

# Norfolk Boreas Offshore Wind Farm

# Appendix 22.11

## Norfolk Vanguard Onshore Ecology Consultation Responses

## Environmental Statement

## Volume 3

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

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## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
<b>2</b>	<b>Consultation responses Norfolk Vanguard .....</b>	<b>1</b>
<b>3</b>	<b>References .....</b>	<b>33</b>

**Tables**

Table 2.1 Norfolk Vanguard Consultation and Comments

2

## Glossary of Acronyms

CoCP	Code of Construction Practice
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETG	Expert Topic Group
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
OLEMS	Outline Landscape and Ecological Management Strategy
PEIR	Preliminary Environmental Information Report
SoS	Secretary of State

## Glossary of Terminology

Cable pulling	Installation of cables within pre-installed ducts from jointing pits located along the onshore cable route.
Ducts	A duct is a length of underground piping, which is used to house electrical and communication cables.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and information to support the HRA.
Jointing pit	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	Where the offshore cables come ashore at Happisburgh South.
Landfall compound	Compound at landfall within which HDD drilling would take place.
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension.
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction of the National Grid substation extension.
Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard
Onshore 400kV cable route	Buried high-voltage cables linking the onshore project substation to the Necton National Grid substation.
Onshore cables	The cables which take the electricity from landfall to the onshore project substation.
Onshore cable route	The working width of up to 35m within a 45m wide corridor which will contain

	the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore infrastructure	The combined name for all onshore infrastructure associated with the project from landfall to grid connection.
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Running track	The track along the onshore cable route which the construction traffic would use to access workfronts.
The Applicant	Norfolk Boreas Limited
The project	Norfolk Boreas Offshore Wind Farm, including the onshore and offshore infrastructure.
Transition pit	Underground structures that house the joints between the offshore export cables and the onshore cables within the landfall zone.
Trenchless crossing compound	Pairs of compounds at each trenchless crossing zone to allow boring to take place from either side of the crossing.
Trenchless crossing zone (e.g. HDD)	Temporary areas required for trenchless crossing works.
Workfront	The approximate 150m length of onshore cable route within which duct installation would occur.

## 1 Introduction

1. Consultation is a key driver of the Environmental Impact Assessment (EIA) process, and throughout the lifecycle of the project, from the initial stages through to consent and post-consent.
2. As the Norfolk Boreas and Norfolk Vanguard projects are sister projects due to the proposed strategic development of both projects, much of the consultation undertaken as part of the Norfolk Vanguard Evidence Plan Process (EPP) is also relevant to Norfolk Boreas. Such consultation has directly influenced Norfolk Boreas and has been taken into consideration and integrated into the impact assessment for Norfolk Boreas.
3. This appendix contains the results of the Norfolk Vanguard consultation which have been used to inform the Norfolk Boreas assessment. In addition, where possible any comments received as part of the Norfolk Vanguard Examination process, up to Deadline 5 (22<sup>nd</sup> March 2019), have also be considered.

## 2 Consultation responses Norfolk Vanguard

4. Table 2.1 summarises the consultation that has been undertaken and comment received for Norfolk Vanguard that are of relevance to and have informed the development of Chapter 22 Onshore Ecology of the Norfolk Boreas ES and provides details of how it has been taken into consideration.

**Table 2.1 Norfolk Vanguard Consultation and Comments**

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Secretary of State	Scoping Opinion November 2016	The Secretary of State notes and welcomes the surveys proposed in Table 3.9 of the Scoping Report and advises that their scope and methodology be agreed with relevant stakeholders.	No action required.
Secretary of State	Scoping Opinion November 2016	The Scoping Report has identified the need to consider indirect impacts on statutory and non-statutory designated sites for nature conservation through cable routing; however, direct impacts should also be considered if the onshore cable corridor does not avoid such sites.	Direct impacts, where appropriate, are considered within section 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	The ES should identify the locations where there would be loss of important habitats for example, hedgerow and/or ancient woodland.	Loss of habitat is assessed in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	The ES should set out the measures for reinstating habitats which are removed during construction.	Reinstatement is set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	In accordance with EN-1, the Applicant should demonstrate the efforts made to ensure that activities will be confined to the minimum areas required for the works.	Noted. Activities will be confined to the minimum areas required for the works.
Secretary of State	Scoping Opinion November 2016	The Applicant should ensure that all mitigation measures proposed within the ES are secured and with this in mind the Secretary of State welcomes the proposal for a project specific Ecological Management Plan. A draft of the plan should be provided with the DCO application. Consideration should also be made to any potential overlapping objectives of ecological and landscaping mitigation measures that may be proposed and secured through management plans.	A draft Outline Landscape and Ecological Management Strategy (OLEMS) forms part of the documents submitted as part of the DCO application.
Secretary of State	Scoping Opinion November 2016	In terms of potential disturbance to protected species, the assessment should take account of impacts on noise, vibration and air quality (including dust); cross reference should be made to these specialist reports.	Where this assessment draws on other chapters, they have been referred to within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology. Other chapters referred to in Chapter 22 Onshore Ecology are



Consultee	Document / Date received	Comment	Response / where addressed in the ES
			summarised in section 22.1 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	The ES should include a thorough assessment of the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List.	Habitats and Species of Principal Importance are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	Although the potential for the spread of non-native invasive species has been identified at paragraph 967 of the Scoping Report, Table 3.8 does not identify this effect. The ES should include a detailed assessment of non-native invasive species present in water bodies and/or sensitive receptors along the cable route, together with a management plan to prevent the spread of these species (and any disease they carry) to uninfected receptors.	Invasive species are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Secretary of State	Scoping Opinion November 2016	The ES should set out in full the potential risk to EPS [European Protected Species] and confirm if any EPS licences will be required.	EPS are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Hindolveston Parish Council	Scoping Opinion November 2016	It is requested that due care is taken to protect woodland (especially ancient woodland), meadows and areas that are habitats for wildlife, plants, insects even if these sites do not have special designations. For instance, this would include Roadside Nature Reserves [RNR] (managed by Norfolk Wildlife Trust (NWT)) e.g. at Brays Lane in Hindolveston and similar near Guestwick leading to Wood Dalling.	Woodland is considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology. Due to the refinement of the onshore cable route since the publication of the Scoping Report, these RNRs are now located outside of the study area and therefore will not be impacted by the project.
Forestry Commission England	Scoping Opinion November 2016	Having looked at the Scoping Report it does provide maps of ancient woodland in the onshore search area including those designated as SSSIs. We would hope that these will be avoided by careful routing. The Forestry Commission would normally refer developers to the technical information set out in Natural England and Forestry Commission's Standing Advice on Ancient Woodland.	Ancient woodland is considered in line with Standing Advice within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Environment Agency	Scoping Opinion November 2016	The EIA should include a detailed assessment of invasive non-native species present in water bodies and/or sensitive receptors along the cable route, together with a management plan to prevent the spread of these species (and any disease they carry) to uninfected receptors. For example, the cable route is shown to pass through different parts of the River Wensum where American signal crayfish and crayfish plague are present...We would expect that within the EIA the cable route would be assessed for the presence of invasive species and associated diseases detailing how spread will be prevented	Invasive species are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology and any required mitigation measures for the management of invasive species are captured in the OLEMS.
Natural England	Scoping Opinion November 2016	<p>The cable route has potential to directly affect both the hydrological processes and habitats present within the River Wensum SAC. There are many springs and seepages along the length of the river which would not be detectable during a desk study, and if missed has the potential to damage the river system, resulting in changes to the direction and speed of flow of the river. Furthermore, there are floodplain meadows that form an integral part of the SAC that may be directly damaged by setting up the start of the underground cable within the wrong location. We therefore recommend that prior to any decisions on location a hydro-ecologist is employed to survey the area, to check for seepages/springs and to review where to place the cable to avoid damaging the habitats associated with the SAC. We would welcome placement of the cable as far away from the river as feasible, to protect the habitats and wildlife present in close proximity to the river.</p> <p>There is potential for the works to spread invasive species between the rivers and other features. For example, it would be possible to contaminate the sites selected for crayfish relocations around North Norfolk, by re introducing crayfish plague to these sites. Other species in this area that could be transmitted to other locations include the Chinese Mitten Crab and Killer Shrimp...it is very important that an</p>	A geo-hydromorphological survey was undertaken and its findings are reported in Chapter 20 Water Resources and Flood Risk.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		invasive species protocol is included in the Environmental Statement. There is also potential to pollute the river during construction or maintenance and therefore we expect the Environmental Statement explain how it is intended to avoid these issues and to include an Environmental Construction Management Plan (CEMP) to protect the river from pollution during works. A qualifying species of the Wensum SAC is Desmoulin's whorl snail. This species is likely to be present throughout the area surrounding the Wensum, being particularly prevalent in locally designated greenspace nearby such as Lenwade and Witchingham Common. A survey should therefore be carried out along the route, which should take place mid to late summer.	
Natural England	Scoping Opinion November 2016	Further sites that will need consideration along the route are Cawston and Marsham Heaths, Foxley Wood, Honeyput Wood and Beetley and Hoe Meadows SSSIs, all of which are designated as representative of rare habitats.	A botanical survey of the floodplain was undertaken in July 2017 and an invertebrate survey for the Desmoulin's whorl snail has been undertaken in July 2017. Findings are summarised in section 22.6 of Chapter 22 Onshore Ecology.
Natural England	Scoping Opinion November 2016	We recommend that the Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within all designated sites that have potential to be affected by the cable route and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any significant impacts.  Natural England advises that the Environmental Statement should consider any impacts upon local wildlife or geological sites and avoid these sites where possible, or mitigate for any impacts.	Invasive species are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology and any required mitigation measures for the management of invasive species are captured in the OLEMS.
Natural England	Scoping Opinion November 2016	We recommend that the Environmental Statement should assess the impact of all phases of the proposal on protected species. We recommend a thorough assessment of the impact of the proposals on	An outline CoCP (OCoCP) forms part of the documents which have been submitted with the final DCO application. The final CoCP will include details of measures to

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		habitats and/or species listed as 'Habitats and Species of Principal Importance'.	protect the river from pollution during works.
Natural England	January 2017 ETG Minutes	Effort to collect information for botanical species in sensitive habitats should be undertaken during the summer survey window (the Extended Phase 1 Habitat Survey was undertaken outside this window).	
Natural England	January 2017 ETG Minutes	A geohydromorphological survey should be undertaken for the River Wensum.	These sites are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	January 2017 ETG Minutes	Requested that those designated sites immediately outside of the survey area be considered within the assessment, e.g. Booton Common and Pigney's Wood (not yet designated).	Designated and local sites are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	January 2017 ETG Minutes	Barbastelle radio-tracking data from Norwich Northern Distributer Road and the Norfolk 'Living Map' data to be included, where available.	Protected species and Habitats and Species of Principal Importance are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	March 2017 Email response	Happy that the Phase 2 surveys can be undertaken as proposed and should provide appropriate evidence to inform the ecological baseline.	A botanical survey was undertaken in July 2017 in sensitive habitat surrounding the River Wensum SAC.
Natural England	April 2017 Email response	No comment to make on the [proposed] Phase 2 survey methodology, and are satisfied with the methodology as set out in the Extended Phase 1 Habitat survey report.	A geo-hydromorphological survey has been undertaken for the River Wensum and is reported in Chapter 20 Water Resources and Flood Risk.
Environment Agency	April 2017 Email response	Details of the waterbodies in Norfolk known to support white clawed crayfish. These are: Rivers Stiffkey, Glaven and Weybourne Beck.	These sites and others within 1km of the survey area have been considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Norfolk County Council	July 2017 ETG Minutes	Bat survey methodology as presented in the Interim Survey Report [Document Reference: PB4476-004-0224] needs to be revised to provide clarity on the data collection methods used.	Norfolk 'Living Map' data is detailed in section 22.6 of Chapter 22 Onshore Ecology.
Norfolk County Council	July 2017 ETG Minutes	Dragonfly survey undertaken too late to survey for adults. If the project needs to confirm Norfolk Hawker presence / likely absence, then a larval survey is required.	Noted.
Norfolk County Council / Environment Agency / Norfolk Wildlife Trust	July 2017 ETG Minutes	Agree with [sic] conclusions of HRA onshore screening.	Noted.
Norfolk Wildlife Trust	July 2017 ETG Minutes	Although Hornsea Project Three passes much closer to Booton Common SSSI, potential cumulative impacts are to be considered.	White-clawed crayfish <i>Austropotamobius pallipes</i> have been considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Breckland Council	PEIR response November 2017	It is noted that an Outline Landscape Ecological Management Plan will be produced to accompany the Environmental Statement when the application is submitted. That will be crucial to understanding the mitigation and improvement measures that are required and further assessment will be carried out by a specialist ecologist on behalf of the council during the consultation period for that.	Bat Survey Methodology Update produced and issued to ETG on 20/09/2017. No further comments from ETG. Methodology therefore considered acceptable. Final methodology used presented in Appendix 22.7.
Environment Agency	PEIR response November 2017	Overall this is a thorough onshore Ecology report for the proposed Norfolk Vanguard Offshore Wind Farm Project (Chapter 22). It is acknowledged that some elements of the ecological survey data are not yet available, and that the details of the Outline Landscape Environmental Management Strategy [OLEMS] are not included. This operation will directly affect approximately 600ha of land, we	Updates to the project design following the PEI stage means that those areas identified as providing suitable habitats for Norfolk Hawker dragonfly are no longer affected by the project and therefore there is no requirement for any further surveys to be undertaken.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		would like to remind the applicant of their duty to protect and where possible to enhance the priority habitats and species likely to be impacted by this project in line with the UK Biodiversity Action Plan. We advise consultation with Natural England and Norfolk Wildlife Trust regarding impacts to designated sites. We would expect this project to aim towards no net loss of designated sites. Permanent loss is unacceptable.	
Environment Agency	PEIR response November 2017	22.7.3.4.3 Impact 4. Woodland trees and scrub: Point 282. We support the use of trenchless crossing techniques (HDD) for any area of mixed deciduous woodland. We would encourage the applicant to consider the potential for creating woodland corridors to increase habitat continuity and create net overall habitat gain. Woodland provides multiple benefits including an essential role in reducing flooding in upper catchments and reducing soil erosion and sediment flow into watercourses.	Noted.
Environment Agency	PEIR response November 2017	22.7.3.5.1 Impact 5. Hedgerows - Point 292. The Onshore Cable corridor (ONC) work stands to result in the loss of approximately 6.3 km of hedgerow, which is a viable area of UKHPI and Norfolk BAP habitat. Hedgerows are essential in reducing soil erosion, reducing sediment runoff and removal, even temporarily, will have adverse effects on nearby waterbodies. The proposal includes a replanting element, however we would expect a further survey to differentiate between species rich hedgerow (ancient hedgerow) and species poor hedgerow. Where ancient hedgerow is identified, we would support the use of HDD techniques. Further information on surveying hedgerows can be found through The Norfolk Wildlife Trust and Natural England.	Potential cumulative impacts upon Norfolk Valley Fens SAC have been considered in the Report to inform the Habitats Regulations Assessment (HRA) and cumulative impacts upon Booton Common SSSI considered within section 22.8 of Chapter 22 Onshore Ecology.
Environment Agency	PEIR response November 2017	Impact 8 Water courses and ponds. 22.7.3.8.3 Point 314. Temporary loss of	Noted.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		<p>approximately 40 ponds. Section (22.7.3.13.4 – 388) – states that there will be permanent loss of up to 22 potential breeding ponds for Great Crested Newt (GCN). Within the EIA, this loss is classified as Major – High Magnitude, High importance, and Worse major impact. This loss of UKBAP priority habitat is unacceptable. Standing waterbodies are considered freshwater habitats under the WFD so as such the prevalence of the feature in the area does not lessen WFD obligations. We also note that at 22.7.3.13.4 Impact 13 the presence/ absence of GCN has not yet been established and that detailed mitigation strategy will be required. Further consideration for preserving these important features is required. We recommend the consideration of HDD for these features. The project should aim to ensure that there is no overall loss in the number of ponds.</p>	
Environment Agency	PEIR response November 2017	<p>22.7.3.10.1 Impact 11 Water Vole: Extensive surveys carried out by a qualified ecologist at the optimal time of year will be required at all potential crossing sites These surveys will need to include IDB drains, field drains (where habitat is suitable), and all watercourses. A Water Vole mitigation plan for each area of suitable habitat will be required once the results of surveys are complete. We are fully in support of the use of HDD techniques where water voles are present.</p>	Protection of habitats and avoidance of designated sites are set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Environment Agency	PEIR response November 2017	Control measures for non-native and invasive species should be in place.	Noted.
Environment Agency	PEIR response November 2017	Fish species - no assessment on bullhead, brown trout, brook lamprey (Annex II)	Hedgerows have been surveyed to this level of detail during the Extended Phase 1 Habitat Survey. This information is presented in Appendix 22.1 and 22.4.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Natural England	PEIR response November 2017	Whilst it is recognised that the requirement to produce an ES is through the EIA regulations consideration of the habitat regulations should not be excluded from each of the chapters. For example when considering a designated site it is not appropriate to use the EIA matrices which are for wider environmental receptors rather than a protected feature. The conservation objectives for the site should be used to determine significance for protected sites. At the end of the chapter NE expects a set of conclusions for EIA Regulations identify any sensitive receptors which may require further consideration in pre- and post-construction monitoring and conclusions in relation to any Likely Significant Effect (LSE) for protected features that will be taken forwards into the RIAA. A table determining significance is in-sufficient as need to determine what outcome will be for the projects. NB: if there are residuals concerns that may/may not be significant these will require further consideration including monitoring.	The project will ensure no net loss of pond habitats. The number of ponds affected during construction has been reduced (originally 40 and now five ponds) through project design iterations. Impacts and proposed mitigation upon these ponds are set out in 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	PEIR response November 2017	In terms of the HRA, Natural England agrees that the River Wensum SAC, Great Paston Barn SAC and the Norfolk Valley Fens SAC are scoped in for further assessment. We are satisfied with the criteria for screening out Broadland SPA/Ramsar site. However, The Broads SAC needs to be included in the scoping exercise as this site appears to have been omitted from considerations.	Water vole surveys were undertaken in 2017 and these survey results are provided in Appendix 22.6. Impacts on water voles and the required mitigation measures is set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	PEIR response November 2017	We note that survey data has not been provided for onshore ecological receptors and we are thus unable to provide detailed comments about the adequacy of the surveys and assess impacts at this stage. It is likely that a key impact may arise from changes to the hydrology of wetland sites, either directly or indirectly, during construction and operation. In addition to international features of River Wensum SAC and Norfolk Valley Fens SAC, the impacts on their component SSSI features should also be assessed in detail. It is likely that there will be an impact on bat	Mitigation measures to prevent the spread of invasive species is set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.



Consultee	Document / Date received	Comment	Response / where addressed in the ES
		species using Great Paston Barn SAC. Mitigation needs to be provided for impacts on foraging areas and commuting routes in advance of construction works taking place. There is unlikely to be an effect on the purposes of designation of the protected landscapes of the Broads National Park and Norfolk Coast AONB.	
Natural England	PEIR response November 2017	We welcome further discussions in relation to a wider strategic approach to GCN mitigation in line with Natural England's latest change in licensing advice as per discussions in July.	Data on these species has been provided by the Environment Agency and is included in section 22.6 of Chapter 22 Onshore Ecology. Impacts on these species and any required mitigation measures is set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	PEIR response November 2017	The information contained in this section [ <i>Chapter 22 of the PEIR</i> ] is too general and non-specific to be able to make any detailed comments regarding the hydrological and ecological impacts of the proposal. There are no details of the surveys undertaken or the results so it is not possible to comment on their adequacy or otherwise.  Impacts will need addressing with regard to the specific details of the nature, location and timing of the works and the mitigation. Without these, general statements around impact level are of limited value and it is not possible to comment on their validity.	The report to inform the HRA submitted with the DCO application provides a detailed consideration of the potential Likely Significant Effect (LSE) on the protected features (habitats and/or species) of European sites.
Natural England	PEIR response November 2017	An area of particular concern is the hydrological impact of the construction affecting ground and surface water flows. This will need to be assessed according to the specific hydrological regime at individual locations where there is habitat linked to and dependant on the water regime. Small scale local disruptions can significantly affect important habitats and communities such as seepages and springs. Sites where the cable is adjacent to the River Wensum before crossing and running along the Penny Spot Beck,	Additional screening has been undertaken for The Broads SAC and is reported within the report to Inform the HRA screening report Appendix 22.15.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		Dillington, and other locations with a wetland habitat component, will need detailed investigation.	
Natural England	PEIR response November 2017	There is a requirement for a HDD methodology statement in order for adequate assessment of impacts.	Mitigation for potential impacts upon these sites has been reported within the HRA Report and within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	PEIR response November 2017	Bat emergence/re-entry and activity surveys need completing before we can make a detailed comment.	A meeting was held on 12th March 2018 to discuss these opportunities. The option for using off-site mitigation for great crested newts has been retained by the project so that it can be potentially used during post-consent mitigation. A Draft Great Crested Newt Mitigation Licence has been submitted to Natural England containing details of these proposals.
Natural England	PEIR response November 2017	Mitigation needs to be designed to account for impacts on bats, e.g. linear features need to be reinstated; hedges should be double-planted with grassland strips on both sides so there is always a leeward side to forage. Trees should be planted where possible as well as native shrubs.	At the time of issue of the PEIR, not all results from the species-specific surveys undertaken during 2017 were available. In these instances, the information presented in the PEIR used the findings from the Extended Phase 1 Habitat Survey only. All species-specific surveys are now completed and therefore their findings have been used to inform this EclA. Full baseline, impact assessment and proposed mitigation is presented sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	PEIR response November 2017	Works will interrupt core bat foraging areas as well as commuting routes; mitigation should be in place for these. In order to be effective, the mitigation should be in place before the disruption works are	These possible effects are considered within Chapter 19 Ground Conditions and Contamination. A summary of the

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		carried out. Working on sensitive sections e.g. severing commuting routes, should ideally be carried out in winter, when the bats are dormant, so the bats can adapt to the change before the pupping season is underway.	potential impacts is provided in the HRA Report (with respect to the River Wensum) and within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	PEIR response November 2017	Ecologists from the Natural Environment Team at the County Council have attended a number of Ecology Expert Topic Group (ETG) meetings and have had the opportunity to comment on methodology and approaches for establishing and assessing the ecological situation. Officers consider the approach is acceptable. The results of many of the ecology field surveys are not presented in the PEIR and it is understood that the County Council will not see the survey results until the Environmental Statement is produced.	Detailed methodologies for trenchless techniques are provided in Chapter 5 Project Description.
Norfolk County Council	PEIR response November 2017	The County Council notes that an Outline Landscape Ecological Management Plan will be produced alongside the Environmental Statement at submission, and agree that this is the most appropriate way to address mitigation in relation to ecology.	Results from the bat emergence / re-entry surveys are provided in Appendix 22.8 and the impacts are considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	PEIR response November 2017	County Wildlife Site (CWS) The County Council notes the reference in the PEIR to CWSs potentially impacted by the onshore cable (Chapter 22: Section 22.7.3.2.3, p. 70). CWSs all have a unique reference number and it would be particularly helpful if the reference codes are used to identify sites. There may be some confusion as to why the sites are designated; of the sites that are mentioned in Paragraph 260, Paston Way and Knaption Cutting CWS (CWS No. 1175) is not designated for its wet woodland as stated, neither is the Marriott's Way (CWS No. 2176) designated as a 'green woodland corridor'.	Mitigation measures proposed for bats with respect to hedgerows are presented within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology and will be captured within the OLEMS.
Norfolk County Council	PEIR response November 2017	Where CWS will be crossed by the cable corridor, the County Council would request that very strong consideration is given to using Horizontal Directional Drilling (HDD), particularly at Wendling Carr CWS	Mitigation measures proposed for bats with respect to hedgerows are presented within sections 22.7 and 22.8 of Chapter 22

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		1013, which is associated with Wendling Beck. Paragraph 314 (p. 78) indicates that only one of the two crossings of Wendling Beck will be using trenchless techniques but it is unclear as to whether this will be at the CWS.	Onshore Ecology and will be captured within the OLEMS.
Norfolk County Council	PEIR response November 2017	The cable route runs parallel to the Marriott's Way CWS at several points and bisects it twice. Potential impacts on this site may therefore be cumulative. Cables for the DONG/Orsted 'Hornsea 3' offshore windfarm scheme also bisect the Marriott's Way in two places and so cumulative impacts may be more significant than implied, notably east of Reepham.	Survey results are represented in section 22.6 of Chapter 22 Onshore Ecology and detailed in full in Appendices 22.1-22.9. These results were also presented in the January ETG meeting.
Norfolk County Council	PEIR response November 2017	<b>Protected Species and Habitats</b> At the Onshore Ecology Expert Topic Group meetings, various issues with surveys for bats have been raised. The Norfolk Vanguard Ecological Surveys Interim Report (June 2017) concludes "For bat surveys there is a more significant issue. If continuing with the present methodology, gaining sufficient access is a significant constraint for spatial and temporal coverage of the study area" (paragraph 8.9). At this stage, the County Council retains reservations regarding the ability of the bat survey results to allow a robust and lawful decision to be reached.	Noted.
Norfolk County Council	PEIR response November 2017	The Paston Great Barn Special Area of Conservation (SAC, a European site) is designated for its barbastelle bat breeding colony, and at this stage it is unclear as to whether the locations where bat surveys were undertaken were appropriate to assess the impacts on this feature of the SAC. The County Council welcomes that the project sought data from the Norfolk Barbastelle Study Group, particularly with regard to radio-tracking information. Where statements are made to specific ecological information (e.g. to barbastelle bat territorial ranges), they should be supported by a suitable peer-reviewed reference.	Baseline information in section 22.6 of Chapter 22 Onshore Ecology has been updated in light of these comments.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Norfolk County Council	PEIR response November 2017	The County Council notes that the PEIR refers to surveys for the Norfolk Hawker dragonfly (e.g. paragraph 182 and subsequently). As County Council officers have previously mentioned at the ETG meetings, surveys for adult dragonflies will not provide confirmation of breeding. Criteria for establishing proof of breeding have been defined by the British Dragonfly Society.	Following this comment, the project design has been revised and now trenchless techniques are proposed to be used at all identified CWS (a haul road is retained within one CWS at Wendling Carr).
Norfolk County Council	PEIR response November 2017	Loss of Ponds In Chapter 22: section 22.7.3.8.3 (Paragraph 314) it states “The cable route works will result in a temporary loss of approximately 40 ponds (approximately 0.4ha) during the cable ducting element of the construction phase (approximately two years) and for a further 16 weeks during the three year cable pull element of the construction phase.” The County Council is unclear what the ‘temporary loss’ means in this context.	Consideration of cumulative effects are presented within section 22.8 of Chapter 22 Onshore Ecology.
North Norfolk District Council	PEIR response November 2017	The District Council welcomes the commitment by Vattenfall to undertake trenchless crossing points (HDD) at roads, railways and sensitive habitats. However, it is suggested that additional HDD points will be required to miss further sensitive habitats and areas where significant/important hedgerows and hedgerow trees will otherwise need to be removed. For example: <ul style="list-style-type: none"> <li>· West of The Street, Ridlington (TG 34631 30520) – an area of former grazing pasture and a large ditch network (currently unsurveyed)</li> <li>· Paston Way cutting (County Wildlife Site) (TG 28631 31559) which links with Pigneys Wood Local Nature Reserve (also option to HDD under B1145 North Walsham Bypass and burial ground) – Paston Way is a former railway cutting which would require a deep excavated trench to get to the required</li> </ul>	Since this PEIR response, the Bat Activity Survey Report has been circulated for comment. Comments received are detailed later in this consultation table. Full details of the impacts on commuting / foraging bats is presented within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		levels beneath the cutting, plus contaminated land issues	
North Norfolk District Council	PEIR response November 2017	<p>Due to the lack of horizontal directional drilling (HDD) there would appear to be the need to remove a significant number of hedgerows, and hedgerows with mature trees.</p> <p>The majority of the 310 hedgerows identified were species-rich intact hedgerows with trees (89 in total). The PEIR does not highlight which of the hedgerows surveyed are important hedgerows under the Hedgerow Regulations 1997. Furthermore, there are many more boundary features that have not been able to be surveyed due to lack of access, some of which are important landscape features e.g. north of Lyngate (TG 27603 31809). The District Council recommends that further work needs to be undertaken by Vattenfall to identify those hedgerows/field boundaries that would benefit from trenchless techniques to ensure that these important ecological and landscape features can be retained. This is critical as compensatory planting will not be able to include replacement trees over the buried cable routes.</p>	<p>Since this PEIR response, the location of the bat surveys has been discussed at the project ETG meetings (see below). Full details of the impacts on commuting / foraging bats of the Paston Great Barn colony is presented within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.</p>
North Norfolk District Council	PEIR response November 2017	<p>West of The Street, Ridlington (TG 34631 30520) – This area does not appear to have been surveyed in the field as part of the Water Vole, Breeding Birds or Extended Phase 1 survey, yet appears to be existing or former grazing pasture with possible reasonable habitat (semi-improved) and has an extensive ditch network and defined historical field pattern.</p>	<p>As a result of evolution of the project design, areas of suitable habitat for Norfolk Hawker dragonfly will no longer be affected by the project. No further surveys are proposed post-consent.</p>
North Norfolk District Council	PEIR response November 2017	<p>Ancient Woodland – there does not appear to be any mention of Ancient Woodland within the habitat or designated sites section of Appendix 22.1 (Extended Phase 1 Habitat Survey Report), although there are Ancient Woodland sites (or replanted AW sites) adjacent or</p>	<p>The potential impacts on ponds during construction is presented and the term ‘temporary loss’ explained within sections 22.7 and 22.8 of Chapter 22 Onshore</p>

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		near to the cable corridor. Have impacts on these designated sites been scoped out of the report?	Ecology. Due to route refinements, only 5 ponds are now directly affected.
North Norfolk District Council	PEIR response November 2017	The trees along the driveway to Banningham Hall (TG 21592 30236) do not appear to have been identified on the Phase 1 Map. Have these been surveyed for bat roost potential as they are currently in the cable route corridor?	Following refinement of the onshore project area, Paston Way Cutting CWS is now proposed to be crossed using trenchless techniques. Undesignated habitat at Ridlington Street is proposed to be crossed using trenching. Impacts upon the habitats and potential species at the habitat by Ridlington Street are presented within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
North Norfolk District Council	PEIR response November 2017	Welcome the commitment to reduce the working width of the cable corridor to 54m (HVAC) at un-avoidable hedgerow crossings – however further input is desirable into which hedgerows will need to be removed.	Identification of important hedgerows is provided in in section 22.6 of Chapter 22 Onshore Ecology.
North Norfolk District Council	PEIR response November 2017	Phase 2 Bat Surveys – there appears to be some discrepancies between the classification of the bat features in the table of Annex D of Appendix 22.1 (Extended Phase 1 Habitat Survey Report) and Figure 4 of Appendix 22.1, with features with bat interest labelled as ‘moderate’ on the maps (figure 4) but as ‘low’ on the table, e.g. Bat Reference Feature 146, 148 and 235 (for example). It is not clear therefore whether these features have been scoped into the Phase 2 activity surveys for bats. This is particularly important for features around Paston Barn, Edingthorpe and Bacton Woods. Furthermore, it is not clear from the maps provided in Annex A, Figure 4, where the linear features of low, moderate and high suitability for commuting and foraging bats are, and which of these have been included in the Phase 2 activity surveys.	Access was not available to survey these areas at this time due to lack of access permission. Surveys will be required for these habitats prior to any work commencing.

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North Norfolk District Council	PEIR response November 2017	There could be significant limitations to the bat activity surveys as a result of the lack of access to identified areas with suitability for commuting and foraging bats and also due to missing out key commuting routes from Paston barn. The bat activity survey report and the survey methodology in the vicinity of Paston Barn, Edingthorpe and Bacton (Witton) Woods should make reference to the existing radio tracking data for the Paston barn colony undertaken by the Norfolk Barbastelle Study Group to justify where surveys have or have not been carried out and if not, why not. Further consideration needs to be given to the cable corridor north of Bacton Woods as possible further survey work may need to be carried out. The Paston bat colony are known to commute to and forage in the woods accessing the woods from the north and Edingthorpe. To date there is no information on the impacts of the cable construction on the commuting patterns of the Paston barn bats.	Ancient woodlands have been considered within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology. All ancient woodlands have been avoided during the refinement of the onshore project area either through route refinement or through use of trenchless techniques.
North Norfolk District Council	PEIR response November 2017	Acknowledge that the cable corridor is currently defined as 200m wide which will be refined to allow the actual 100m wide cable route to be located in such a way to avoid sensitive features such as mature trees and take into account land owner preferences etc. It is not however clarified whether landowner preferences will override the requirement to avoid sensitive ecological features. A balance will be required to take into account the sensitivity of potential features and landowner preferences.	The Extended Phase 1 Habitat Survey (Appendix 22.1 and 22.4) has covered this area. No trees were assessed as providing suitable habitat to support roosting bats.
North Norfolk District Council	PEIR response November 2017	General concern that only 50% of the cable route has been surveyed in the field, which could mean that many important ecological features may have been missed	Norfolk Boreas Limited has made a decision in relation to the project design to deploy High Voltage Direct Current (HVDC) cable technology to the UK's National Grid and this removes the need for a 100m corridor (see Chapter 4 Site Selection and Assessment of Alternatives).



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North Norfolk District Council	PEIR response November 2017	Unable to comment on the results of many of the ecological surveys as the results have yet to be inputted into the PIER report.	The hedgerows to be removed will be detailed in section 22.6 of Chapter 22 Onshore Ecology.
North Norfolk District Council	PEIR response November 2017	In terms of long term and permanent effects on the landscape, there will be a need to provide appropriate landscape mitigation particularly where open cut trenches affect field boundaries and landscape features such as mature trees. Vattenfall has indicated they will seek to do this but this would need to be set out within the mitigation strategy. Where possible, the District Council would expect Horizontal Directional Drilling (HDD) to be used if routes through sensitive woodlands or landscapes cannot be avoided.	All identified data discrepancies have been checked to ensure that there are no errors in the data presented in the report. Any errata (such as these) have been noted and presented in section 22.6 of Chapter 22 Onshore Ecology.
North Norfolk District Council	PEIR response November 2017	In terms of delivering wider public benefits, there may be opportunities for Vattenfall to fund wider landscape mitigation to repair historical damage to field boundaries resulting from modern agricultural practices and to enhance local landscape character. This would also have the added benefit of helping improve biodiversity. Wider landscape enhancement could also improve the quality of walking and cycling opportunities in the countryside and enhance tourism to the benefit of the wider economy.	The process for classifying features of suitability to support commuting or foraging bats is set out in section 22.6 of Chapter 22 Onshore Ecology.
The Wildlife Trusts	PEIR response November 2017	We are pleased to see that the cable routes have been refined so that there are now fewer areas remaining with a choice of routes. In general, our comments on the onshore ecology section of the PEIR are made in relation to designated sites and habitats and not necessarily on impacts on each individual receptor, owing to the fact that much work still needs to be done to further refine routes and assess the best mitigation measures for each area of ecological value. We note with regard to species data that ecological information is at an early stage and that sufficient information may not be currently available to allow a planning decision to be made. We would expect that this information will be presented at the submission stage.	The Norfolk Barbastelle Study Group (NBSG) data has been used alongside the 2017 bat activity data to draw conclusions on the importance of key commuting routes to the Paston Great Barn colony. Details of the assessment of the impact on commuting / foraging bats of the Paston Great Barn colony is presented in the HRA Report and summarised in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
The Wildlife Trusts	PEIR response November 2017	We are concerned that DEFRA Local Wildlife Sites (known as County Wildlife Sites (CWS) in Norfolk) were not included from the outset, (along with nationally designated sites), as sites where impacts are to be avoided, as set out in paragraph 22.7.1.1.1. Although the whole project is a development of national significance, in our view, the exact location of cable routes should be viewed as being of local significance and Local Wildlife Sites should be accorded a similar level of priority as they are given in local authority Local Plans, where policies prioritise avoidance of impacts.	Noted.
The Wildlife Trusts	PEIR response November 2017	We are concerned that HDD isn't generally proposed for CWS and is only proposed for a small number of watercourses that have a national designation (para 22.7.1.3.2.) This is a particular concern for Wendling Carr (CWS 1013) and Land South of Dillington Carr (CWS 1025), plus the potential CWS at Kerdiston Meadows (paragraph 22.7.3.2.3). Without mitigation damage is assessed at the two CWS. At Wendling Carr, the receptor includes both a watercourse (Wendling Brook) and associated wetland habitat on the CWS. In our view HDD should be the preferred option at this location. For Land to South of Dillington Carr (CWS 1025) consideration should be given to ensuring that the final route follows the southern side of the wider corridor envelope, in order to avoid impacting the CWS.	This is related to landowner access provision. The areas not surveyed prior to submission will be surveyed post-consent. Further information is provided in section 22.5.3 of Chapter 22 Onshore Ecology.
The Wildlife Trusts	PEIR response November 2017	The cable route passes very close to Pigney's Wood LNR (and proposed CWS) and crosses the Dilham Canal and associated areas of wetland. No direct or indirect impacts on Pigney's Wood have been identified. Land adjacent to the wood and along the Dilham Canal consists of wetland habitats, which along with the canal are likely to be of CWS value. We are pleased to see that HDD is considered for Dilham Canal and associated habitats in the vicinity of Pigney's Wood and we support this option.	All species-specific surveys have now been completed and the results of which are presented in section 22.6 of Chapter 22 Onshore Ecology and detailed in full in Appendices 22.1-22.12.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
The Wildlife Trusts	PEIR response November 2017	Mitigation for loss of hedges (22.7.3.5) during construction needs to account of the fact that for some stretches the loss of hedge before replanting will stretch over a number of years. Section 22.7.3.8 states that “The cable route works will result in a temporary loss of approximately 40 ponds (approximately 0.4ha) during the cable ducting element of the construction phase (approximately two years) and for a further 16 weeks during the three year cable pull element of the construction phase. We are uncertain what is meant by temporary loss, as if the cable route crosses a pond it is unlikely to be possible to re-instate the feature. Wording needs to be clarified in relation to this issue. The impact of any loss of ponds needs to be linked with information from great-crested newt surveys.	Woodlands have been avoided by the project during the design process. Mitigation for locations where hedgerow removal is required is presented in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
The Wildlife Trusts	PEIR response November 2017	HDD is only preferred at a small number of designated watercourses and the PEIR makes the assessment that “Given the extent of these habitats within the wider environment, this effect is anticipated to be of low magnitude.” (para 22.7.3.8.3). In our view HDD should be the preferred option at the great majority of watercourses and wetland habitats adjacent to watercourses. This will not only serve to give direct protection to habitats but will mitigate for potential impacts of pollution and silt run-off, whilst also improving biosecurity.	Landscape-scale habitat connection is considered within the landscape proposals in Chapter 29 Landscape and Visual Impact Assessment.
The Wildlife Trusts	ETG Minutes January 2018	Measures set out in the final submission should seek to carry out mitigation in a strategic way and plan to enhance connectivity along and adjacent to the cable route. In this context we are pleased to see the intention to include an Outline Landscape Ecological Management Plan (OLEMP) alongside the Environment Statement at submission. We support the proposal to produce the OLEMP which should enable mitigation for all habitats and species to be addressed in a joined up way. The OLEMP should include measures to enhance connectivity of priority habitats including hedges and be in conjunction with enhancement of connectivity for protected and priority species. This	Noted. Some ecological baseline information was not available at time of submitting the PEIR. This has subsequently been discussed with The Wildlife Trusts as part of the Onshore Ecology ETG meetings under the Evidence Plan Process in January 2018 and is included in Chapter 22 Onshore Ecology. This information is used to inform appropriate mitigation measures.

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		should include measures outside of the cable zone. Although we understand that this may present problems of consent from neighbouring landowners, this could be achieved through linking mitigation and enhancement to local conservation projects, such as the pond restoration work of the Norfolk Pond Partnership and other landscape scale initiatives. In our view this option should be explored.	
Norfolk Wildlife Trust	ETG Minutes January 2018	Booton Common Reserve Manager does not have a concern regarding the Norfolk Vanguard project.	Following this comment, the project design has been revised and now trenchless techniques are proposed to be used at all identified CWS.
Environment Agency	ETG Minutes January 2018	Environment Agency hold bullhead, brown trout, brook lamprey and crayfish records within the study area and will provide these for the project.	Following this comment, the project design has been revised and now trenchless techniques are proposed to be used at all CWS.
Norfolk County Council	ETG Minutes January 2018	Landfall has moved away from the key are of concern for foraging barbastes of the Paston great barn colony.	Noted.
Environment Agency	ETG Minutes January 2018	Advised that mitigation should be included to use Vircon to kill crayfish plague spores. Advisable to use as a precaution and treat all equipment as if signals infected with plague.	The potential impacts on ponds during construction is presented and the term 'temporary loss' explained within sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Norfolk County Council	ETG Minutes January 2018	Approach to identification of important hedgerows is crude. Hard to pick up different spp. on technology. Better to have no. passes vs no. passes in other area and use to calculate relative abundance coefficient.  5km buffer argued very well. Guidelines that sustenance zones for barbastes are 6km. Agree with 5km but need to justify reasons for not using 6km. Falls into core sustenance zone for southern bat roosts –	Impacts to watercourses is set out in Chapter 20 Water Resources and Flood Risk and summarised in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.

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		are colonies related? Careful in terminology when talking about bad weather – bad weather could push bats into other areas ('bad weather areas') so don't dismiss as less important areas.	
Norfolk County Council	ETG Minutes January 2018	Old Hills Wood, near Honing. Study group should have radio tracking data of that roost.	The potential for landscape-scale mitigation is being considered with respect to great crested newt mitigation, as set out in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	Review of baseline ecology reports February 2018	The data presented are clear and sufficiently detailed to have confidence in their accuracy. Natural England note that no surveys were undertaken north of the river, due to a lack of access permission.  However we wish to highlight that this area will need to be surveyed both botanically and hydrologically to fully and accurately assess the impact of the project on the River Wensum SAC. Natural England also wish to highlight that the absence of any evidence of seepages or springs south of the River Wensum does not preclude a direct groundwater influence on the river but suggests the hydrological function in the terrestrial area surveyed is dominated by rainfall and surface and shallow ground water and highly influenced by the existing ditch network and this should be reflected within the report.	Noted.
Natural England	Review of baseline ecology reports February 2018	The data presented are clear and sufficiently detailed to have confidence in their accuracy. We note that there were no surveys undertaken north of the river, due to a lack of access permission. Natural England wish to highlight that this area will need to be surveyed to fully and accurately assess the impact of the project on the River Wensum SAC. In addition we note that no individuals were found in the surveys despite suitable habitat being present. However as the species has the capacity to colonise new areas any suitable habitat contributes to the SAC site integrity for this species. This is particularly pertinent in the absence of data from the North side of the River Wensum, which	These records are now presented in section 22.6 of Chapter 22 Onshore Ecology.

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		could support populations capable of colonising suitable habitats on the south side. We therefore support the recommendations to survey the north bank of the river and to re-survey all areas if works occur 3 years after the date of these surveys.	
Natural England	Review of baseline ecology reports February 2018	No further comments Norfolk Hawker dragonfly survey, Reptile presence/absence surveys and Bat emergence/ re-entry surveys.	Noted.
Natural England	Review of baseline bat activity survey report March 2018	The identification of survey transects which have a moderate or high habitat suitability for bats following field survey is a standard procedure...The survey effort employed per transect is generally in accordance with published guidance, although we note the limitations of a late start date and lack of access to certain locations and other limitation specified in the report. Table 9 summarises the limitations – we query what further steps will be taken to access transects where access for bat surveys has been denied as there are 10 transects where lack of survey is identified as having a significant impact?	This mitigation is included in sections 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	Review of baseline bat activity survey report March 2018	Where trees will be required to be felled, surveys should be carried out for those trees which have a high or moderate suitability based on their potential roost features identified from ground. Further clarification is required to confirm the nature of further tree survey work.	Process for identifying important hedgerows for bats has been reviewed in light of this comment. Important hedgerows for bats are presented in section 22.6 of Chapter 22 Onshore Ecology.
Natural England	Review of baseline bat activity survey report March 2018	The activity survey results have been evaluated to identify bat commuting routes and foraging areas in accordance with the aims of the survey. The quality of Maps One to Four in the main report showing the overview of transect locations and static detectors was very poor.	NBSG data for Old Hills Wood areas is now provided in section 22.6 of Chapter 22 Onshore Ecology.
Natural England	Review of baseline bat activity survey report	Transects BACT21 and BACT22 are within SSSI Impact Risk Zones for Paston Great Barn SSSI. The assessment of impacts on bats in this area will be used to inform a Habitats Regulations Assessment. Reports on	A hydrological assessment of the River Wensum floodplain is provided in Chapter 20 Water Resources and Flood Risk.

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	March 2018	<p>barbastelle activity arising from Paston Great Barn are available to provide further evidence to inform impact assessment. For further information on radio tracking studies, we advise contacting Norfolk Barbastelle Study Group <a href="http://www.norfolkbarbastellestudygroup.org/">http://www.norfolkbarbastellestudygroup.org/</a> . Natural England is able to supply information on bats pertaining to the site, such as breeding success etc.</p>	
Natural England	<p>Great crested newt mitigation minutes March 2018</p>	<p>NE policies 1 &amp; 2 would work in practice as follows:</p> <p>Policy 1 – removes the need for traditional ‘fencing and trapping’ mitigation methods, if additional compensation within the project boundary is used instead. NE would expect additional survey effort over and above traditional methods (i.e. surveys from 250-500m from onshore project area, although the scope and methodology of any other surveys would need to be justified by the applicant and NE noted that conducting additional surveys across this range for a linear development resulted in extensive additional monitoring. eDNA may be an option, if relevant). If alternative mitigation is proposed, the reasons why this will lead to more favourable conservation status over and above traditional methods must be set out. If there is a risk of killing or injuring, two licence applications will likely be required, one covering killing or injuring and one covering compensatory habitat.</p> <p>Policy 2 – allows compensatory habitat to be created anywhere in the local environment (no definition of ‘local’ within the policy). Additional data would be required for mitigation under this policy, e.g. surveys of the areas identified for habitat creation to confirm status of population around the receptor site; disease screening).</p>	<p>The north bank of the river will be surveyed post consent. No works are proposed to take place within the floodplain on the north bank of the river, therefore the risk of impacts in this area are minimal. Further consideration of these impacts is presented in sections 22.7 and 22.8 of this chapter.</p>

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		AJ noted that the legal requirements which would underpin mitigation under policies 1 & 2 would be through a s106 or NERC Act agreement.	
Natural England	Great crested newt mitigation minutes March 2018	Norfolk Vanguard could submit a draft great crested newt mitigation licence both for traditional methods and including an option for offsite mitigation under policies 1 & 2. The draft licence would need to be submitted with a technical note explaining the proposals for alternative mitigation under policies 1 & 2.	Noted.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Natural England notes that nationally designated sites over 500m from the project area have been screened out, however on that basis, Dereham Rush Meadow SSSI should have been screened in. we suggest the following wetland sites should be screened in for further consideration of impacts on groundwater supply and surface water quality: 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).	Further steps to address data gaps within the baseline survey data are set out in sections 22.5.3, 22.7 and 22.8 of Chapter 22 Onshore Ecology.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Dillington Carr, Gressenhall SSSI (0.4 km away) and River Wensum SSSI (0m) have been screened in and may be affected by the works at the respective trenchless crossing zones during construction. Please see our comments on Information to Support HRA report on the requirement for further measures in the CoCP to safeguard designated sites in relation to sediment control, pollutant release and reinstatement of all work areas. We agree that there is unlikely to be an additional effect on the nationally designated features of River Wensum SSSI in addition to effects on SAC features.	Surveys (i.e. dusk/dawn emergence/re-entry surveys) have been carried out to determine whether bats are roosting in all suitable trees and structures, where access has been available. The results are presented in section 22.6 of Chapter 22 Onshore Ecology.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	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	All data shown on the plans within Appendix 22.7 are also represented on Figure 22.8 in Chapter 22 Onshore Ecology.



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		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	Relevant Representation in respect of Norfolk Vanguard August 2018	We are satisfied that the great crested newt (GCN) plans reflect our advice given earlier in the year. The report identifies where licences may be required for bats and water voles.	NBSG's radiotracking data has been obtained and used to inform the baseline presented in section 22.6 and reported in the HRA Report.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	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.	Noted.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	As bats from the Old Hills barbastelle maternity colony have overlapping core foraging areas with barbastelle bats using Paston Great Barn SAC (Table 22.14), we advise that our comments in Information to Support HRA regarding mitigation for impacts to the SAC will also mitigate for impacts to Old Hills colony.	Noted.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Arable: Please see our comments relating to arable ground-nesting birds, such as skylark, found unexpectedly during construction in Chapter 23 Onshore Ornithology. We have also commented on the requirement for a soil handling plan and negotiation with agri-environment scheme holders in Chapter 21 Land Use and Agriculture.	Dereham Rush Meadow SSSI, Holly Farm Meadow, Wendling SSSI, Whitwell Common SSSI and Booton Common SSSI, including groundwater interactions with the onshore project area, have been considered in sections 22.7 and 22.8 of this chapter.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Woodland and trees: We agree with a 15m buffer between the project area and ancient woodland and trees.	

Consultee	Document / Date received	Comment	Response / where addressed in the ES
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Hedgerows: We agree with the proposals to replant hedgerows with locally relevant species and with 2m margins to encourage biodiversity. Note that protection against browsing animals will need to be in place until the shrubs are established. We note that a moderate adverse residual effect on hedgerows and bats has been identified for the project as a whole (Table 22.32).	The outline CoCP for Norfolk Boreas includes all the measures set out in the HRA Report. These measures are also summarised in section 22.7. The draft DCO commits the Applicant to producing a final CoCP post-consent which must be signed off by the relevant LPAs prior to construction.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Grassland: see our comments on the re-instatement of marshy grassland adjacent to River Wensum in Information to Inform HRA.	The potential impacts on Felbrigg Wood SSSI from road traffic emissions are considered in sections 22.7 and 22.8 of this chapter. Information is presented on the likely level of effect arising from emissions associated with road traffic, which has been determined based on prediction of vehicles types, timings and numbers. The section concludes that at the increase in emissions associated with road traffic would at most give rise to an effect of negligible magnitude.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Watercourses: see our comments on the requirement for further detail on measures to control sediment and pollutant release into watercourses in Information to Inform HRA.	No action required.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Natural England notes that nationally designated sites over 500m from the project area have been screened out, however on that basis, Dereham Rush Meadow SSSI should have been screened in. we suggest the following wetland sites should be screened in for further consideration of impacts on groundwater supply and surface water quality: Dereham Rush Meadow SSSI (0.4km away); Holly Farm	The procedure for managing badger setts (any type) is provided in section 22.7.

Consultee	Document / Date received	Comment	Response / where addressed in the ES
		Meadow, Wendling SSSI (0.9km away); Whitwell Common SSSI (1.2 km away); Booton Common SSSI (0.6km away).	
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Dillington Carr, Gressenhall SSSI (0.4 km away) and River Wensum SSSI (0m) have been screened in and may be affected by the works at the respective trenchless crossing zones during construction. Please see our comments on Information to Support HRA report on the requirement for further measures in the CoCP to safeguard designated sites in relation to sediment control, pollutant release and reinstatement of all work areas. We agree that there is unlikely to be an additional effect on the nationally designated features of River Wensum SSSI in addition to effects on SAC features.	
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	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.	Assessment of the potential impacts on the Old Hills barbastelle colony is provided in is provided in section 22.7.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	We are satisfied that the great crested newt (GCN) plans reflect our advice given earlier in the year. The report identifies where licences may be required for bats and water voles.	
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	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.	Ground nesting birds are considered in Chapter 23 Onshore Ornithology.

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Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	As bats from the Old Hills barbastelle maternity colony have overlapping core foraging areas with barbastelle bats using Paston Great Barn SAC (Table 22.14), we advise that our comments in Information to Support HRA regarding mitigation for impacts to the SAC will also mitigate for impacts to Old Hills colony.	No action required.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Arable: Please see our comments relating to arable ground-nesting birds, such as skylark, found unexpectedly during construction in Chapter 23 Onshore Ornithology. We have also commented on the requirement for a soil handling plan and negotiation with agri-environment scheme holders in Chapter 21 Land Use and Agriculture.	No action required.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Woodland and trees: We agree with a 15m buffer between the project area and ancient woodland and trees.	River Wensum floodplain habitats are considered in section 22.7.
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Hedgerows: We agree with the proposals to replant hedgerows with locally relevant species and with 2m margins to encourage biodiversity. Note that protection against browsing animals will need to be in place until the shrubs are established. We note that a moderate adverse residual effect on hedgerows and bats has been identified for the project as a whole (Table 22.32).	
Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Grassland: see our comments on the re-instatement of marshy grassland adjacent to River Wensum in Information to Inform HRA.	The outline CoCP for Norfolk Boreas includes all the measures set out in the Information to Support HRA Report. These measures are also summarised in section 22.7. The draft DCO commits the Applicant to producing a final CoCP post-consent which must be signed off by the relevant LPAs prior to construction.

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Natural England	Relevant Representation in respect of Norfolk Vanguard August 2018	Watercourses: see our comments on the requirement for further detail on measures to control sediment and pollutant release into watercourses in Information to Inform HRA.	Dereham Rush Meadow SSSI, Holly Farm Meadow, Wendling SSSI, Whitwell Common SSSI and Booton Common SSSI, including groundwater interactions with the onshore project area, have been considered in sections 22.7 and 22.8 of this chapter.
Natural England	DAS Response – Water Dependant Sites Clarification Note 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 water dependant designated sites have been resolved.	
Natural England	DAS Response – Sediment Management at the River Wensum Crossing Clarification Note March 2019	Following receipt of further information on 27 February 2019 Natural England is broadly satisfied that the specific issues we have raised in previous correspondence relating to the assessment of sediment management at the River Wensum crossing have been resolved. However, further clarification is still required with regards to: <ol style="list-style-type: none"> <li>1. Restoration plan outside of functional floodplain;</li> <li>2. Reinstatement of work areas; and</li> <li>2. Number of HDD's.</li> </ol>	The outline CoCP for Norfolk Boreas includes all the measures set out in the Information to Support HRA Report. These measures are also summarised in section 22.7. The draft DCO commits the Applicant to producing a final CoCP post-consent which must be signed off by the relevant LPAs prior to construction.
Natural England	DAS Response – Bat Impact Assessment Clarification Note 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 bats at Paston Great Barn SAC have been resolved.	The potential impacts on Felbrigg Wood SSSI from road traffic emissions are considered in sections 22.7 and 22.8 of this chapter. Information is presented on the likely level of effect arising from emissions associated with road traffic, which has been determined based on prediction of vehicles types, timings and numbers. The section concludes that at the increase in emissions associated with road traffic

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			would at most give rise to an effect of negligible magnitude.

### 3 References

Norfolk Vanguard Limited (2018). Norfolk Vanguard Offshore Wind Farm Environmental Statement. Available online at:  
<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/norfolk-vanguard/>.  
Accessed 16/01/2019.

Royal HaskoningDHV (2016). *Norfolk Vanguard Offshore Wind Farm: Environmental Impact Assessment Scoping Report*. October 2016.

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