken with Natural England. Minutes of the meetings are provided in Appendices 9.15 to 9.26 (pre-Section 42) and Appendices 25.1 to 25.9 (post-Section 42) of the Consultation Report (document reference 5.1 of the Application).

1.2.2 Post-Application

11. As part of the pre-examination process, Natural England submitted a Relevant Representation to the Planning Inspectorate on the 31st August 2018. Natural England has also engaged throughout the Examination deadlines. A series of meetings have been held between the Applicant and Natural England since the Application was submitted.

2 STATEMENT OF COMMON GROUND

12. Within the sections and tables below, the different topics and areas of agreement and disagreement between Natural England and the Applicant are set out.

2.1 Marine Geology, Oceanography and Physical Processes

13. The project has the potential to impact upon Marine Geology, Oceanography and Physical Processes. Chapter 8 of the Norfolk Vanguard Environmental Statement (ES) (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

14. Table 1 provides an overview of meetings and correspondence undertaken with Natural England regarding Marine Geology, Oceanography and Physical Processes.

15. Table 2 provides areas of agreement (common ground) and disagreement regarding Marine Geology, Oceanography and Physical Processes.

16. Minutes of Evidence Plan meetings can be found in Appendix 9.16 and Appendix 25.6 of the Consultation Report (document reference 5.1 of the Application).

Table 1 Summary of Consultation with Natural England in relation to Marine Geology, Oceanography and Physical Processes

Date	Contact Type	Topic
Pre-Application		
21st March 2016	Benthic and Geophysical Survey Scope Meeting	Discussion on the required scope of the geophysical surveys to inform the approach to the offshore surveys conducted in Summer/Autumn 2016 (see Appendix 9.16 of the Consultation Report).
2nd February 2017	Email from the Applicant	Provision of the Marine Physical Processes Method Statement (see Appendix 9.2 of the Consultation Report).
16th February 2017	Benthic and Intertidal Ecology, Fish Ecology, Marine Physical Processes and Marine Water and Sediment Quality Scoping Expert Topic Group Meeting	Discussion of Scoping responses and approach to Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) (see Appendix 9.16 of the Consultation Report).
22nd June 2017	Email from the Applicant	Offshore HRA Screening (Appendix 5.1 of the Information to Support HRA Report (document 5.3)) provided for consultation.
22nd June 2017	Email from the Applicant	Provision of draft PEIR documents (Chapter 8 and Appendix 10.1 of the ES (Fugro survey report) to inform discussions at the Norfolk Vanguard Benthic Ecology and Marine Physical Processes Expert Topic Group meeting.

Date	Contact Type	Topic
5th July 2017	Benthic and Intertidal Ecology and Marine Physical Processes PEI Expert Topic Group (ETG) Meeting	Discussion of HRA Screening (see Appendix 9.16 of the Consultation Report).
16th January 2018	Email from the Applicant	Provision of the following draft technical reports to support the Information to Support HRA report: • Appendix 7.1 ABPmer Sandwave study; and • Appendix 7.2 Envision Sabellaria data review
31st January 2018	Marine Physical Processes and Benthic Ecology HRA ETG meeting	PEIR feedback and comments on approach to HRA (see Appendix 25.6 of the Consultation Report).
22nd February 2018	Email from the Applicant	Provision of draft Norfolk Vanguard Information to Support HRA (document 5.3).
22nd February 2018	Letter from Natural England	Natural England advice regarding potential impacts from the offshore cable installation to Annex I habitat within the Haisborough, Hammond and Winterton (HHW) Special Area of Conservation (SAC).
15th March 2018	Email from Natural England	Natural England advice on *Sabellaria spinulosa* reef in HHW SAC.
23rd March 2018	Letter from Natural England	Feedback on the draft Information to Support HRA report.
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant
30th November 2018	Email from the Applicant	Clarification notes (Appendices 1-3 of the SoCG) provided by the Applicant
23rd January 2019	SoCG Meeting	Ongoing discussions regarding the HHW SAC
8th March 2019	SoCG Meeting	Ongoing discussions regarding the HHW SAC
28th March 2019	SoCG Meeting	Discussion regarding the HHW SAC Site Integrity Plan (SIP)
21st May 2019	SoCG Meeting	Discussion regarding the HHW SAC SIP

Table 2 Statement of Common Ground - Marine Geology, Oceanography and Physical Processes

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Site Selection and Project Design			
Landfall	Landfall at Happisburgh South is the most appropriate of the options available, avoiding the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ).	Agreed	It is agreed by both parties that landfall at Happisburgh South is a viable option.
Landfall	The design of the landfall works will adopt a highly conservative approach to ensure cables do not become exposed as a result of erosion. A construction method statement, including cable landfall, must be agreed with the MMO prior to construction, as required under the Deemed Marine Licence (DML) Schedules 11 and 12 Part 4 Condition 9(c)(iv).	Agreed, following receipt of further information on 29/11/2018 Natural England is satisfied that the specific issues raised in the Relevant Representation relating to the assessment of coastal erosion at Happisburgh have been resolved.	It is agreed by both parties that the design of the landfall works will adopt a suitably conservative approach to ensure cables do not become exposed as a result of erosion
Environmental Impact Assessment			
Existing Environment	Survey data collected for Norfolk Vanguard for the characterisation of Marine Geology, Oceanography and Physical Processes are suitable for the assessment and as agreed in during the survey scope meeting March 2016.	Agreed	It is agreed by both parties that sufficient survey data has been collected to undertake the assessment.
	The ES adequately characterises the baseline environment in terms of Marine Geology, Oceanography and Physical Processes	Agreed	It is agreed by both parties that the existing environment of Marine Geology, Oceanography and Physical Processes has been characterised appropriately for the assessment.
Assessment methodology	Appropriate legislation, planning policy and guidance relevant to Marine Geology, Oceanography and Physical Processes has been used.	Agreed	It is agreed by both parties that appropriate legislation has been considered.
	The list of potential impacts assessed for Marine Geology, Oceanography and Physical Processes is appropriate	Agreed	It is agreed by both parties that appropriate impacts on Marine Geology, Oceanography and Physical Processes have been assessed.
	The impact assessment methodologies used provide an appropriate approach to assessing potential impacts of the proposed project. This includes: • The assessment uses expert judgement based upon knowledge of the sites and available contextual information (Zonal and	Agreed	It is agreed by both parties that the impact assessment methodologies used in the EIA are appropriate.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	East Anglia ONE studies and modelling); therefore no new modelling (e.g. sediment plumes or deposition) was undertaken for the assessment • The definitions used of sensitivity and magnitude in the impact assessment are appropriate. These are in line with the Method Statement provided in February 2017 (see Appendix 9.2 of the Consultation Report (Application document 5.1) and as discussed during expert topic group meetings.		
	The worst case scenario used in the assessment for Marine Geology, Oceanography and Physical Processes is appropriate. This includes a conservative assessment for cable installation based on pre-sweeping as well as potential reburial requirements.	Agreed, although it is noted by Natural England that there is currently no evidence that sandwave levelling ensures cables remain buried and therefore there is no future need for reburial or cable protection.	It is agreed by both parties that the worst case scenario used in the assessment for Marine Geology, Oceanography and Physical Processes is appropriate.
	As discussed in the Change Report (document reference Pre-ExA;Change Report;9.3), the increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 8 Marine Geology, Oceanography and Physical Processes.	Agreed	It is agreed by both parties that the proposed increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 8 Marine Geology, Oceanography and Physical Processes.
	Regardless of whether the project is installed in a single or two-phased scenario, export cable installation will be undertaken for one cable pair at a time and therefore the main difference between the scenarios would potentially be the duration between the installation of one HVDC cable pair and the next. The export cable corridor is in a dynamic environment and therefore sandwave bedforms are continually being formed, modified, converging and bifurcating as	The HHW SAC SIP combined with the Grampian condition at DML 9 (1)(m) restricts the commencement of construction until such time that mitigation measures and/or alternative options can be adopted to rule out AEoI. NE also acknowledge that the SIP commits the Applicant to providing a robust evidence base and mitigation measures for which they can be held to account.	It is agreed by both parties that the HHW SAC SIP and associated Transmission DML Condition 9(1)(m) provides the framework to agree cable installation methods post-consent and restricts the commencement of construction until such time that mitigation measures can be adopted to rule out AEoI.

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	they migrate through the cable corridor area. The scale of the sand movement through the cable corridor is of such large magnitude that the impact of the bed levelling operations during installation will be of comparatively minimal impact to the form and function of the sandwaves and sand bank feature regardless of the phasing scenario. The HHW SAC SIP allows the method for cable installation to be reviewed prior to construction, based on latest evidence and survey findings, and this must be agreed with the MMO in consultation with Natural England.		
	Cable protection will only be required at cable crossing locations and in the unlikely event that hard substrate (i.e. areas that are not Annex 1 Sandbank) is found along the cable route that cannot be avoided. The HHW SAC SIP ensures that the deployment of cable protection must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.2 in the Outline HHW SAC SIP outlines the process regarding minimising cable protection for potential unburied cable and seeking agreement from the MMO in consultation with Natural England. For cables outside the HHW SAC, the Scour Protection and Cable Protection Plan (required under DCO Schedules 9 and 10 Part 4 Condition 14(1)(e) and Schedules 11 and 12 Part 4 Condition 9(1)(e)) provides the mechanism for the volume, extent and location of cable protection to be agreed with the MMO in	Agreed that cable protection should only be used at essential locations. Natural England notes that past experience has shown that additional cable protection has often been required beyond that which is expected.	It is agreed by both parties that the HHW SAC SIP and associated Transmission DML Condition 9(1)(m) provides the framework to agree cable protection deployment post-consent and restricts the commencement of construction until such time that mitigation measures can be adopted to rule out AEoI.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	consultation with Natural England prior to construction.		
	The Applicant commissioned an Interim Cable Burial Study following consultation with Natural England which has allowed the Applicant to commit to reducing the cable protection contingency from 10% to 5%. The HHW SAC SIP ensures that the deployment of cable protection must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.2 in the Outline HHW SAC SIP outlines the process regarding minimising cable protection for potential unburied cable and seeking agreement from the MMO in consultation with Natural England.	Due to ongoing concerns with cable protection within the SAC, even with the 5% reduction in cable protection, these commitments may still be considered insufficient to agree no AEOI at the pre-construction stage.	It is agreed by both parties that cable protection must be agreed through the HHW SAC SIP in accordance with Transmission DML Condition 9(1)(m). If a solution cannot be agreed, the Applicant would need to consider a Marine Licence application 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.
	Cable protection is assessed as permanent habitat loss in Chapter 10 Benthic Ecology, section 10.7.5 due to the likelihood of leaving cable protection *in situ* following decommissioning.	Agreed	It is agreed by both parties that habitat loss from cable protection should be considered a permanent impact
Assessment findings	Norfolk Vanguard Limited acknowledges that the scale of suspended sediment should be classified as high. This results in a medium magnitude of effect taking into account the duration, frequency and reversibility which are classified as negligible. This has no change to the resulting negligible impact significance on Marine Geology, Oceanography and Physical Processes receptors.	Agreed Natural England states that near field effects of suspended sediment in the offshore cable corridor should be of greater scale than the 'low' classification identified in the ES due to the large volume of proposed dredging and material released.	It is agreed by both parties that near field effects of suspended sediment in the offshore cable corridor should be of greater scale than the 'high' classification.

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	Norfolk Vanguard Limited acknowledges that the scale of seabed level changes should be classified as medium as stated by Natural England in their relevant representation. This has no change to the overall magnitude classification which remains low taking into account the duration, frequency and reversibility which are classified as negligible and therefore no change to the impact significance presented in the ES. Appendix 7.1 of the Information to Support HRA report shows that Sandwaves are expected to recover within approximately 1 year.	Not agreed. Natural England does not agree that the magnitude of seabed level changes is low given the large volumes dredged.	Not agreed.
Cumulative Impact Assessment (CIA)	The plans and projects considered within the CIA are appropriate and as agreed during the expert topic group meeting in July 2017.	Agreed	It is agreed by both parties that the plans and projects included in the CIA are appropriate.
	The CIA methodology is appropriate. Chapter 8 Marine Geology, Oceanography and Physical Processes of the ES states that theoretical bed level changes of up to 2mm are estimated as a result of cumulative impacts of Norfolk Vanguard cable installation and dredging at nearby aggregate sites. This level of effect has no potential to affect the Marine Geology, Oceanography and Physical Processes of the Haisborough Hammond and Winterton SAC as stated in the Information to Support HRA report (document 5.3).	Agreed, with the exception that combined suspended sediment increases associated with aggregates and Norfolk Vanguard cable installation should be considered for Haisborough Hammond and Winterton SAC.	The CIA methodology is agreed by both parties with the exception of the inclusion of suspended sediment as a result of aggregates in the in-combination assessment for the Haisborough, Hammond and Winterton SAC.
	The cumulative impacts between Norfolk Vanguard and Norfolk Boreas in the HHW SAC will be considered further based on latest evidence and pre-construction survey findings in the development of the HHW SAC SIP.	It is agreed that cumulative impacts with Norfolk Boreas must be considered when developing the Norfolk Vanguard HHW SAC SIP.	It is agreed by both parties that cumulative impacts with Norfolk Boreas must be considered when developing the Norfolk Vanguard HHW SAC SIP post consent.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Habitats Regulations Assessment (HRA)			
Screening of Likely Significant Effect (LSE)	The approach to HRA Screening is appropriate. The following site is screened in for further assessment as agreed during the expert topic group meeting in July 2017: Haisborough, Hammond and Winterton SAC	Agreed	It is agreed by both parties that the designated sites and potential effects screened in for further assessment are appropriate.
Assessment of Adverse Effect on Integrity	The approach to the assessment of AEoI is appropriate.	Agreed	It is agreed by both parties that the approach to the assessment of potential adverse effects on site integrity presented in the Information to Support HRA report (document 5.3) are appropriate
	The physical processes of Annex 1 Sandbanks in the Haisborough, Hammond and Winterton SAC has the potential to recover from construction activities, within the range of natural variation. See comments on phasing in the Assessment Methodology section above.	Agreed, noting that there is limited empirical evidence and sandbank recovery should be monitored (see monitoring below). It is also not clear how single build vs phased build and either option in combination with Norfolk Boreas has been assessed.	It is agreed by both parties that the physical processes of Annex 1 Sandbanks in the Haisborough, Hammond and Winterton SAC has the potential to recover from construction activities, within the range of natural variation.
	The small scale of cable protection assessed will not interfere with the physical processes (e.g. bed level, morphology, sediment transport) associated with the Annex 1 Sandbanks. Due to the patterns of erosion, accretion and movement of sand waves naturally occurring within the offshore cable corridor (discussed in Appendix 7.1 of the Information to Support HRA report) it is expected that the cable protection may undergo some periodic burial and uncovering and therefore	Not agreed. Natural England does not agree there will be negligible impact on the sandbank feature and relevant attributes (volume, extent, morphology etc. described in the supplementary advice on conservations objectives[1]).	Not agreed

1 https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0030369&SiteName=hais&SiteNameDisplay=Haisborough%2c+Hammond+and+Winterton+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	there would be no adverse effect on the form and function of the Sandbanks.		
	The HHW SAC SIP combined with the Transmission DML Condition 9(1)(m) allows a conclusion of no AEOI to be made at the consent determination stage on the basis that it restricts the commencement of construction until such time that mitigation measures can be adopted to rule out an AEoI.	Agreed. Noting that the commitments presented in the HHW SAC SIP may still be considered insufficient to agree no AEoI at the pre-construction stage. If a solution cannot be agreed, the Applicant would need to consider a DCO variation or a Marine Licence application.	It is agreed by both parties that the HHW SAC SIP combined with the Transmission DML Condition 9(1)(m) allows a conclusion of no AEOI to be made at the consent determination stage on the basis that it restricts the commencement of construction until such time that mitigation measures can be adopted to rule out an AEoI.
Management Measures – Mitigation and Monitoring			
Monitoring	The In Principle Monitoring Plan (document 8.12), provides an appropriate framework to agree monitoring with the MMO in consultation with Natural England As stated in the In Principle Monitoring Plan (document 8.12), swath-bathymetric survey would be undertaken pre- and post-construction in order to monitor changes in seabed topography, including any changes as a result of sand wave levelling. It is acknowledged that the purpose of the post-construction monitoring is to address evidence gaps in this area as well as for engineering purposes.	Agreed	It is agreed by both parties that the In Principle Monitoring Plan (document 8.12), provides an appropriate framework to agree monitoring with the MMO in consultation with Natural England.
Mitigation and Management	As stated in the Site Characterisation Report (document 8.15) all seabed material arising from the Haisborough, Hammond and Winterton SAC during cable installation would be placed back into the SAC using an approach, to be agreed with the Marine Management Organisation (MMO) in consultation with Natural England. The Haisborough, Hammond and Winterton SAC is not a closed system and it presently has sediment both entering and leaving it around the boundaries.	Only agreed if material remains in the site after deposition, modelling will need to demonstrate this.	It is agreed by both parties that seabed material arising from the Haisborough, Hammond and Winterton SAC during cable installation would be placed back into the SAC using an approach, to be agreed with the MMO in consultation with Natural England.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The proposed works are some distance from the boundaries (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 Haisborough SAC as occurs at present will continue, irrespective of the proposed dredging or disposal activities as discussed in Information to Support HRA report Appendix 7.1 ABPmer Sandwave Study. The methods for sediment disposal would be agreed through the Cable Specification, Installation and Monitoring Plan, required under the draft DCO Schedules 9 and 10 Part 4 Condition 14(1)(g) and Schedules 11 and 12 Part 4 Condition 9(1)(g) and would be based on latest evidence, engineering knowledge and pre-construction surveys.		

2.2 Benthic and Intertidal Ecology

17. The project has the potential to impact upon Benthic and Intertidal Ecology. Chapter 10 of the Norfolk Vanguard ES (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

18. Table 3 provides an overview of meetings and correspondence undertaken with Natural England regarding Benthic and Intertidal Ecology.

19. Table 4 provides areas of agreement (common ground) and disagreement regarding Benthic and Intertidal Ecology.

20. Minutes of Evidence Plan meetings can be found in Appendix 9.16 and Appendix 25.6 of the Consultation Report (document reference 5.1 of the Application).

Table 3 Summary of Consultation with Natural England in relation to Benthic and Intertidal Ecology

Date	Contact Type	Topic
Pre-Application		
21st March 2016	Benthic and Geophysical Survey Scope Meeting	Discussion on the required scope of the benthic surveys to inform the approach to the offshore surveys conducted in Summer/Autumn 2016 (see Appendix 9.16 of the Consultation Report).
21st March 2016	Letter from Natural England	Feedback on benthic survey methodology.
20th April 2016	Letter from Natural England	Review of the Geophysical and Grab Sampling Impact Assessment.
2nd February 2017	Email from the Applicant	Provision of the Benthic Ecology Method Statement (see Appendix 9.2 of the Consultation Report).
16th February 2017	Benthic and Intertidal Ecology, Fish Ecology, Marine Physical Processes and Marine Water and Sediment Quality Scoping Expert Topic Group Meeting	Discussion of Scoping responses and approach to EIA/HRA (see Appendix 9.16 of the Consultation Report).
27th February 2017	Email from Natural England	Natural England's position on Haisborough, Hammond and Winterton SAC.
8th March 2017	Email from Natural England	Natural England's advice on Cromer Shoal MCZ
22nd June 2017	Email from the Applicant	Offshore HRA Screening (Appendix 5.1 of the Information to Support HRA report) provided for consultation.

Date	Contact Type	Topic
22nd June 2017	Email from the Applicant	Provision of draft documents (Chapter 8 of the PEIR and Appendix 10.1 of the ES (Fugro survey report)) to inform discussions at the Norfolk Vanguard Benthic Ecology and Marine Physical Processes Expert Topic Group meeting.
5th July 2017	Benthic and Intertidal Ecology and Marine Physical Processes PEI ETG Meeting	Discussion of HRA Screening. (see Appendix 9.16 of the Consultation Report).
16th January 2018	Email from the Applicant	Provision of the following draft technical reports to support the Information to Support HRA report: • Appendix 7.1 ABPmer Sandwave study; and • Appendix 7.2 Envision Sabellaria data review
31st January 2018	Marine Physical Processes and Benthic Ecology HRA ETG meeting	PEIR feedback and comments on approach to HRA (see Appendix 25.6 of the Consultation Report).
13th February 2018	Email from Natural England	Confirmation from Natural England that the standard best practice advice to the aggregates industry is a 50m buffer around *Sabellaria spinulosa* reef.
19th February 2018	Email from Natural England	Provision of example Site of Community Importance (SCI) Position Statement in relation to sandbanks from the Dogger Bank Teesside OWF.
22nd February 2018	Email from the Applicant	Provision of draft Norfolk Vanguard Information to Support Habitats Regulations Assessment (HRA) (document 5.3).
22nd February 2018	Letter from Natural England	Natural England advice regarding potential impacts from the offshore cable installation to Annex I habitat within the Haisborough Hammond and Winterton SAC.
15th March 2018	Email from Natural England	Natural England advice on *Sabellaria spinulosa* reef in Haisborough, Hammond and Winterton SAC.
23rd March 2018	Letter from Natural England	Feedback on the draft Information to Support HRA report
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant
23rd January 2019	SoCG Meeting	Ongoing discussions regarding the Haisborough Hammond and Winterton SAC

Date	Contact Type	Topic
8th March 2019	SoCG Meeting	Ongoing discussions regarding the Haisborough Hammond and Winterton SAC
28th March 2019	SoCG Meeting	Discussion regarding the Haisborough Hammond and Winterton SAC Site Integrity Plan (SIP
21st May 2019	SoCG Meeting	Discussion regarding the Haisborough Hammond and Winterton SAC SIP
3rd June 2019	Email from the Applicant	Draft of final SOCG provided by the Applicant

Table 4 Statement of Common Ground - Benthic and intertidal ecology

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Site Selection and Project Design			
Landfall	Landfall at Happisburgh avoids impacts on the Cromer Shoal Chalk Beds MCZ	Agreed	It is agreed by both parties that landfall at Happisburgh avoids impacts on the Cromer Shoal Chalk Beds MCZ
Environmental Impact Assessment			
Existing Environment	Survey data collected for Norfolk Vanguard for the characterisation of Benthic and Intertidal Ecology are suitable for the assessment and as agreed in the survey planning meeting in March 2016 and the expert topic group meeting in February 2017.	Agreed	It is agreed by both parties that sufficient survey data has been collected to undertake the assessment.
	The ES adequately characterises the baseline environment in terms of Benthic and Intertidal Ecology. For the purposes of the EIA, the site characterisation has identified the potential extent and location of *S. spinulosa* reef as far as reasonably practicable. This has allowed the EIA to assess potential impacts on *Sabellaria* reef. The assessment does not discount "low reef". Figure 7.2 of the Information to Support HRA report presents a map of potential *Sabellaria* reef extent based on medium to high confidence of reef presence (N.B. this includes reef of any reefiness characteristic, including low). *Sabellaria* reef identified during the Norfolk Vanguard benthic surveys in 2016 was found to be of low or medium reefiness and this is included in the assessment.	Agreed, although noting the uncertainty associated with *S. spinulosa* reef mapping due to the ephemeral nature of the reef, the use of a range of datasets, and the fact that the applicant has only assessed medium/high quality reef as reef	It is agreed by both parties that the ES adequately characterises the baseline environment in terms of Benthic and Intertidal Ecology, although noting the uncertainty associated with *S. spinulosa* reef mapping due to the ephemeral nature of the reef and the use of a range of datasets.
	The approach to *S. spinulosa* reef mapping is appropriate to inform the EIA based on the data available. The assessment does not discount "low reef". It should be noted however that by definition, "low reef" is	Not agreed. Natural England has uncertainty associated with *S. spinulosa* reef mapping due to the ephemeral nature of the reef the use of a range of datasets, and the	It is agreed by both parties that there is uncertainty associated with *S. spinulosa* reef mapping due to the ephemeral nature of the reef. The HHW SAC SIP provides a framework for further consideration of the

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	inherently patchy (with only 10-20% coverage, Gubbay (2007)[2]) and therefore increases the potential for micrositing. Medium reef also has high potential for micrositing, being classified by 20-30% coverage. The Applicant agrees there is uncertainty associated with *S. spinulosa* reef mapping due to the ephemeral nature of the reef. The HHW SAC SIP provides a framework for further consideration of the effects on *Sabellaria* reef in the HHW SAC to be made prior to construction, based on the results of the pre-construction surveys. The surveys and the SIP will be developed in consultation with Natural England.	fact that the applicant has only assessed medium/high quality reef as reef.	effects on *Sabellaria* reef in the HHW SAC based on the results of the pre-construction surveys.
	The mapping of potential *S. spinulosa* reef by Envision on behalf of Norfolk Vanguard Limited identifies potential reef areas which are largely consistent with areas Natural England has identified (as shown on Figure 2.1 below).	Agreed	It is agreed by both parties that the mapping of potential *S. spinulosa* reef by Envision on behalf of Norfolk Vanguard Limited identifies potential reef areas which are largely consistent with areas Natural England has identified.
	S. spinulosa is an ephemeral, rapidly growing opportunistic species; pre-construction surveys targeted at establishing the presence, location and extent of *S. spinulosa* reef habitats are therefore required to enable effective micrositing where possible. The assessment provides consideration of the impacts if micrositing is possible and if it is not possible (see Assessment Findings sections below). The HHW SAC SIP ensures that the cable routes, including micrositing must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.1 in the Outline HHW SAC SIP outlines the	Parameters/clear commitments are required in the DCO rather than the simple statement “where possible”. Natural England would want to see that all Annex I *S. spinulosa* will be avoided. The impact on *Sabellaria spinulosa* reef needs to be fully assessed if micro-siting is not possible and cable installation is still permitted.	It is agreed by both parties that the HHW SAC SIP ensures that the cable routes, including micrositing must be agreed with the MMO in consultation with Natural England prior to construction. The HHW SAC SIP must also provide further consideration of the effects on *Sabellaria spinulosa* reef if micro-siting is not possible and construction can only be permitted to commence if the MMO, in consultation with Natural England, agrees that there will be no AEoI.

[2] Gubbay (2007) Defining and managing *Sabellaria spinulosa* reefs: Report of an inter-agency workshop 1-2 May, 2007

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	process regarding seeking agreement for micrositing from the MMO in consultation with Natural England. This provides clear commitments with regards to defining what is meant by micrositing "where possible". The effects on *Sabellaria spinulosa* reef if micro-siting is not possible will be further considered in the HHW SAC SIP based on available evidence and pre-construction surveys. Construction will only be permitted to commence if the MMO, in consultation with Natural England, agrees that there will be no AEoI.		
Assessment methodology	Appropriate legislation, planning policy and guidance relevant to Benthic and Intertidal Ecology has been used.	Agreed	It is agreed by both parties that appropriate legislation has been considered.
	The list of potential impacts on Benthic and Intertidal Ecology assessed is appropriate.	Agreed, subject to consideration of cleaning activities (see below).	It is agreed by both parties that the list of potential impacts on Benthic and Intertidal Ecology assessed is appropriate, with the exception of clean activities (see below)
	Operational cleaning of offshore infrastructure would consist of jet washing with seawater and therefore, only natural materials would enter the marine environment i.e. marine growth, bird guano and seawater. Whilst it is not possible to quantify the exact volume of the materials to be deposited, due to the small scale of the deposit that will be mixed with seawater, it is considered that such a deposit will quickly dissipate and is not capable of being deposited in sufficient volume to be capable of affecting water quality. No chemicals would be used in this process. The number of estimated operational visits are included as part of the operation and maintenance (O&M) activities described in Chapter 5, section 5.4.18.	Not agreed, details are still required of the volumes of material being deposited in the marine environment.	Not agreed
	The impact assessment methodology is appropriate, and is in line with the Method Statement provided in February 2017 (see Appendix 9.2 of the Consultation	Agreed	It is agreed by both parties that the impact assessment methodologies used in the EIA are appropriate.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Report (Application document 5.1) and agreed during the topic group meeting in February 2017.		
	The worst case scenario used in the assessment for Benthic and Intertidal Ecology is appropriate.	Agreed	It is agreed by both parties that the worst case scenario used in the assessment is appropriate
	As discussed in the Change Report (document reference Pre-ExA;Change Report;9.3), the increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 10 Benthic Ecology.	Agreed	It is agreed by both parties that the proposed increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 10 Benthic Ecology.
	Should cable protection be required during maintenance this would be subject to additional licencing.	Agreed	It is agreed by both parties that should cable protection be required during maintenance this would be subject to additional licencing.
	It is the Applicant's preference to cut and remove redundant cables where possible. This requires agreement from the owners of the redundant cable, and therefore until this can be agreed post consent, an assumption that nine existing cables will be crossed has been assessed in order to provide a conservative assessment. In the HHW SAC, the cable installation method and deployment of cable protection must be agreed with the MMO in consultation with Natural England through the HHW SAC SIP. Outside the HHW SAC, the cable installation methodology will be agreed with the MMO through the Construction Method Statement. The Scour Protection and Cable Protection Plan will be updated as the final design of the project develops and must be agreed with the MMO prior to construction. This will include justification of the location, type and volume/area of	Agreed Natural England advises that where there are out of service cables, in the Haisborough Hammond and Winterton SAC, it would be better to reduce impacts by cutting cables rather than introducing unnecessary hard substrate to cross redundant cables. In addition, where strictly necessary the type of cable protection should be selected on the basis on least environmental impact at each particular location.	It is agreed by both parties that it is preferable to cut and remove redundant cables where possible subject to agreement from the cable owner(s).

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	essential cable protection based on crossing agreements and preconstruction surveys.		
Assessment findings	The characterisation of receptor sensitivity is appropriate. Chapter 10, Table 10.15 (mentioned in the Natural England relevant representation) refers to the sensitivity of receptors identified in NV East where *S. spinulosa* individuals were recorded. Individuals are less sensitive than reef and therefore have been classified as low sensitivity. Tables 10.14 and 10.16 refer to the sensitivity of receptors identified in NV West and the offshore cable corridor, respectively, where *S. spinulosa* reef has been identified. *S. spinulosa* in these areas has been identified as having medium sensitivity to heavy smothering in accordance with the Marine Life Information Network (MarLIN) Marine Evidence based Sensitivity Assessments (MarESA). However, the Information to Support HRA report states that as embedded mitigation requires that sediment would not be disposed of within at least 50m of *S. spinulosa* reef (in accordance with advice from Natural England), there would be no heavy smothering. *S spinulosa* is not sensitive to light smothering or increased suspended sediment. Gibb *et al.* (2014)[3] reports that *Sabellaria spinulosa* reef has medium sensitivity to habitat change where the change represents an increase in fine sediments which is not applicable to Norfolk Vanguard. Gibb *et al.* (2014) also states that *Sabellaria spinulosa* reef is considered to be 'Not Sensitive' to a change which results in increased coarseness.	Mostly agreed, however all references in the document should note that *S. spinulosa* reef has medium sensitivity to heavy smothering and habitat change and high sensitivity to habitat loss. In addition, Natural England disagrees with some of the sensitivity assessments in table 10.7.2, for example coarse sediment has high sensitivity to habitat change as does subtidal sand. We advise that 10.7.5.2.2 and Table 10.21 is changed to reflect this.	Not agreed

[3] Gibb, N., Tillin, H., Pearce, B. & Tyler-Walters, H. (2014). Assessing the sensitivity of Sabellaria spinulosa reef biotopes to pressures associated with marine activities. Available at: http://jncc.defra.gov.uk/PDF/JNCC_Report_504_web.pdf

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The magnitude of effect is correctly identified.	Agreed, noting the change in the scale of suspended sediment and seabed level changes in relation to the offshore cable corridor discussed in Section 2.1.	It is agreed by both parties that the magnitude of effect on benthic ecology is correctly identified.
	There would be no permanent loss of *S. spinulosa* reef as this is an ephemeral species which is likely to recolonise, as agreed during the Expert Topic Group meeting on the 31st January 2018 (Appendix 25.6 of the Consultation Report).	Not agreed. Evidence presented to date is in relation to recover of individuals and not Annex I reef. And particularly disagree due potential for cable protection.	Not agreed
	There would be no temporary habitat loss of *S. spinulosa* reef if micro-siting is possible. The magnitude would be low if micrositing is not possible through a small proportion of reef	Not agreed	Not agreed
	The impact significance conclusions of negligible or minor adverse for Norfolk Vanguard alone are appropriate.	Not agreed	Not agreed
CIA	The plans and projects considered within the CIA are appropriate as agreed during the expert topic group meeting in July 2017.	Agreed	It is agreed by both parties that the plans and projects included in the CIA are appropriate.
	The cumulative impacts between Norfolk Vanguard and Norfolk Boreas in the HHW SAC will be considered further in the development of the HHW SAC SIP.	It is agreed that cumulative impacts with Norfolk Boreas must be considered when developing the Norfolk Vanguard HHW SAC SIP.	It is agreed by both parties that cumulative impacts with Norfolk Boreas must be considered when developing the Norfolk Vanguard HHW SAC SIP post consent.
Habitats Regulations Assessment (HRA)			
Screening of LSE	The approach to HRA Screening is appropriate. The following site is screened in for further assessment as agreed during the expert topic group meeting in July 2017: • Haisborough, Hammond and Winterton SAC.	Agreed	It is agreed by both parties that the designated sites and potential effects screened in for further assessment are appropriate.
Assessment of Adverse Effect on Integrity	The effects on the HHW SAC will be considered further through the HHW SAC SIP based on pre-construction	Agreed	It is agreed by both parties that the effects on the HHW SAC must be considered further through the HHW SAC SIP based on

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	survey findings, available evidence and latest guidance prior to construction.		pre-construction survey findings, available evidence and latest guidance prior to construction.
	The communities of Annex 1 Sandbanks in the Haisborough, Hammond and Winterton SAC will recover as the physical processes of the Sandbanks recover within the range of natural variation as the communities are habituated to highly mobile sediments.	Not agreed, Natural England acknowledges that the mobile nature of this particular sandbank system would make it more likely to recover from changes in structure then less mobile ones. But, there are no empirical data that relate to interventions of similar spatial and temporal scale to the proposals and for this particular sandbank system to support the modelling. Therefore, Natural England continues to have residual concerns in relation to the overall impacts to the form and function of the Annex I sandbank sandwave fields and their potential recoverability.	It is acknowledged by both parties that effects on the HHW SAC will be considered further through the HHW SAC SIP based on pre-construction survey findings, available evidence and latest guidance prior to construction.
	Based on available data, micrositing around *S. spinulosa* reef is likely to be possible. However, it is acknowledged that *S. spinulosa* reef extent may change prior to construction of Norfolk Vanguard and therefore pre-construction surveys are required to determine the extent of *S. spinulosa* reef at that time. A cable specification, installation and monitoring plan, must be agreed with the MMO in consultation with Natural England as discussed under 'Mitigation and Management' below. This will provide the mechanism to agree cable routing/micrositing.	Agreed on the basis of survey data collected to date there should be room to microsite around reef in the nearshore section of the cable corridor. But it is more uncertain beyond 12nm as shown in Figure 4.1 of the SIP. It should be noted and taken into consideration by the decision-maker now that this may not be the case pre-construction and therefore there is an outstanding risk to the project	It is agreed by both parties that, on the basis of survey data collected to date, there should be room to microsite around reef in the nearshore section of the cable corridor but there is more uncertainty beyond 12nm. There is also uncertainty associated with what the extent of reef will be at the pre-construction stage and therefore this presents a risk to agreeing the HHW SAC SIP prior to construction.
	In the unlikely event that micrositing around *S. spinulosa* reef is not possible, a small proportion of reef may be	Not agreed, there is currently a restore objective for reef features of	Not agreed. It is acknowledged by both parties that effects on the HHW SAC will be

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	temporarily disturbed. *S. spinulosa* in its individual and reef forms, is known to be ephemeral and opportunistic and can be expected to recover/recolonise within the range of natural variation. Therefore, a small proportion of temporary disturbance to *S. spinulosa* reef would not cause an adverse effect on the restoration objective of the Haisborough, Hammond and Winterton SAC. The following references provide examples of evidence that *S. spinulosa* reef can be expected to recover/recolonise Tillin and Marshall, 2015; OSPAR Commission, 2010; Holt, 1998; Cooper *et al*., 2007; Pearce *et al*., 2007). As stated in Natural England's position, there is a high likelihood that *Sabellaria spinulosa* reef will recover/develop following cessation of disturbance from fisheries. This would also apply following cable installation.	HHW SAC. Site management measures are being developed for other operations likely to damage the interest features of the site and will be implemented in the future. In the absence of those pressures there is a high likelihood that *Sabellaria spinulosa* reef will recover/develop. One such management measure that is being considered is the use of fisheries byelaws to protect areas where *Sabellaria spinulosa* reef have been shown to be regularly present. Therefore it is hoped that more extensive *Sabellaria spinulosa* reefs will be restored in these areas, and that existing encrusting and low quality reef will develop into higher quality reef habitat. Natural England would therefore advise that cable installation activities are avoided in these areas. In addition, the evidence presented in the HRA to support conclusions on recoverability relates only to individuals/abundance, but not to reef. Thus we have limited confidence in the ability of reef to recover from cable installation activities. Therefore, we further advocate that the standard mitigation measure of avoidance is adhered to.	considered further through the HHW SAC SIP based on pre-construction survey findings, available evidence and latest guidance prior to construction.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Cable protection would not affect the potential of *S. spinulosa* reef to recover within the Haisborough, Hammond and Winterton SAC as *S. spinulosa* reef can be expected to colonise cable protection as an artificial substrate, in accordance with the UK Biodiversity Action Plan Priority Habitat Description for *S. spinulosa* Reefs (JNCC, 2016[4]): "*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*." The HHW SAC SIP ensures that the deployment of cable protection must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.2 in the Outline HHW SAC SIP outlines the process regarding minimising cable protection for potential unburied cable and seeking agreement from the MMO in consultation with Natural England.	Not agreed, Natural England does not consider the colonisation of artificial sub-sea structures as beneficial as it is not natural change. The cable protection will result in permanent loss of habitat.	Not agreed.
	The HHW SAC SIP combined with the Transmission DML Condition 9(1)(m) allows a conclusion of no AEOI to be made at the consent determination stage on the basis that it restricts the commencement of construction until such time that mitigation measures can be adopted to rule out an AEoI.	Agreed. Noting that the commitments presented in the HHW SAC SIP may still be considered insufficient to agree no AEoI at the pre-construction stage. If a solution cannot be agreed, the Applicant would need to consider a Marine Licence application or a variation to	It is agreed by both parties that the HHW SAC SIP combined with the Transmission DML Condition 9(1)(m) allows a conclusion of no AEOI to be made at the consent determination stage on the basis that it restricts the commencement of construction until such time that mitigation measures can be adopted to rule out an

[4] http://jncc.defra.gov.uk/page-5706

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
		the Transmission DML Condition 9(1)(m) to allow a finding of AEoI should the project satisfy the HRA Assessment of Alternatives, IROPI and Compensatory Measures tests.	AEoI. Noting that the commitments presented in the HHW SAC SIP may still be considered insufficient to agree no AEoI at the pre-construction stage
Management Measures – Mitigation and Monitoring			
Mitigation and Management	A 50m buffer from *S. spinulosa* reef is proposed for disposal of sediment in accordance with advice provided by Natural England by email on 13th February 2018. The Outline HHW SAC SIP stated that the location(s) of sediment disposal must include a minimum buffer of 50m from *S. spinulosa* reef and will therefore be informed by the pre-construction surveys. The methodology and location for sediment disposal must be agreed with the MMO in consultation with Natural England through the HHW SAC SIP.	Agreed, but please also see Point 17 of Appendix 2 of Natural England's Rel. Rep.	It is agreed by both parties that sediment disposal must include a minimum buffer of 50m from *S. spinulosa* reef and will therefore be informed by the pre-construction surveys. The methodology and location for sediment disposal must be agreed with the MMO in consultation with Natural England through the HHW SAC SIP.
	The Conditions of the DMLs (Schedules 9, 10, 11 and 12; Part 4) state that a cable specification, installation and monitoring plan, must be agreed with the MMO. This includes a detailed cable laying plan, incorporating a burial risk assessment to ascertain suitable burial depths and cable laying techniques. This gives the MMO and their advisors the opportunity to input to the cable laying plan including the cable route and potential for micrositing.	Agreed, noting that on the basis of current survey data micrositing around reef in cable corridor should be possible but due to its ephemeral nature, this may not be the case pre-construction.	It is agreed by both parties that the cable specification, installation and monitoring plan gives the MMO and their advisors the opportunity to input to the cable laying plan including the cable route and potential for micrositing.
	The HHW SAC SIP ensures that the deployment of cable protection must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.2 in the Outline HHW SAC SIP outlines the process regarding minimising cable protection for potential	Natural England supports the consideration and assessment of the impacts of a realistic worst case scenario (WCS) as this enables the examining authority to understand the full implications of an	It is agreed by both parties that the HHW SAC SIP ensures that the deployment of cable protection must be agreed with the MMO in consultation with Natural England prior to construction. Diagram 5.2 in the Outline HHW SAC SIP outlines the process

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	unburied cable and seeking agreement from the MMO in consultation with Natural England.	application prior to granting consent. However, it should not necessarily follow that this WCS is permitted.	regarding minimising cable protection for potential unburied cable and seeking agreement from the MMO in consultation with Natural England.
Monitoring	The In Principle Monitoring Plan (document 8.12), provides an appropriate framework to agree monitoring with the MMO in consultation with Natural England	Agreed	It is agreed by both parties that the In Principle Monitoring Plan (document 8.12), provides an appropriate framework to agree monitoring with the MMO in consultation with Natural England.

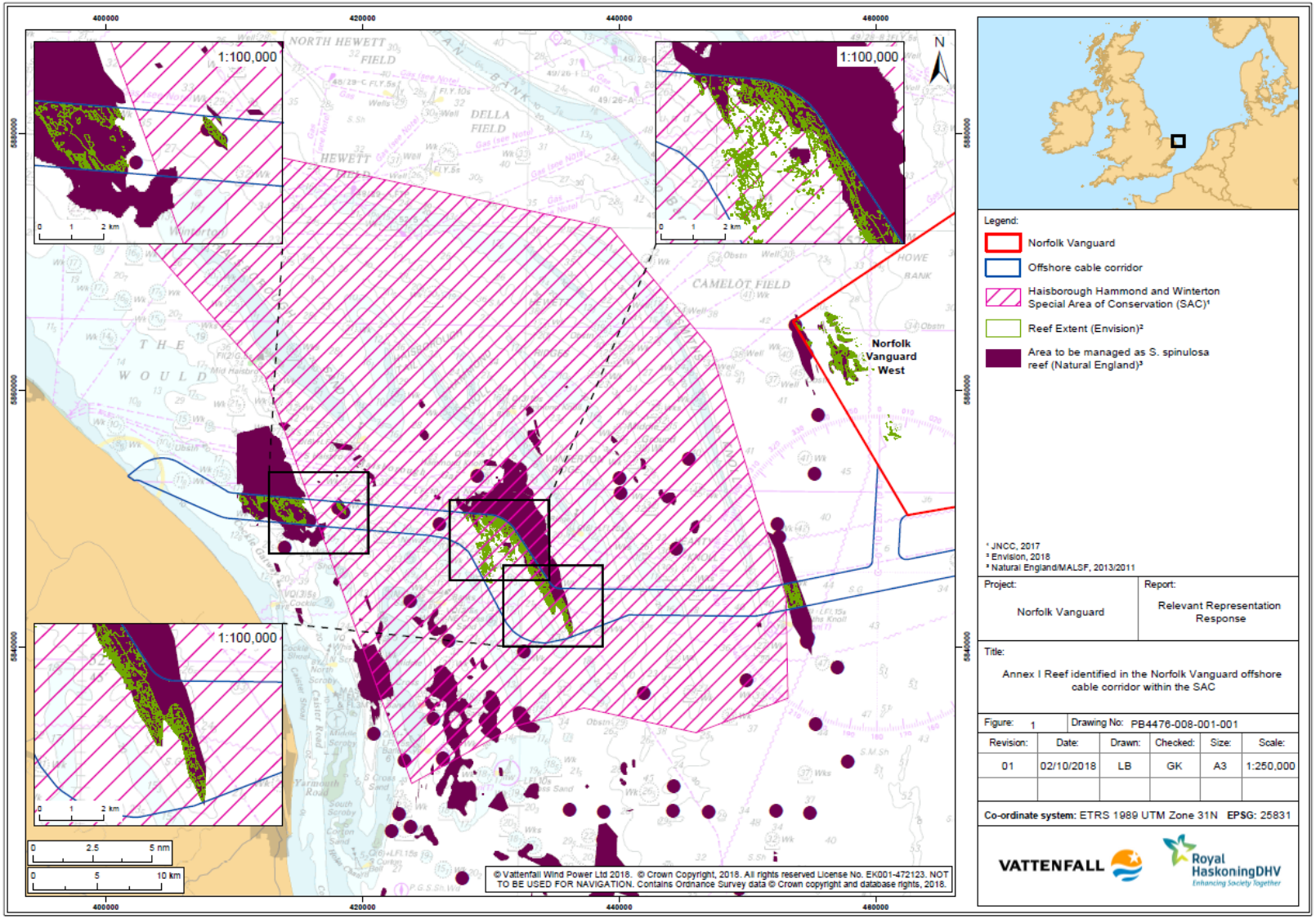

Figure 2.1 *Sabellaria spinulosa* reef mapping by the Applicant and Natural England

2.3 Fish and Shellfish Ecology

21. The project has the potential to impact upon Fish and Shellfish Ecology. Chapter 11 of the Norfolk Vanguard ES (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

22. Table 5 provides an overview of meetings and correspondence undertaken with Natural England regarding Fish and Shellfish Ecology.

23. Table 6 provides areas of agreement (common ground) and disagreement regarding Fish and Shellfish Ecology.

24. Minutes of Evidence Plan meetings can be found in Appendix 9.16 of the Consultation Report (document reference 5.1 of the Application).

Table 5 Summary of Consultation with Natural England in relation to Fish and Shellfish Ecology

Date	Contact Type	Topic
Pre-Application		
21st March 2016	Benthic and Geophysical Survey Scope Meeting	Agreement that no further fish surveys were required to inform the EIA.
2nd February 2017	Email from the Applicant	Provision of the Fish Ecology Method Statement (see Appendix 9.2 of the Consultation Report).
16th February 2017	Benthic and Intertidal Ecology, Fish Ecology, Marine Physical Processes and Marine Water and Sediment Quality Scoping Expert Topic Group Meeting	Discussion of Scoping responses and approach to EIA/HRA (minutes provided in Appendix 9.16 of the Consultation Report).
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant

Table 6 Statement of Common Ground - Fish and shellfish

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Environmental Impact Assessment			
Existing Environment	The ES adequately characterises the baseline environment in terms of Fish and Shellfish Ecology. No site specific survey data is required for the characterisation of Fish and Shellfish Ecology as agreed by email on 13th April 2016.	Agreed	It is agreed by both parties that the existing environment for fish and shellfish has been characterised appropriately for the assessment.
Assessment methodology	Appropriate legislation, planning policy and guidance relevant to Fish and Shellfish Ecology has been used.	Agreed	It is agreed by both parties that appropriate legislation has been considered.
	The list of potential impacts on Fish and Shellfish Ecology assessed is appropriate	Agreed	It is agreed by both parties that appropriate impacts on fish and shellfish have been assessed.
	The impact assessment methodology is appropriate, and is in line with the Method Statement provided in February 2017 (see Appendix 9.2 of the Consultation Report (Application document 5.1) and agreed during the topic group meeting in February 2017.	Agreed	It is agreed by both parties that the impact assessment methodologies used in the EIA are appropriate.
	The worst case scenario used in the assessment for Fish and Shellfish Ecology is appropriate.	Agreed	It is agreed by both parties that the worst case scenario used in the assessment is appropriate
	As discussed in the Change Report (document reference Pre-ExA;Change Report;9.3), the increase in the maximum number of piles per offshore electrical platform from six to 18 per platform (36 in total for two platforms) does not affect the conclusions of ES Chapter 11 Fish and Shellfish Ecology.	Agreed	It is agreed by both parties that the proposed increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 11 Fish and Shellfish Ecology.
Assessment findings	The characterisation of receptor sensitivity is appropriate.	Agreed	It is agreed by both parties that fish and shellfish sensitivity is appropriately characterised.
	The magnitude of effect is correctly identified.	Agreed	It is agreed by both parties that the magnitude of effects on fish and

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
			shellfish are appropriately characterised.
	The impact significance conclusions of negligible or minor adverse for Norfolk Vanguard alone are appropriate.	Agreed	It is agreed by both parties that the impact significance for fish and shellfish is appropriately characterised for Norfolk Vanguard alone.
Cumulative Impact Assessment (CIA)	The plans and projects considered within the CIA are appropriate.	Agreed	It is agreed by both parties that the plans and projects included in the CIA are appropriate.
	The CIA methodology is appropriate.	Agreed	It is agreed by both parties that the CIA methodology is appropriate.
	The cumulative impact conclusions of negligible or minor significance are appropriate.	Agreed	It is agreed by both parties that the impact significance for fish and shellfish is appropriate for cumulative impacts.
Management Measures – Mitigation and Monitoring			
Mitigation and Management	Given the impacts of the project, the embedded mitigation outlined in Section 11.7.1 of Chapter 11 is adequate.	Agreed	It is agreed by both parties that the embedded mitigation proposed is appropriate.
Monitoring	Given the minor impacts of the project, no monitoring is proposed for fish and shellfish ecology. The In Principle Monitoring Plan provides framework to agree monitoring post consent.	Agreed as Natural England acknowledges the applicant will seek to address these concerns post consent. Natural England is concerned that no further monitoring or independent surveys are proposed regarding Fish and Shellfish ecology within the In Principle Monitoring Plan. Sandeel and herring habitat is of particular interest as these are important prey species including for harbour porpoise of the Southern North Sea SAC and the Greater Wash SPA.. However Natural England would defer to Cefas on this issue.	It is agreed by both parties that the In Principle Monitoring Plan (document 8.12), provides an appropriate framework to agree monitoring with the MMO in consultation with Natural England.

2.4 Marine Mammals

25. The project has the potential to impact upon Marine Mammals. Chapter 12 of the Norfolk Vanguard ES (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

26. Table 7 provides an overview of meetings and correspondence undertaken with Natural England regarding Marine Mammals.

27. Table 8 provides areas of agreement (common ground) and disagreement regarding Marine Mammals.

28. Minutes of Evidence Plan meetings can be found in Appendix 9.24 and Appendix 25.9 of the Consultation Report (document reference 5.1 of the Application).

Table 7 Summary of Consultation with Natural England in relation to Marine Mammals

Date	Contact Type	Topic
Pre-Application		
21st March 2016	Meeting	Discussion on the required aerial survey methodology (see Appendix 9.17 of the Consultation Report).
2nd February 2017	Email from the Applicant	Provision of the Marine Mammals Method Statement (Appendix 9.13 of the Consultation Report).
15th February 2017	Marine Mammals Scoping Expert Topic Group Meeting	Discussion of the scoping responses and approach to EIA/HRA (minutes provided in Appendix 9.24 of the Consultation Report).
22nd June 2017	Email from the Applicant	Provision of HRA Method Statement (Appendix 9.13 of the Consultation Report) to inform discussions at the Marine Mammals Topic Group meeting.
6th July 2017	Marine Mammals pre-PEI ETG Meeting	Marine mammal HRA Screening agreed and approach to HRA discussed (minutes provided in Appendix 9.24 of the Consultation Report).
25th October 2017	Email from the Applicant	Provision of the Marine Mammals PEIR Chapter.
8th December 2017	Marine mammal ETG Conference call	Marine mammal PEIR comments and approach to HRA.
3rd January 2018	Email from Natural England	Written advice on approach to the marine mammal HRA and clarifying PEIR feedback following meeting on the 8th December 2017.
23rd March 2018	Letter from Natural England	Feedback on the draft Information to Support HRA report.
26th March 2018	Marine Mammal ETG Conference Call	Discussion of feedback on the draft Information to Support HRA for Marine Mammals (minutes provided in Appendix 25.9 of the Consultation Report).

Date	Contact Type	Topic
13th April 2018	Email from the Applicant	Provision of draft In Principle Southern North Sea cSAC Site Integrity Plan (document 8.17) for review.
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant
3rd June 2019	Email from the Applicant	Draft of final SOCG provided by the Applicant

Table 8 Statement of Common Ground - Marine mammals

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Environmental Impact Assessment			
Existing Environment	Survey data collected for Norfolk Vanguard for the characterisation of marine mammals are suitable for the assessment.	Agreed	It is agreed by both parties that sufficient survey data has been collected to undertake the assessment.
	The ES adequately characterises the baseline environment in terms of marine mammals.	Agreed In addition to project specific surveys, sufficient background characterisation data from previous strategic surveys have been included. Species assessed are harbour porpoise, grey seal and harbour seal.	It is agreed by both parties that the existing environment for marine mammals has been characterised appropriately for the assessment.
Assessment methodology	Appropriate legislation, planning policy and guidance relevant to marine mammals has been used.	Agreed	It is agreed by both parties that appropriate legislation has been considered.
	The list of potential impacts on marine mammals assessed is appropriate.	Agreed	It is agreed by both parties that appropriate impacts on marine mammals have been assessed.
	Harbour porpoise, grey seal and harbour seal are the only species of marine mammal required to be considered in the impact assessment.	Agreed Other marine mammal species are at such low density that it is not necessary to assess further.	It is agreed by both parties that appropriate species of marine mammal have been assessed.
	The reference populations as defined in the ES are appropriate.	Agreed	It is agreed by both parties that appropriate reference populations have been used in the assessment.
	The approach to underwater noise modelling and assessment of impacts from pile driving noise for marine mammals follows current best practice and is therefore appropriate for this assessment as agreed during the expert topic group meeting in February 2017.	Agreed	It is agreed by both parties that the approach to underwater noise impact assessment is appropriate
	The impact assessment methodology is appropriate.	Agreed	It is agreed by both parties that the impact assessment methodology is appropriate

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The worst case scenario for Norfolk Vanguard alone used in the assessment for marine mammals is appropriate.	Agreed.	It is agreed by both parties that the worst case scenario used in the assessment is appropriate
	As discussed in the Change Report (document reference Pre-ExA;Change Report;9.3), the increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 12 Marine Mammals.	Agreed	It is agreed by both parties that the proposed increase in the maximum number of piles per offshore electrical platform from six to 18 (36 in total for two platforms) does not affect the conclusions of ES Chapter 12 Marine Mammals.
	Unexploded Ordnance (UXO) clearance is considered in the EIA to provide a conservative assessment but would be subject to additional licencing once the nature and extent of UXO present is known following pre-construction surveys. This licencing would be supported by a UXO Marine Mammal Mitigation Protocol (MMMP)	Agreed	It is agreed by both parties that UXO clearance will be licenced separately
Assessment findings	The characterisation of receptor sensitivity is appropriate.	Agreed	It is agreed by both parties that marine mammal sensitivity is appropriately characterised for each species and impact.
	The magnitude of effect is correctly identified.	Agreed	It is agreed by both parties that the magnitude of effects on marine mammals are appropriately characterised.
	The impact significance conclusions of negligible or minor for Norfolk Vanguard alone are appropriate.	Agreed	It is agreed by both parties that the impact significance for marine mammals is appropriately characterised for Norfolk Vanguard alone.
Cumulative Impact Assessment (CIA)	The plans and projects considered within the CIA are appropriate.	Agreed	It is agreed by both parties that the plans and projects included in the CIA are appropriate.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The CIA methodology is appropriate.	Agreed	It is agreed by both parties that the CIA methodology is appropriate.
	The cumulative impact conclusions of negligible or minor significance are appropriate. The Southern North Sea SIP (DCO Schedules 9 and 10 Part 4 Condition 14(1)(m) and Schedules 11 and 12 Part 4 Condition 9(1)(l))) provides the framework to agree appropriate mitigation measures based on the latest guidance and provides the mechanism for the MMO to ensure that disturbance can be limited to an acceptable level, as piling cannot commence until the MMO is satisfied that there would be no adverse effect on integrity. As outlined in the In Principle Site Integrity Plan (Table 2.1 of document 5.3), it is proposed that the Site Integrity Plan would be updated to capture all relevant assessments and mitigation measures. This will include updating the in-combination assessment, taking into account the conclusions of the RoC process. The Applicant agrees that a strategic mechanism is required from the Regulator to ensure that disturbance can be limited to an acceptable level. In accordance with the Marine Management Organisation's Deadline 6 submission, the Applicant considers that the current requirement for a SIP is sufficient to allow any mechanism to be fully incorporated without need for variation.	It is the view of Natural England that the assessment of any future plan or project, such as Norfolk Vanguard, is unable to fully complete any in-combination assessment and Habitat Regulation Assessments until: - The RoC consent process has concluded and the predicted level of disturbance to the Southern North Sea SAC from the consented projects is agreed; and b) A mechanism is in place to ensure that disturbance can be limited to an acceptable level.	It is agreed by both parties that a strategic mechanism is required from the Regulator to ensure that disturbance can be limited to an acceptable level. The current requirement for a SIP is sufficient to allow any mechanism to be fully incorporated without need for variation.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Habitats Regulations Assessment (HRA)			
Screening of LSE	The Approach to HRA Screening is appropriate. The following sites are screened in for further assessment: • Southern North Sea SAC • Humber Estuary SAC • The Wash and North Norfolk Coast SAC	Agreed	It is agreed by both parties that the designated sites and potential effects screened in for further assessment are appropriate.
Assessment of Adverse Effect on Integrity	The approach to the assessment of AEoI is appropriate.	Agreed in part, however, as a result of the in-combination effect of underwater noise during the construction period at the project (from piling and UXO clearance), the Information to Support the HRA indicates that there is potential for LSE. Natural England advises that without the Site Integrity Plan and a mechanism to control subsea noise from multiple sources, there could be the potential for an adverse effect on the integrity of the Southern North Sea SAC because of potential impacts on harbour porpoise. 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. This has been reflected in the Environmental Statement.	It is agreed by both parties that the approach to the assessment of potential adverse effects on site integrity presented in the Information to Support HRA report (document 5.3) are appropriate
	The reference populations as defined in the Information to Support HRA report are appropriate.	Agreed	It is agreed by both parties that appropriate reference populations have been used in the Information to Support HRA report.
	The conclusions of the Information to Support HRA report are appropriate for Norfolk Vanguard alone.	Agreed	It is agreed by both parties that there would be no AEoI as a result of Norfolk Vanguard alone
	The conclusions of the In-combination Assessment provided in the Information to Support HRA report are appropriate.	Effectively the Worst Case Scenario (WCS) presented in the HRA will be that all consented projects and those in the planning	It is agreed by both parties that a strategic mechanism is required from the Regulator to ensure that

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The Site Integrity Plan (DCO Schedules 9 and 10 Part 4 Condition 14(1)(m) and Schedules 11 and 12 Part 4 Condition 9(1)(l))) provides the framework to agree appropriate mitigation measures based on the latest guidance and provides the mechanism for the MMO to ensure that disturbance can be limited to an acceptable level, as piling cannot commence until the MMO is satisfied that there would be no adverse effect on integrity. As outlined in the In Principle Site Integrity Plan (Table 2.1 of document 5.3), it is proposed that the Site Integrity Plan would be updated to capture all relevant assessments and mitigation measures. This will include updating the in-combination assessment, taking into account the conclusions of the RoC process. The Applicant agrees that a strategic mechanism is required from the Regulator to ensure that disturbance can be limited to an acceptable level. In accordance with the Marine Management Organisation's Deadline 6 submission, the Applicant considers that the current requirement for a SIP is sufficient to allow any mechanism to be fully incorporated without need for variation.	system will undertake 'noisy' pre-construction site preparation and construction activities at the same time which will almost certainly result in an Adverse Effect on Integrity (AEoI). We recognise that this is an unrealistic WCS because for no other reason it is not technically feasible. However, it does remain probable that two, or more, projects will wish to undertake noisy activities at the same time and depending on the combination of projects there remains a high risk of an AEoI. It is also the view of NE that the assessment of any future plan or project, such as Norfolk Vanguard, is unable to fully complete any in-combination assessment and Habitat Regulation Assessments until: - The RoC consent process has concluded and the predicted level of disturbance to the Southern North Sea SAC from the consented projects is agreed; and b) A wider mechanism is in place to ensure that disturbance can be limited to an acceptable level.	disturbance can be limited to an acceptable level. The current requirement for a SIP is sufficient to allow any mechanism to be fully incorporated without need for variation.
Mitigation and Management			
Mitigation and Management	The Site Integrity Plan, in accordance with the In Principle Site Integrity Plan (application document 8.17) provides an appropriate framework to agree mitigation measures for effects on the Southern North Sea SAC with Statutory Nature Conservation Bodies (SNCB)s and the MMO prior to construction.	Agreed, however Natural England would like to see the applicant commit to a final detailed SIP being produced at least 4 months (preferably 6) prior to commencement of pile driving. And would support this being a condition in the DCO	It is agreed by both parties that the Site Integrity Plan provides an appropriate framework to agree mitigation measures for effects on the Southern North Sea SAC with SNCBs and the MMO prior to construction.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The MMMP, in accordance with the draft MMMP (application document 8.13), provides an appropriate framework for securing marine mammal mitigation measures in agreement with and the MMO prior to construction. A final MMMP will be submitted at Deadline 9 and will include reference to Condition 19(3)	Largely agreed. Natural England would suggest that the outline MMMP should be updated to reflect the changes we have proposed to DML Condition 19 (3) i.e. the during construction noise monitoring condition. Details are required regarding establishment of Marine Mammal Mitigation Zone (MMMZ) in the revised MMMP post consent. Natural England expects to be further consulted on the development of the MMMP for piling and UXOs prior to construction.	It is agreed by both parties that the MMMP provides the framework for securing marine mammal mitigation measures prior to construction.

2.5 Offshore Ornithology

29. The project has the potential to impact upon Offshore Ornithology. Chapter 13 of the Norfolk Vanguard ES (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

30. Table 9 provides an overview of meetings and correspondence undertaken with Natural England regarding Offshore Ornithology.

31. Table 10 provides areas of agreement (common ground) and disagreement regarding Offshore Ornithology.

32. Minutes of Evidence Plan meetings can be found in Appendix 9.17 and Appendix 25.8 of the Consultation Report (document reference 5.1 of the Application).

Table 9 Summary of Consultation with Natural England in relation to Offshore Ornithology

Date	Contact Type	Topic
Pre-Application		
21st March 2016	Meeting	Discussion on the required aerial survey methodology (see Appendix 9.17 of the Consultation Report).
21st March 2016	Letter from Natural England	Natural England's review of the ornithological survey strategy.
15th February 2017	ETG meeting	Discussion on the draft Offshore Ornithology PEIR Chapter (minutes provided in Appendix 9.17).
14th March 2017	Email from Natural England	Natural England feedback on Offshore Ornithology Method Statement.
8th May 2017	Email from Natural England	Natural England advice on population modelling methods for assessing impacts of the Vanguard OWF.
22nd June 2017	Email from the Applicant	Offshore HRA Screening (Appendix 5.1 of the HRA (document 5.3)) provided for consultation.
7th September 2017	Email from the Applicant	Provision of draft offshore ornithology PEIR Chapter 13.
6th October 2017	ETG meeting	Discussion of comments on the draft PEIR chapter (minutes provided in Appendix 9.20).
11th December 2017	PEIR response	Comments on the PEIR chapter
22nd February 2018	Email from the Applicant	Provision of draft Norfolk Vanguard Information to Support Habitats Regulations Assessment (HRA) (document 5.3).
23rd March 2018	Letter from Natural England	Feedback on the draft Information to Support HRA report
26th March 2018	Offshore Ornithology HRA Conference Call	Project update and comments on HRA for Offshore Ornithology (minutes provided in Appendix 25.8).

Date	Contact Type	Topic
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant
23rd January 2019	SoCG Meeting	Discussion of offshore ornithology assessment status and next steps
8th March 2019	SoCG Meeting	Discussion of offshore ornithology assessment status and next steps and updating the SoCG
20th March 2019	Email from Natural England	Proposed red-throated diver mitigation for operation and maintenance vessel movement.
27th March 2019	Meeting prior to Issue Specific Hearing 4	Discussion of offshore ornithology assessment status and next steps in run up to submissions at Deadline 6.
17th April 2019	Receipt of Natural England's interim review of Deadline 6 submissions.	Clarification of responses to updated assessments and identification of outstanding aspects.
23rd April 2019	Conference Call	Discussions of areas of agreement and disagreement in advance of Issue Specific Hearing 6.
2nd May 2019	Receipt of Natural England's Deadline 7 submission (Final review of the Applicant's Deadline 6 and Deadline 6.5 submissions).	Clarification of responses to updated assessments and identification of outstanding aspects.
9th May 2019	Conference Call	Discussions regarding timetable leading up to Deadline 8.
14th May 2019	Updated assessment	Revised project alone and in-combination collision risk assessment following increase in turbine draught height from 22m to 27m above Mean High Water Springs (MHWS).
20th May 2019	Conference Call	Discussion of collision revisions following turbine draught height increase.
31st May 2019	Receipt of Natural England's Deadline 8 submissions	Natural England's position on the Applicant's updated submissions up to Deadline 7 and including the Deadline 7.5 CRM submission.
3rd June 2019	Conference Call	Discussion of final positions and submissions
4th June 2019	Updated SoCG	Submitted to Natural England for review

Table 10 Statement of Common Ground - Offshore ornithology

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Environmental Impact Assessment			
Existing Environment	Survey data collected for Norfolk Vanguard (and East Anglia FOUR, now NV East) for the characterisation of offshore ornithology are suitable for the assessment.	Agreed.	Agreed.
	The methods and techniques used to analyse offshore ornithological data are appropriate for characterising bird distributions and estimating populations.	Agreed.	Agreed.
	The method used to determine flight heights is appropriate.	Agreed.	Agreed that generic flight height data (Johnston et al. 2014) will be used due to data reliability concerns raised by aerial surveyor.
	The method used to assign unidentified birds to species is appropriate.	Agreed.	Agreed.
	The methods used to define the relevant months for seabird breeding seasons for use in assessments, presenting both the full breeding seasons as advised by Natural England, and the Applicant's preferred migration-free breeding months, are appropriate.	Agreed	Agreed
Assessment methodology			
General	Appropriate legislation, planning policy and guidance relevant to offshore ornithology has been used.	Agreed.	Agreed.
	The list of potential impacts on offshore ornithology assessed is appropriate.	Agreed.	Agreed.
	The methods for determining impact significance on offshore ornithological receptors is appropriate.	Agreed	Agreed.
	The worst case scenario used in the assessment for offshore ornithology is appropriate.	Agreed	Agreed.
	Differences between single and two phased approaches to construction are trivial in terms of ornithology impacts.	Agreed	Agreed.
	The characterisation of receptor sensitivity is appropriate	Agreed	Agreed.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Construction impact methods	The lists of potential construction impacts and ornithology receptors assessed are appropriate.	Agreed.	Agreed.
	The methods used to estimate impacts during construction, including cable laying operations, based on mean density estimates and presenting both Natural England's preferred rates and the Applicant's evidence based rates (for displacement and mortality) are appropriate.	Agreed	Agreed
Operation impact methods	The sources of operational impact assessed are appropriate	Agreed	Agreed
	The lists of ornithology receptors assessed for each impact are appropriate. Species included were those with impacts above minimal thresholds (e.g. >10 collisions per year).	Agreed	Agreed
	Methods used to assess operational displacement presented in the ES and subsequent revisions submitted at Deadline 1 (WQApp3.1; 10.D1.3), Norfolk Vanguard Offshore Wind Farm Offshore Ornithology: Operational Auk Displacement: update and clarification (ExA; WQApp3.3; 10.D1.3)), Deadline 6 (ExA;AS;10.D6.17) and Deadline 8 (ExA;AS;10.D8.10) are appropriate. Note that Natural England requires presentation and assessment using their preferred displacement and mortality rates.	Agreed	Agreed
	Method for assessing seabird collision risk is appropriate: using Band option 2, presenting results for mean seabird density (and 95% c.i.), Natural England advised species specific avoidance rates (+/- 2 SD), BTO flight height estimates (and 95% c.i.) and Natural England advised nocturnal activity rates.	Agreed	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Non-seabird migrant collision assessment submitted at Deadline 3 and updated at Deadline 6, as per Natural England's request (Norfolk Vanguard Offshore Wind Farm Migrant non-seabird Collision Risk Modelling ExA; AS; 10.D6.18_Migrant Non-Seabird Collision Risk Modelling Revision of Rep-038) is appropriate.	Agreed	Agreed
	Methods for assessing barrier effects are appropriate.	Agreed	Agreed
	Methods for assessing indirect effects are appropriate.	Agreed	Agreed
Impact assessment findings – project alone (EIA)			
Construction impacts	The magnitude of effects and conclusions on significance resulting from impacts during construction are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted.	Agreed when using Natural England's preferred rates and methods (as presented in the Applicant's Deadline 1 submissions).	Agreed
Operation impacts	The magnitude of effects and conclusions on significance resulting from displacement impacts during operation are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted.	Agreed, for gannet, razorbill, guillemot and puffin subject to the following caveat: extended breeding season for gannet (although it is agreed that this does not alter the conclusions). No impacts predicted to be greater than minor adverse for these species. Agreed for red-throated diver, using Natural England's preferred rates and methods for Norfolk Vanguard East. Not agreed for red-throated diver, using Natural England's preferred rates and methods for Norfolk Vanguard West and Norfolk Vanguard East and West combined (moderate adverse effect).	Agreed for all species using Natural England's preferred rates except red-throated diver at Norfolk Vanguard West and Norfolk Vanguard East and West combined (moderate adverse effect).

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Using the Band collision model, with Natural England's preferred input parameters and model methods, the magnitude of effects and conclusions on significance resulting from collision impacts for seabirds and non-seabird migrants during operation are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted for all species.	Agreed. It should be noted that this agreement has only been reached following discussions between Natural England and the Applicant and agreement to focus the assessment on the deterministic Band model.	Agreed
	Following design revisions to the Project, with removal of the 9MW turbine from the design envelope, revised layout across Norfolk Vanguard East and West (no more than two-thirds of the turbines in NV West or half the turbines in NV East) and a 5m increase in draught height (from 22m to 27m above Mean High Water Springs), the Project has reduced the average collision predictions by 65% and therefore makes a significantly smaller contribution to cumulative and in-combination collision totals for all species.	Agreed	Agreed
	The magnitude of effects and conclusions on significance resulting from barrier effects during operation are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted.	Agreed	Agreed
	The magnitude of effects and conclusions on significance resulting from indirect effects during operation are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted.	Agreed	Agreed
Decommissioning impacts	The magnitude of effects and conclusions on significance resulting from impacts during decommissioning are correctly identified and predicted. No impacts of greater than minor significance are predicted.	Agreed that decommissioning impacts are likely to be no worse than those during construction. However, Natural England notes that further consultation will be required (at the time decommissioning is being planned) to ensure potential impacts are minimised.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Cumulative impact assessment (EIA)			
Cumulative construction assessment	The plans and projects considered within the CIA are appropriate	Agreed	Agreed
	The magnitude of effects and conclusions on significance resulting from cumulative impacts during construction are correctly identified and predicted. No impacts of greater than minor adverse significance are predicted.	Agreed.	Agreed.
Cumulative operation assessment	The plans and projects considered within the CIA are appropriate.	Agreed. Although it should be noted that there remains uncertainty about the magnitude of effects to be assigned to other projects currently in Examination or not yet determined. Natural England has raised concerns about the validity of the assessment for the Hornsea THREE application, and advises that the associated values are unlikely to reflect the impacts of this development should it be consented.	Agreed
	The magnitude of effects and conclusions on significance resulting from cumulative displacement impacts during operation are correctly identified and predicted and no impacts of greater than minor adverse significance are predicted for red-throated diver.	Not agreed. Natural England considers that cumulative displacement of red-throated diver will result in a moderate adverse impact, although Natural England acknowledges the relatively small contribution of Norfolk Vanguard to this impact.	Not agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The magnitude of effects and conclusions on significance resulting from cumulative displacement impacts during operation are correctly identified and predicted and no impacts of greater than minor adverse significance are predicted for guillemot, razorbill, puffin and gannet.	Agreed for puffin Not agreed for guillemot and razorbill, for which Natural England is unable to rule out a significant (moderate adverse) cumulative impact). For gannet, NE has considered displacement effects in addition to collision mortality, and conclude a moderate adverse effect on gannet at the EIA cumulative scale. Please see the row below. We have not considered displacement effects separately.	Agreed for puffin Not agreed for guillemot and razorbill.
	Using the Band collision model option 2, with Natural England's preferred input parameters (see above) and methods, combined with like for like figures for other projects (as far as possible given the information available), the magnitude of effects and conclusions on significance resulting from cumulative collision impacts for seabirds during operation are correctly identified and predicted. It should be noted that this conclusion includes the cumulative assessment for little gull, for which Natural England has suggested other wind farms should be included (Deadline 9 submission; Dudgeon, East Anglia ONE, East Anglia THREE). However, no collision estimates are available for these projects therefore a conclusion of no significant impact is appropriate for this species, based on the best available evidence.	Agreed for herring gull, lesser black-backed gull and little gull, though given the lack of information regarding potentially relevant projects, NE's conclusions regarding the latter species are made with lower confidence. Not agreed for gannet, kittiwake and great black-backed gull (for which Natural England is currently unable to rule out a significant moderate adverse cumulative impact).	Agreed for herring gull, lesser black-backed gull and little gull. Not Agreed for gannet, kittiwake and great black-backed gull
Habitats Regulations Assessment (HRA)			
Screening of LSE	The Approach to HRA Screening is appropriate.	Agreed	Agreed
	The following sites and species should be screened in for further assessment: • Alde-Ore Estuary Special Protection Area (SPA) (lesser black-backed gull);	Agreed (note that with respect to the Greater Wash SPA Natural England considers that an LSE cannot be ruled for common scoter, however there is no AEOI for the project alone or in-combination).	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	• Flamborough and Filey Coast potential Special Protection Area (SPA) (gannet, kittiwake, guillemot, razorbill and puffin, the latter as a named component of the seabird assemblage); • Greater Wash SPA (red-throated diver and little gull) • Outer Thames Estuary SPA (red-throated diver).		
Assessment	The approach to the determination of AEoI is appropriate.	Agreed	Agreed
	Conclusion of no AEoI alone for lesser black-backed gull population at Alde-Ore Estuary is appropriate, on the basis of predicted collisions for the Project (following reductions due to removal of 9MW turbine, revised layout and increase in turbine draught height).	Agreed	Agreed
	Conclusion of no AEoI for lesser black-backed gull population at Alde-Ore Estuary is appropriate, on the basis of in-combination collisions.	Not Agreed. Natural England advises that an Adverse Effect on Integrity cannot be ruled out due to the levels of in-combination collision mortality predicted.	Not Agreed
	Conclusion of no AEoI alone for gannet population at Flamborough and Filey Coast SPA is appropriate on the basis of the predicted collisions for the Project (following reductions due to removal of 9MW turbine, revised layout and increase in draught height), displacement and combination of both collisions and displacement and the predicted consequences from PVA.	Agreed	Agreed
	Conclusion of no AEoI for gannet population at Flamborough and Filey Coast SPA is appropriate on the basis of in-combination collisions, displacement and combination of both and the predicted consequences from PVA.	Agreed for assessment excluding Hornsea Project Three. But Natural England advises that it cannot rule out AEoI with inclusion of Hornsea Project Three (due to the significant levels of uncertainty with that project's assessment).	Agreed with exclusion of Hornsea Project Three. Not Agreed with inclusion of Hornsea Project Three.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Conclusion of no AEoI alone for kittiwake population at Flamborough and Filey Coast SPA is appropriate on the basis of the predicted collisions for the Project (following reductions due to removal of 9MW turbine, revised layout and increase in draught height) and the predicted consequences estimated from PVA.	Agreed	Agreed
	Conclusion of no AEoI for kittiwake population at Flamborough and Filey Coast SPA is appropriate on the basis of in-combination collisions and the predicted consequences estimated from PVA.	Not agreed: Natural England advises that an Adverse Effect on Integrity cannot be ruled out due to the levels of in-combination collision mortality predicted.	Not Agreed
	Conclusion of no AEoI for razorbill population at Flamborough and Filey Coast SPA is appropriate on the basis of alone and in-combination displacement and the predicted consequences estimated from PVA.	Agreed for assessment excluding Hornsea Project Three. But Natural England advises that it cannot rule out AEoI with inclusion of Hornsea Project Three (due to the significant levels of uncertainty with that project's assessment).	Agreed with exclusion of Hornsea Project Three. Not Agreed with inclusion of Hornsea Project Three.
	Conclusion of no AEoI for guillemot population at Flamborough and Filey Coast SPA is appropriate on the basis of alone and in-combination displacement and the predicted consequences estimated from PVA.	Agreed for assessment excluding Hornsea Project Three. But Natural England advises that it cannot rule out AEoI with inclusion of Hornsea Project Three (due to the significant levels of uncertainty with that project's assessment).	Agreed with exclusion of Hornsea Project Three. Not Agreed with inclusion of Hornsea Project Three.
	Conclusion of no AEoI for puffin population at Flamborough and Filey Coast SPA is appropriate on the basis of alone and in-combination displacement and the predicted consequences estimated from PVA.	Agreed with regard to the puffin component of the seabird assemblage feature of the FFC SPA. Not agreed regarding the assemblage feature more generally where Natural England advises that is cannot rule out AEoI due to impacts predicted to the kittiwake feature (component of the assemblage) in-combination, and to the gannet, razorbill and guillemot features (also components of the assemblage) with the inclusion of Hornsea Project Three.	Agreed with regard to the puffin component of the assemblage Not agreed regarding the assemblage feature more generally due to impacts predicted to individual qualifying features, which are also components of the assemblage.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Conclusion of no AEoI for the red-throated diver population at the Greater Wash SPA is appropriate on the basis of project alone construction displacement. This includes a commitment to restrict the number of main cable laying vessels within the SPA between January and March to one (previously up to two were assessed), and to avoid construction in the SPA during these months if possible.	Agreed. Regarding cable installation/reburial works from other windfarms, Natural England has reviewed the predicted cable installation timetables for consented projects due to undertake cable installation or remedial works and considers that these are highly unlikely to overlap temporally with cable installation from Norfolk Vanguard. Regarding in-combination impacts from operational arrays, given the reduction of impact now proposed by the Applicant in the most sensitive period for red-throated divers, Natural England has concluded that the limited temporal and spatial contribution of the project to such in-combination affects does not, on balance, warrant such an assessment. However, we do have residual concerns with the levels of windfarm-associated activity consented proposed within the Greater Wash SPA, and anticipate that this issue will need more detailed exploration for future projects.	Agreed
	Conclusion of no AEoI for the red-throated diver population at the Greater Wash SPA is appropriate on the basis of in-combination construction displacement. This includes a commitment to restrict the number of main cable laying vessels for Norfolk Vanguard within the SPA between January and March to one (previously up to two were assessed), and to avoid construction in the SPA during these months if possible.	Agreed, on the basis of the restriction to one vessel. As the avoidance of this period is not secured, being only 'if possible', Natural England's agreement places no weight on this aspect of the Applicant's position.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Conclusion of no AEoI for the red-throated diver population at the Greater Wash SPA and Outer Thames Estuary SPA is appropriate on the basis of project alone and in-combination operation displacement.	Agreed, following agreement to adopt best practice vessel operation measures whilst traversing the SPA (as secured in the draft DCO Requirement 14(d)(vi)) and as set out in the Outline Project Environmental Management Plan (PEMP) (as submitted at Deadline 7).	Agreed
	Conclusion of no AEoI for the little gull population at the Greater Wash SPA is appropriate on basis of project alone collisions.	Agreed	Agreed
	Conclusion of no AEoI for the little gull population at the Greater Wash SPA is appropriate on basis of in-combination collisions, based on the best available evidence.	Agreed on basis that in-combination assessment includes all appropriate and publicly available collision estimates for other wind farms (although Natural England notes that confidence in this conclusion is reduced as a consequence).	Agreed
Management Measures – Mitigation and Monitoring			
Mitigation	The Applicant has taken significant steps to reduce Norfolk Vanguard's predicted impacts and to minimise the contribution to cumulative and in-combination impacts through the removal of the 9MW turbine, revised layout and 5m increase in turbine draught height from 22 to 27m above MHWS.	Agreed	Agreed
Monitoring	The proposed monitoring, which will be developed through the Ornithological Monitoring Plan in accordance with the In Principle Monitoring Plan (IPMP), (document 8.12), is adequate. For information the IPMP states: • The aims of monitoring should be to reduce uncertainty for future impact assessment and address knowledge gaps. To this end, Norfolk Vanguard Limited will engage with stakeholders and the 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)).	Agreed	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	As for marine mammals (section 4.5), 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. • As well as validation of key predictions within the ES regarding impact levels, aspects for consideration will include 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.		

2.6 Onshore Ecology and Ornithology

33. The project has the potential to impact upon Onshore Ecology and Ornithology. Chapters 22 (Onshore Ecology) and 23 (Onshore Ornithology) of the Norfolk Vanguard ES (document reference 6.1 of the Application) provides an assessment of the significance of these impacts.

34. Table 11 provides an overview of meetings and correspondence undertaken with Natural England regarding Onshore Ecology and Ornithology.

35. Table 12 provides areas of agreement (common ground) and disagreement regarding Onshore Ecology and Ornithology.

36. Minutes of Evidence Plan meetings can be found in Appendix 9.19 and Appendix 25.1 of the Consultation Report (document reference 5.1 of the Application).

Table 11 Summary of Consultation with Natural England in relation to onshore ornithology

Date	Contact Type	Topic
Pre-Application		
8th August 2016	Email	Draft Onshore Winter/Passage Bird Survey Scoping Report provided (Appendix 23.1 of the ES).
15th September 2016	Email	Comments on draft survey specification for wintering/autumn and spring passage bird survey.
18th November 2016	Email	Provision of the amended Onshore Winter/Passage Bird Survey Scoping Report following comments on the survey specification (provided in Appendix 23.1 of the ES).
14th January 2017	Email	Provision of the Onshore Ecology and Ornithology Method Statement (provided in Appendix 9.3).
24th January 2017	Meeting	Introduction to the project, approach to ecological surveys, discussion on the method statement.
13th March 2017	Email	Comments on onshore wintering bird survey methodology
3rd April 2017	Email	Agreement on Phase 2 survey methodologies.
18th July 2017	Meeting	Discussion on interim survey results, project update, initial findings of assessment and approach to mitigation.
11th December 2017	Email	Feedback on the PEIR from Natural England.

Date	Contact Type	Topic
22nd January 2018	Meeting	Discussion on PEIR feedback, survey results and updates to the project.
5th February 2018	Email	Provision of advice from Natural England regarding great crested newt mitigation alternatives.
6th February 2018	Email	Review of Onshore Ecology and Ornithology baseline reports.
9th February 2018	Email	Provision of the Norfolk Vanguard Bat Activity Survey Report (Appendix 22.4 of the ES (document 6.2).
19th February 2018	Meeting	Discussion on the baseline report from the onshore ornithological surveys.
22nd February 2018	Email	Provision of draft Norfolk Vanguard Information to Support Habitats Regulations Assessment (HRA) (document 5.3).
6th March 2018	Email	Natural England comments on bat activity survey report.
12th March 2018	Meeting	Discussion on the outcomes from the assessment and the approach to great crested newt mitigation (minutes provided in Appendix 25.1).
23rd March 2018	Email and PDF	Clarifications following HRA meeting 22nd February 2018 sent to Natural England.
23rd April 2018	Great Crested Newt – Draft Licence Meeting	Discussion on the draft great crested newt mitigation licence (minutes provided in Appendix 25.1).
23rd April 2018	Onshore Habitats Regulations Assessment Meeting	Discussion of Natural England comments on the onshore ecology section of the HRA Report (minutes provided in Appendix 25.1).
Post-Application		
31st August 2018	Relevant Representation	Natural England's initial feedback on the DCO application.
17th October 2018	Email from the Applicant	First draft SOCG provided by the Applicant
18th October 2018	SoCG Meeting	Discussion regarding the drafting of the SoCG
21st November 2018	Email from the Applicant	Second draft SOCG provided by the Applicant
30th November 2018	Email from the Applicant	Clarification notes (Appendices 1-3 of the SOCG) provided by the Applicant
21st January 2019	SoCG Meeting	

Date	Contact Type	Topic
27th February 2019	SoCG Meeting	Ongoing discussions regarding onshore ecology assessment and clarification notes – SoCG to be updated following the Issue Specific Hearing on 27th March 2019
18th March 2019	Email from Natural England	Natural England response to clarification notes submitted by the Applicant.
15th April 2019	Email from Applicant	Further Clarification Note on 'Outstanding unresolved issues identified by NE' issued by the Applicant
30th April 2019	Email from Natural England	Natural England response to clarification note submitted by the Applicant (dated 15 April 2019).
21st May 2019	Call	Discussion on approach to mitigating for qualifying species associated with Broadland SPA / Ramsar.
23rd May 2019	Email from Applicant	Applicant's proposed approach to mitigating for qualifying species associated with Broadland SPA / Ramsar.
29th May 2019	Email from Natural England	Natural England response to proposed approach to mitigating for qualifying species associated with Broadland SPA / Ramsar.
3rd June 2019	Call	Further discussion on approach to mitigating for qualifying species associated with Broadland SPA / Ramsar.

Table 12 Statement of Common Ground - Onshore ecology and ornithology

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
Environmental Impact Assessment			
Survey methodology	Survey methodologies for Phase 1 Habitat Surveys are appropriate and sufficient, and were agreed during the Expert Topic Group meeting held in January 2017. Phase 1 habitat surveys were undertaken in February 2017. Whilst the Applicant acknowledges that the optimum period for Phase 1 Habitat Survey is between March and September the findings of the Phase 1 survey are considered appropriate to characterise the habitats present within the study area. The Applicant has committed to undertaking any post-consent surveys at the optimum time of year, which is captured in the updated Outline Landscape and Environmental Management Strategy (OLEMS) that was submitted at Deadline 7 and secured through Requirement 24.	Survey data was only collected for 50% of onshore cable route where access was available and in a suboptimum period. Any future surveys should aim for better coverage and be completed within the appropriate survey season.	Not agreed for surveys completed in the past, Survey data was only collected for 50% of onshore cable route where access was available and in a suboptimum period. Agreed, for future surveys. Natural England notes the commitment within the OLEMS to undertake post consent surveys at the optimum time of year and refer the applicant to Natural England's standing advice.
	Survey methodologies for Phase 2 Surveys are appropriate and sufficient, and were discussed during the Expert Topic Group meeting held in January 2017 and agreed via email on 3rd April 2017.	Agreed	Both parties agree that Phase 2 survey scopes are appropriate.
Existing Environment	Survey data collected for Norfolk Vanguard for the characterisation of onshore ecology and ornithology are suitable for the assessment.	Not agreed for phase 1 habitat surveys completed in the past. Survey data was only collected for 50% of onshore cable route where access was available and in a suboptimum period.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
		Agreed, for future surveys. Natural England notes the commitment within the OLEMS to undertake post consent surveys at the optimum time of year and refer the applicant to Natural England's standing advice.	
	The ES adequately characterises the baseline environment in terms of onshore ecology and ornithology.	Natural England is satisfied that the ES and subsequent Clarification Notes adequately characterise the baseline environment.	Agreed
Assessment methodology	Appropriate legislation, planning policy and guidance relevant to ecology and ornithology has been considered for the project (listed in section 22.2 and 23.2 in Chapter 22 Onshore Ecology and Chapter 23 Onshore Ornithology respectively).	Natural England is satisfied that future surveys will adhere to guidance on completion during optimum survey period.	Agreed
	The list of potential impacts on onshore ecology and ornithology assessed is appropriate, based on feedback at Section 42 consultation.	Since section 42 consultation the Applicant has provided a number of Clarification Notes and potential impacts assessed are appropriate.	Agreed
	The impact assessment methodologies used for the EIA provide an appropriate approach to assessing potential impacts of the project. This was discussed and agreed during the Expert Topic Group meetings in January and September 2017.	Agreed	It is agreed by both parties that the impact assessment methodologies used in the EIA are appropriate.
	The worst case scenario presented in the ES, is appropriate for the project.	Agreed	It is agreed by both parties that the worst case scenario

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
			presented in the ES, is appropriate for the project.
Assessment findings	Dereham Rush Meadow Site of Special Scientific Interest (SSSI), Holly Farm Meadow SSSI, Whitwell Common SSSI and Booton Common SSSI, whilst predominantly surface water fed are also partly groundwater fed – from the underlying chalk aquifer (based on WETMECS data). The onshore duct installation works comprise open cut trenching (to 1.5m) and trenchless crossings to bury cable ducts (down to typically 6-8m below ground level). There is no direct pathway between the construction works and the underlying chalk aquifer, and detailed groundwater assessment is not deemed necessary. In terms of surface water flows, Dereham Rush Meadow SSSI and Holly Farm Meadow SSSI are upstream of the works and would not be affected by surface water quality effects associated with the construction works. Booton Common SSSI is considered in detail within the HRA Report at Section 9.3.3.2, which concludes no AEoI. Whitwell Common SSSI is fed by Booton Common SSSI and the findings for Booton Common SSSI would be equally applicable to Whitwell Common SSSI. The Applicant provided clarification regarding the water supply mechanisms to these water dependent designated sites to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019. In addition, the Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement which will include site specific details of the	Natural England is satisfied with the Water Dependant Designated sites Clarification Note provided. Natural England agrees with the conclusion of no Likely Significant Effect to Booton Common SSSI and the Norfolk Valley Fens SAC from open cut trenching and dewatering or directional drilling based on the conceptual model and the mitigation measures, which have enabled a conclusion of low or negligible risk. Therefore we agree with the conclusions of no adverse effect on integrity.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	sediment management measures and pollution prevention. This scheme will be submitted to and, approved by the relevant planning authority in consultation with Natural England. This is secured through Requirement 25 of the draft DCO. With these commitments in place there will be sufficient control measures to safeguard designated sites in relation to sediment control, pollution prevention and reinstatement of all work areas at watercourse crossings.		
	Groundwater The potential for the construction works to affect groundwater supply to nearby designated sites was undertaken and provided to Natural England. This considered: • Dereham Rush Meadow SSSI (0.4km away); • Holly Farm Meadow, Wendling SSSI (0.9km away); • Whitwell Common SSSI (1.2 km away); • Booton Common SSSI (0.6km away). The Applicant provided clarification regarding the water supply mechanisms to these water dependent designated sites to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019. The findings are equally applicable to other groundwater sites located further from the construction footprint, i.e.: • Bradley Moor SSSI (3.8km away) • Buxton Heath SSSI (4km away) • Southrepps Common SSSI (3.5km away); • Potter & Scarning Fens, East Dereham SSSI (3.2km away); On this basis detailed groundwater assessment is not deemed necessary.	Natural England is satisfied with the Water Dependant Designated sites Clarification Note provided. Natural England agrees with the conclusion of no Likely Significant Effect to Booton Common SSSI and the Norfolk Valley Fens SAC from open cut trenching and dewatering or directional drilling based on the conceptual model and the mitigation measures, which have enabled a conclusion of low or negligible risk. Therefore we agree with the conclusions of no adverse effect on integrity.	Agreed,

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The landfall area is underlain by sandy clay and sand to a depth of approximately 18m below ground level – refer to Chapter 19 Ground Conditions and Contamination, section 19.6.1.1. Horizontal Directional Drilling (HDD) through this loose material would generate limited vibration effects; in addition, the loose material itself is a poor propagator of vibration effects. Vibration is best propagated through hard surfaces and the looser the material the more any potential vibration effect becomes dampened. As such there is no propagation pathway for vibration effects between the works (either 130m away or up to 20m below) and known sand martin nesting sites. The Applicant provided further clarification regarding the potential for noise and vibration effects on sand martins to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019.	Following receipt of further information on 27 February 2019 Natural England is satisfied that the specific issues we have raised in previous correspondence relating to the assessment of impacts to sand martins at Happisburgh Cliffs have been resolved.	Agreed
	Ancient Woodland and trees Trenchless crossing techniques are proposed to be used at any location where mixed lowland deciduous woodland is present and which cannot be avoided, and no works will take place within 15m of any woodland. A pre-construction survey will be undertaken by an appropriately experienced arboriculturalist which will inform site-specific measures to protect trees adjacent to the works. With reference to the two options east of the substation. The Applicant has committed to the southern part of these two options, which avoid the 0.15ha of woodland referred to. This is presented in the Change Report submitted to the Examination in December 2018 (Pre-ExA; Change Report; 9.3).	Agreed. We agree with a 15m buffer between the project area and ancient woodland and trees. We note that trenchless crossing techniques (e.g. HDD) are proposed to be used at any location where mixed lowland deciduous woodland is present and which cannot be avoided, and no works will take place within 15m of any woodland.	It is agreed by both parties that the measures proposed will protect trees and ancient woodland during the works.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Measures to protect trees are captured within the OLEMS and secured through Requirement 24 Ecological Management Plan, which will require consultation with Natural England prior to discharge.	We note that the area east of the substation will avoid the 0.15ha of woodland as presented in the Change Report 9. We support the engagement of an appropriately experienced arboriculturalist.	
	Badgers The procedure outlined within the OLEMS for badger main setts within the project area which require to be closed and destroyed **will** include other types of setts which may be found within (previously un-surveyed) areas of the project area. This will be captured within the Ecological Management Plan, secured through DCO Requirement 24, which will require consultation with Natural England prior to discharge.	Agreed on the basis that this captured within the final EMP allowing sufficient controls to be put in place. We advise that the procedure outlined for badger main setts within the project area which require to be closed and destroyed (para 408) should include other types of setts which may be found within (previously un-surveyed) areas of the project area.	Both parties agree that the measures for main sett closure (and applied to other setts) are appropriate.
	Wintering and breeding birds To account for potential noise disturbance a buffer of 300m from designated sites (where birds are qualifying features) was identified and potential noise impacts considered. This was agreed with Natural England in January 2017 (Onshore Wintering Bird Surveys Survey Methodology Approach Update). Beyond this no additional requirement was identified to assess potential disturbance effects. In addition, further measures to deal with the risk of damaging or destroying ground nesting birds' nests (i.e. skylarks) during	Natural England is satisfied that further measures to reduce risk of damaging or destroying ground nesting birds' nests (i.e. skylarks) during construction have been incorporated within the OLEMS.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	construction have been included in the OLEMS submitted at Deadline 7. On this basis the assessment of impacts for construction, operation and decommissioning presented are consistent with the agreed assessment methodologies.		
	Air Quality Potential air quality impacts have been assessed for designated sites within 200m of the road transport network that will be required during construction. This is presented in Chapter 26 Air Quality, section 26.7.5.2.2. Felbrigg Wood SSSI was identified as a designated site with the potential for air quality impacts due to its proximity to the nearest road network (A148 between King's Lynn and Cromer). A transect was walked through the designated site, at 50m intervals set back from the road up to 200m. Air quality measurements were taken and included within an air quality model. The results of this are presented in Table 26.31 of Chapter 26. This shows that there will be a short-term 2% increase in critical nitrogen load within 50m of the A148, reducing to 1% at 100m from the A148 and 0% beyond that. This has been assessed as to be an impact of negligible significance. The Applicant has committed to producing an Air Quality Management Plan (AQMP), as part of the final CoCP, for each stage of the works (secured under Requirement 20(l)) which will deliver mitigation that has been identified within Chapter 26 Air Quality. The final CoCP must be submitted and approved by the relevant planning authority in consultation with Natural England. The traffic related air quality impact assessment was based on the worst case construction traffic on identified transport	The report has identified possible air quality effects from increased road traffic on Felbrigg Wood SSSI which is designated for lichens along with its invertebrate assemblage and beech woodland community. We advise that further information is required on woodland species within 200m of the road that will be affected and on the timings, number of vehicles and how polluting the vehicles are likely to be etc. If there is likely to be an effect on a designated feature, the OLEMS should include mitigation measures to reduce changes in air quality, e.g. using efficient vehicles, reducing number of vehicles/time on the road, timing of construction to support biodiversity, possible use of barriers etc. Natural England welcomes that an Air Quality Management Plan is being developed and agreed prior to construction. We advise that this	Not agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	routes, and also cumulatively with Hornsea Project Three, based on their reported construction traffic. No traffic related air quality impacts were identified for ecological receptors for Norfolk Vanguard alone or cumulatively with other projects, and no air quality mitigation has been identified that would be captured within any AQMP to be developed post-consent. Norfolk Vanguard will confirm the Project's actual traffic numbers within the final Traffic Management Plans to be produced post-consent. Provided traffic numbers remain wholly within the worst case scenario that was assessed there would be no requirement to update the air quality impact assessment. The Applicant does not believe that is appropriate for Norfolk Vanguard to commit to undertaking a subsequent cumulative air quality impact assessment, post-consent, to account for future projects that may be progressed by Highways England or to account for changes to Hornsea Project Three. It is for future projects to undertake their own cumulative impact assessment to take Norfolk Vanguard into account and to ensure any mitigation required for their identified cumulative impacts is secured in their own consent. Similarly if Hornsea Project Three discovers that their actual traffic numbers fall outside of their worst case scenario then it will fall to them to revisit their own CIA.	plan incorporates a commitment to consider air quality in combination, in light of the final construction vehicle routes, vehicles and vehicle numbers in combination with other plans and projects including Hornsea 3 and Highways England, as these may have changed in the interim between EIA and construction. We therefore do not feel it is appropriate for AQMP or TMP to look just at construction areas. We advise it consider the final transport network and vehicle numbers for the proposed development. Natural England welcomes the commitment to consult Natural England on the Final AQMP and TMP, prior to construction. We advise the applicant that their application should be in line with recent case law and refer the applicant to the Wealden Judicial Review and the Dutch Judgement.	
	Land Use/Soils The onshore cable duct installation strategy will be conducted in a sectionalised approach in order to minimise impacts. Construction teams would work on a short length (approximately 150m section) with topsoil stored adjacent to	Natural England welcomes the information supplied within the clarification note and can confirm that our concerns with regard to Agricultural Land Classification	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	the excavated trench. Once the cable ducts have been installed, the section would be back filled and the top soil replaced before moving onto the next section. This would minimise the amount of land being worked on at any one time and would also minimise the duration of works on any given section of the route. This embedded mitigation is specified through the ES and secured through the Outline Code of Construction Practise (OCoCP) (section 2.5.1). . Topsoil should be reinstated where it originated. The Natural England dataset over this part of Norfolk is no longer broken down into Agricultural Land Classification (ALC) Grades 3a and 3b soils. Norfolk Vanguard has calculated the total extent of land that will be permanently lost within Chapter 21 Land use and Agriculture - 7.5ha for the onshore project substation and 3ha for the National Grid extension works. As a worst-case this is assumed to be best and most versatile (BMV) land. Mitigation measures identified for soil management are captured within the OCoCP. A Soil Management Plan (SMP) will be developed and approved prior to commencing each stage of the works. The scope of the SMP is detailed in Appendix A of the OCoCP. The SMP will form part of the final approved Code of Construction Practise (CoCP) for each stage of the works and is secured through Requirement 20. The Applicant provided further clarification regarding ALC breakdown across the works areas and the reinstatement of soils to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019.	needing to be split further to allow for an assessment of impact to Best and Most Versatile (BMV) to be undertaken are withdrawn. Natural England welcomes the commitment made in the clarification note to update Section 8 (soil management) of the Outline Code of Construction Practice (OCoCP) to confirm that topsoil will be stored adjacent to the excavated trench and will be reinstated where it originated. Natural England, therefore, withdraw our concerns in this regard.	

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Land Use/ Agri environment Within the study area there are Entry Level Stewardship Schemes (ESS) with Higher Level components. A commitment will be made within the private agreements between Norfolk Vanguard Limited and the landowner/occupier to compensate for losses incurred due to potential impacts on ESS during the construction phase of the project. In addition, the applicant will discuss any Countryside Stewardship agreements with landowners and the Rural Payments Agency post-consent. These will form part of the private agreements described above.	There are both Higher Level Stewardship and Higher Tier Countryside Stewardship agreements along the cable route. Due consideration will need to be given to ensure the delivery of these schemes will not be hindered or compromised. We note that during the construction period there would be the potential for impacts on agri-environment schemes within the onshore project area which will be specific to individual landowners / occupiers. We note that the onshore cable route crosses Entry Level (34.13ha, 6.4% of onshore project area) and Entry Level plus Higher Level (117.8ha, 22.2% of onshore project area) Stewardship Scheme agreements. The applicant will need to discuss any Countryside Stewardship agreements with the landowners and the Rural Payments Agency (this is no longer administered by Natural England) at the earliest possible opportunity.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The assessment of cumulative impacts is consistent with the agreed methodologies. The Applicant confirms that the assessment of in-combination impacts is in line with the Waddenzee judgement.	Natural England is satisfied from the information provided that the cable route will not have a cumulative impact with Hornsea 3 on Booton common SSSI and Norfolk Valley Fens SAC.	Agreed.
Mitigation and Management			
Approach to mitigation	All mitigation measures required are outlined in the Outline Code of Construction Practice and OLEMS. As stated earlier the Applicant does not believe that is appropriate for Norfolk Vanguard to commit to undertaking a subsequent cumulative air quality impact assessment, post-consent, to account for future projects that may be progressed by Highways England or to account for changes to Hornsea Project Three. It is for future projects to undertake their own cumulative impact assessment to take Norfolk Vanguard into account and to ensure any mitigation required for their identified cumulative impacts is secured in their own consent. Similarly if Hornsea Project Three discovers that their actual traffic numbers fall outside of their worst case scenario then it will fall to them to revisit their own CIA.	We would like to see further commitments with regards traffic management and air quality to designated sites, as discussed above. We are satisfied that other mitigation measures stated in EIA and consultation are outlined in OCoCP and OLEMS.	Not agreed for cumulative air quality impacts Agreed for all other mitigation
	River Wensum SAC Further detail on the approach to sediment management within the River Wensum catchment was provided to Natural England on 27th February 2019. Natural England responded on 18th March 2019 and withdrew most concerns. Further clarification was provided on 15th April. Natural England withdrew their remaining concerns in a response on 30th April. The commitments outlined within these clarification notes have	Natural England is satisfied with the information as provided within the OCoCP and look forward to being consulted on the site specific water crossing plans.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	been captured in an update to the OCoCP submitted to the examination at Deadline 7. In addition, the sediment management measures to mitigate potential water quality impacts during construction are presented within the Information to Support HRA Report (document 5.3) at paragraph 1166 and have also been included in the updated OCoCP. The Applicant has committed to develop a detailed scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding sediment management and pollution prevention measures. This scheme will be submitted to and, approved by the relevant planning authority in consultation with Natural England. This commitment is secured through Requirement 25 (Watercourse Crossings) of the draft DCO. With these commitments in place there will be sufficient control measures to safeguard designated sites in relation to sediment control, pollution prevention and reinstatement of all work areas at watercourse crossings. Targeted surveys of the Desmoulin's whorl snail were undertaken in the floodplain of the River Wensum (southern bank) within the habitat and species study area, however this species was not recorded during any survey. A pre-construction survey of the floodplain habitat on the northern bank of the River Wensum will be undertaken, to understand the distribution of Desmoulin's whorl snail in the areas adjacent to the onshore project. This survey has in fact been completed (as part of the Norfolk Boreas ecological surveys) and no Desmoulin's whorl snails were found during these surveys		

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	either. There are no plans for further invertebrate surveys to be undertaken along the River Wensum. The only other invertebrate species associated with the SAC are white-clawed crayfish. The commitment to a trenchless crossing will avoid direct interaction with the habitats that support white-clawed crayfish.		
	Wintering and breeding birds in wider countryside Mitigation measures for wintering and breeding birds are set out in the OLEMS, paragraphs 227 to 230. This includes measures to minimise effects on ground nesting birds such as, no winter works undertaken in consecutive years, keep winter crop stubble low during breeding bird season and set aside ground nesting areas beyond 50m of the cable route prior to works. Further measures to deal with the risk of damaging or destroying ground nesting birds' nests (i.e. skylarks) during construction have been included in the OLEMS submitted at Deadline 7. If any protected species are unexpectedly found (all bird species are protected) then works will cease immediately. This is specified at paragraph 236 of the OLEMS.	Natural England notes the inclusion of further measures to reduce risk to ground nesting birds within the OLEMS.	Agreed
	Soil Mitigation measures identified for soil management and reinstatement are captured within the OCoCP. A SMP will be developed and approved prior to commencing each stage of the works which will specify the site specific methods that will be employed. The detailed scope of the SMP is included in Appendix A of the OCoCP. The SMP will form part of the final	Agreed, Natural England is satisfied that OCoCP and SMP will contain sufficient detail with regards soil management and mitigation.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	approved CoCP for each stage of the works and is secured through Requirement 20. Further information regarding sediment control and reinstatement of all works areas has been captured in an update to the OCoCP submitted at Deadline 7. The Applicant has committed to delivering a detailed SMP as part of the final CoCP to be produced post-consent. This will contain site specific detail with regards soil management and mitigation.		
	Semi natural habitats Any topsoil strip of semi-natural grassland habitats , within 10m of any watercourses within the River Wensum catchment will be undertaken using a deep turf strip to increase the effectiveness of subsequent reinstatement . This has been captured within an update to the OLEMS submitted at Deadline 7. The Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding the reinstatement of semi-natural habitats in proximity to watercourses. This scheme will be submitted to and approved by the relevant planning authority in consultation with Natural England. This commitment is secured through Requirement 25 (Watercourse Crossings) of the draft DCO.	Reseeding may not be appropriate in semi-natural habitats or land with permanent vegetative cover, where deep turf stripping and reinstatement may be more appropriate. Reseeding will only be effective when carried out in suitable growing conditions, otherwise it risks extended periods of bare ground, liable to erosion. Agreed, Natural England has provided advice and is satisfied this is reflected in the OLEMS, we look forward to being consulted on the site specific crossing plans.	Agreed
	The use of trenchless crossing techniques at County Wildlife Sites is acceptable subject to detailed design.	Agreed	It is agreed by both parties that the use of trenchless crossings

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	This was discussed and agreed (in principle) during the Expert Topic Group meeting in January 2018.		at CWS are acceptable, subject to detailed design.
	The provision of an Ecological Management Plan (based on the OLEMS submitted with the DCO application, document reference 8.7) is considered suitable to ensure potential impacts identified in the Ecological Impact Assessment are appropriately minimised.	Natural England looks forward to being consulted on the EMP.	Agreed
	The mitigation proposed for great crested newts is appropriate and proportionate (as outlined in the draft great crested newt mitigation licence, circulated and discussed at April 2018 meeting).	Agreed, Natural England is satisfied that the great crested newt plans reflect our advice given earlier in the year. The report identifies where licences may be required for bats and water voles.	Agreed
HRA			
Screening of LSE	The methodology and sites screened in for the HRA as presented in Appendix 5.2 of the Information to Support HRA report (Application document 5.3) are considered appropriate, considering sites within 5km of onshore infrastructure. This was agreed during the Expert Topic Group meeting in July 2017. Further consideration of non-seabird migrants (including those associated with Broadland and Breydon SPA was submitted to the Examination at Deadline 3 (ExA; AS; 10.D3.6). This assessment concluded no LSE non-seabird migrants associated with Broadland and Breydon SPA.	Agreed, Natural England is satisfied that the conditions as laid out within the OLEMS in relation to Broadland SPA/Ramsar swan and geese species and ex situ habitats, reflect our advice and that with additional mitigation there will be no Adverse Effect on Integrity for the features of the site.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The approach to HRA screening is appropriate. The following sites were screened in for further assessment: • River Wensum; • Paston Great Barn; and • Norfolk Valley Fens. This was agreed during the Expert Topic Group meeting in July 2017. The Applicant provided clarification regarding the water supply mechanisms for water dependent designated sites (including Dilham Component SSSI -part of The Broads SAC) to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019.	Agree, Natural England is satisfied that the site specific management plans for water crossings as secured through conditions will lead to no Adverse Effect on Integrity to the Broads SAC.	Agreed
	Broadland SPA/Ramsar Wintering/passage bird surveys were undertaken for the full survey period, October – March, was collected for the following habitats: • Agricultural land within 5km of the Broadland SPA and Ramsar site, and also within – or within a precautionary 1km disturbance buffer of – the onshore infrastructure; • Coastal habitats within 5km of the Broadland SPA and Ramsar site, and also within – or within a precautionary 1km disturbance buffer of – the onshore infrastructure; and • Lowland fen, rivers and lakes and lowland heathland habitats of the Hundred Stream within 5km of the Broadland SPA and Ramsar site, and also within – or within a precautionary 1km disturbance buffer of – the onshore infrastructure	Agreed, Natural England is satisfied that the conditions as laid out within the OLEMS received from the applicant 03.06.19 in relation to Broadland SPA/Ramsar swan and geese species and ex situ habitats, reflect our advice and that there will be no Adverse Effect on Integrity for the features of the site.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	The results of these surveys demonstrated low levels of wintering birds and the site was screened out for further consideration within the HRA report. Further discussions have been held between the Applicant and Natural England in June 2019. Commitments have been included within the updated OLEMS submitted at Deadline 9 to: • Potentially undertake a second year of wintering bird surveys and undertake an assessment of predicted crop patterns to assess the potential use of the affected areas by foraging goose and swan species (see bullet point three below). • If required provide suitable alternative habitat (by introducing feed) for potentially displaced qualifying species associated with Broadland SPA / Ramsar site elsewhere within the Order limits or (subject to separate landowner agreements) within nearby fields. • The Applicant may progress directly to delivering the above mitigation without undertaking the second year of survey, subject to agreement with Natural England.		
Information to support HRA	River Wensum SAC Further detail on the approach to sediment management within the River Wensum catchment was provided to Natural England on 27th February 2019. Natural England responded on 18th March 2019 and withdrew most concerns. Further clarification was provided on 15th April. Natural England withdrew their concerns in a response on 30th April. The commitments outlined within these clarification notes has been captured in an update to the OCoCP submitted to the examination at Deadline 7. This includes details of the approach to construction drainage and maintaining interceptor drains / sediment traps.	River Wensum SAC Agreed, Natural England is satisfied that our advice has been taken into consideration. The Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details	Agreed

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	Cable trench arrangement The cable trench arrangement is described within Chapter 5 of the ES Project Description. Plate 5.16 shows the trench arrangement and the extent of stabilised backfill (cement bound sand). The cement bound sand will represent a stabilised layer within which the cable ducts are secured. There will be approximately 10cm of cement bound sand above and below the cable ducts. Above the cement bound sand will be approximately 1m of subsoil and topsoil. The cement bound sand will represent an impermeable barrier. A detailed assessment of potential changes to subsurface flows is presented in Chapter 20 Water Resources and Flood Risk at section 20.7.6.1.1. As a result of the limited spatial extent of permanent impermeable development along the cable route, the effect is considered to be of negligible magnitude. Drainage A Surface Water and Drainage Plan (Requirement 20 (2)(i) will be developed, agreed with the relevant regulators and implemented to minimise water within the cable trench and other working areas and ensure ongoing drainage of surrounding land. This typically includes interceptor drainage ditches being temporarily installed parallel to the trenches and soil storage areas to provide interception of surface water runoff and the use of pumps to remove water from the trenches during cable installation. Drainage would remain in place for the duration of the construction period. The Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding sediment management and pollution prevention measures. This	regarding sediment management and pollution prevention measures. This scheme will be submitted to and approved by the relevant planning authority in consultation with Natural England. This commitment is secured through Requirement 25 (Watercourse Crossings) of the draft DCO. This should be captured within the CoCP.	

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	scheme will be submitted to and approved by the relevant planning authority in consultation with Natural England. This commitment is secured through Requirement 25 (Watercourse Crossings) of the draft DCO.		
Assessment of Adverse Effect on Integrity	The approach to undertaking the assessment is appropriate	Natural England is satisfied with the assessment of adverse effect on integrity, with the COCP and OLEMS.	It is agreed by both parties that the approach to the HRA is appropriate.
	Booton Common SSSI (part of Norfolk Valley Fens SAC), is located 0.6km from the onshore cable route. Broad Fen, Dilham component SSSI (part of The Broads SAC) is located 3.6km from the onshore cable route. The Applicant provided clarification regarding the water supply mechanisms to these water dependent designated sites to Natural England on 27th February 2019. Natural England's concerns were withdrawn in a response on 18th March 2019. These sites, whilst predominantly surface water fed are also partly groundwater fed – from the underlying chalk aquifer (based on WETMECS data). There is no direct pathway between the works and the underlying chalk aquifer that these sites are dependent upon, and detailed groundwater assessment is not deemed necessary. The conclusions of no adverse effect on site integrity in the Information to Support HRA report (document 5.3) for these two sites are appropriate. With reference to the two HDD crossings near to Blackwater Drain – this is in fact a single HDD crossing with individual	Agreed, Natural England is satisfied that our advice has been taken into consideration. Natural England is satisfied with the information as supplied in subsequent Clarification Notes throughout the examination process. The design of all watercourse crossing will be submitted to and approved by the relevant planning authority in consultation with Natural England, prior to the commencement of each stage of the onshore transmission works. This is secured through Requirement 25 of the draft DCO. With this mitigation Natural England is content that there is sufficient evidence to conclude no adverse effect on integrity on Norfolk Valley Fens SAC.	Agreed The Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding sediment management and pollution prevention measures. This scheme will be submitted to and approved by the relevant planning authority in consultation with Natural England. This commitment is secured through Requirement 25 (Watercourse Crossings) of the draft DCO.

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	compounds depicted at each end of the crossing, for entry and exit of the HDD. This trenchless crossing is needed for crossing the proposed Hornsea Project Three cables for technical requirements. Impacts at watercourse crossings are predominantly related to the introduction of temporary culverts to provide access either side of the watercourse. Whether the crossing technique is trenched or trenchless, a temporary culvert will be required for access either side of the Blackwater Drain. However, each crossing (whether trenched or trenchless) is not considered to result in a significant effect when assessed individually. Impacts resulting from the use of temporary culverts would be reversible once the structures have been removed and the area reinstated. The natural hydrology would recover immediately upon structure removal, and geomorphology and associated physical habitats are also expected to recover rapidly. The use of these techniques is therefore not considered to result in significant adverse effects. The design of all watercourse crossing will be submitted to and approved by the relevant planning authority in consultation with Natural England, prior to the commencement of each stage of the onshore transmission works. This is secured through Requirement 25 of the draft DCO.		
	Sediment management and water quality measures have been identified and are described in Section 11.1 of the outline CoCP; Requirement 20 of the draft DCO sets out that no stage of the onshore transmission works may commence until for that stage a final CoCP has been submitted to and approved by the relevant local planning authority. This would provide site	Works to facilitate the trenchless crossing of the River Wensum may take place within the River Wensum floodplain north of Penny Spot Beck, which we advise should be avoided as it is part of a	Agreed

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	specific details for sediment management informed by the detailed design and appointment of the Principal Contractor. Further detail on the approach to sediment management within the River Wensum catchment was provided to Natural England on 27th February 2019. Natural England responded on 18th March 2019 and withdrew most concerns. Further clarification was provided on 15th April. Natural England withdrew their concerns in a response on 30th April. The commitments outlined within these clarification notes has been captured in an update to the OCoCP submitted to the examination at Deadline 7. This includes details of the approach to managing bentonite breakout. In addition, the Applicant will develop a scheme and programme for each watercourse crossing, diversion and reinstatement which will include site specific details of the sediment management measures including their use and removal. This scheme will be submitted to and, approved by the relevant planning authority in consultation with Natural England. This is secured through Requirement 25 of the draft DCO. Both the final CoCP and watercourse specific crossing schemes will also include site specific details of management and monitoring procedures in case of bentonite breakout at trenchless crossings. With these commitments in place there will be sufficient control measures to safeguard designated sites in relation to sediment control, pollution prevention and reinstatement of all work areas at watercourse crossings.	Countryside Stewardship agreement to improve the site integrity of the River Wensum SAC. Agreed, Natural England is satisfied that our advice has been incorporated. Please see our response to the OCoCP at Deadline 8. Natural England is satisfied that with these commitments in place there will be sufficient control measures to safeguard designated sites in relation to sediment control, pollution prevention and reinstatement of all work areas at watercourse crossings.	

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	All hedgerows within 5km of Paston Great Barn SAC that will be temporarily removed during construction (130m) were identified. 82m of these hedgerows have been confirmed as supporting foraging Barbastelle bats (based on bat activity surveys undertaken by the Applicant) and are accordingly classified as important hedgerows for foraging Barbastelle bats. On this basis, the 82m of hedgerows are all considered to be important Barbastelle features and the assessment has been undertaken on this basis. Further clarification on these matters was provided to Natural England on 27th February. Natural England responded on 20th March withdrawing their concerns, subject to the development of a hedgerow mitigation plan, post-consent, in consultation with Natural England. The plan should include for the improvement of the hedgerows either side of the section to be removed, development of scrub/rough grassland margins and consideration of planting more mature hedge plants to reduce recovery time. In addition, monitoring should be in place for 7 years or until the original hedgerow has recovered fully. These measures have been included in the update OLEMS submitted at Deadline 9. Paragraph 1185 of the Information to Support HRA Report (document 5.3) provides details of the anticipated hedgerow recovery for the affected 82m of hedgerow (3-7 years) – recovery meaning to "mature up to a standard whereby the hedgerow is providing value for commuting and foraging barbastelle bats". All hedgerows temporarily removed will be replaced in their original locations, i.e. replacement hedgerows will be planted above the buried cables.	Natural England is satisfied our advice has been taken into consideration regarding Paston Great Barn SAC and hedgerow removal. With the conditions within the OLEMS and the Hedgerow Mitigation Plan we are satisfied that there will be no Adverse Effect on Integrity of the Barbastelle population of Paston Great Barn SAC.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	Details of hedgerow mitigation are provided at Paragraph 1186 of the Information to Support HRA Report which includes a commitment for hedges to become overgrown either side of the section to be removed prior to construction. All bat and hedgerow mitigation measures are also captured within the OLEMS and secured through Requirement 24 of the draft DCO (Ecological Management Plan), which will require consultation with Natural England prior to discharge. On this basis, the approach to determining the value of hedgerows for Barbastelle bats and the approach to mitigation, is appropriate and sufficient.		
	A mosaic of approximately 11ha of broadleaved woodland, rank grassland, hedgerows and drainage ditches around Witton is used by foraging Barbastelle bats associated with the Paston Great Barn colony. Accordingly, this 11ha has been classified as an important feature for foraging Barbastelle bats and the assessment has been undertaken on this basis (impacts relate to the temporary severance of a hedgerow linking Paston Great Barn to this area). Further clarification on these matters was provided to Natural England on 27th February. Natural England responded on 20th March withdrawing their concerns, subject to the development of a hedgerow mitigation plan, post-consent, in consultation with Natural England. The plan should include for the improvement of the hedgerows either side of the section to be removed including and should be in place for 7 years or until the original hedgerow has recovered fully. These measures have been included in the update OLEMS submitted at Deadline 7 Details of hedgerow mitigation / restoration are provided at Paragraph 1186 of the HRA Report which includes a	Natural England is satisfied our advice has been taken into consideration regarding Paston Great Barn SAC and hedgerow removal. We are satisfied that with the conditions within the OLEMS regarding hedgerows there will be no Adverse Effect on Integrity of the Barbastelle population of Paston Great Barn SAC.	Agreed

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
	commitment for hedges to become overgrown either side of the section to be removed prior to construction. All bat and hedgerow mitigation measures are also captured within the OLEMS and secured through Requirement 24 Ecological Management Plan, which will require consultation with Natural England prior to discharge On this basis, the approach to determining the value of features for Barbastelle bats is appropriate and sufficient to inform the assessment.		
	A 300m buffer zone for potential noise impacts to birds which are features of designated sites was agreed with Natural England in January 2017 (Onshore Wintering Bird Surveys Survey Methodology Approach Update). The assessment provided within the application has been undertaken on the basis of that formal agreement of the methodology. The 300m buffer was is based on an average of the disturbance buffers detailed in Ruddock and Whitfield (2007) and is an appropriate distance for the basis of the assessment. Further evidence of the agreement of the 300m buffer was provided to Natural England on 27th February 2019. Natural England responded on 18th March 2019 withdrawing their concerns on this matter.	Natural England is satisfied with the agreement on the 300m buffer.	Agreed
	The conclusions of no adverse effect on site integrity for all onshore sites presented in the Information to Support HRA report (document 5.3) are appropriate	Agreed, Natural England is satisfied with the further information provided in clarification notes, OCoCP and OLEMS that there will be no adverse effect on integrity from the proposed development on onshore	Agreed The Applicant has committed to producing a Hedgerow Mitigation Plan (part of the final EMP, secured through requirement 24), site specific

Topic	Norfolk Vanguard Limited position	Natural England position	Final position
		European sites with the mitigation in place, with the Hedgerow Mitigation Plan, site specific water crossing plans COCP and OLEMS to be drawn up and agreed post consent.	water crossing plans (secured through Requirement 25) and final COCP (secured through Requirement 20) to ensure that there will be no adverse effect on integrity from the proposed development on onshore European sites.

2.7 Development Consent Order

37. Natural England was provided with a draft of the Development Consent Order for review prior to submission. Comments were addressed where possible.

38. Natural England's relevant representation, submitted to the Planning Inspectorate on the 31st August 2018 includes comments on the draft DCO which Norfolk Vanguard Limited has addressed where possible. Comments from Natural England regarding the draft DCO have been responded to at each relevant Examination Deadline.

39. The draft DCO has been amended and submitted at Deadline 8.

2.8 References

Cooper, K., Boyd, S., Eggleton, J., Limpenny, D., Rees, H. & Vanstaen, K. (2007) Recovery of the seabed following marine aggregate dredging on the Hastings Shingle Bank off the southeast coast of England. *Estuarine, Coastal and Shelf Science* 75:547-558.

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Ospar Commission (2010) Quality Status Report 2010: Case Reports for the OSPAR List of threatened and/or declining species and habitats – Update. *Sabellaria spinulosa* reefs.

Pearce, B., Hill, J.M., Wilson, C., Griffin, R., Earnshaw, S. & Pitts, J. (2011a) *Sabellaria spinulosa* Reef Ecology and Ecosystem Services. The Crown Estate 120 pages ISBN 978-1-906410-27-8. First Published 2013. This report is available on The Crown Estate website at www.thecrownestate.co.uk

Tillin, H.M. & 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: http://www.marlin.ac.uk/habitats/detail/377

The undersigned agree to the provisions within this SOCG

Signed	K. Louise Burton
Printed Name	K. Louise Burton
Position	Senior Adviser Southern North Sea
On behalf of	Natural England
Date	06 June 2019

Signed	R Sherwood
Printed Name	Rebecca Sherwood
Position	Norfolk Vanguard Consents Manager
On behalf of	Norfolk Vanguard Ltd (the Applicant)
Date	06 June 2019