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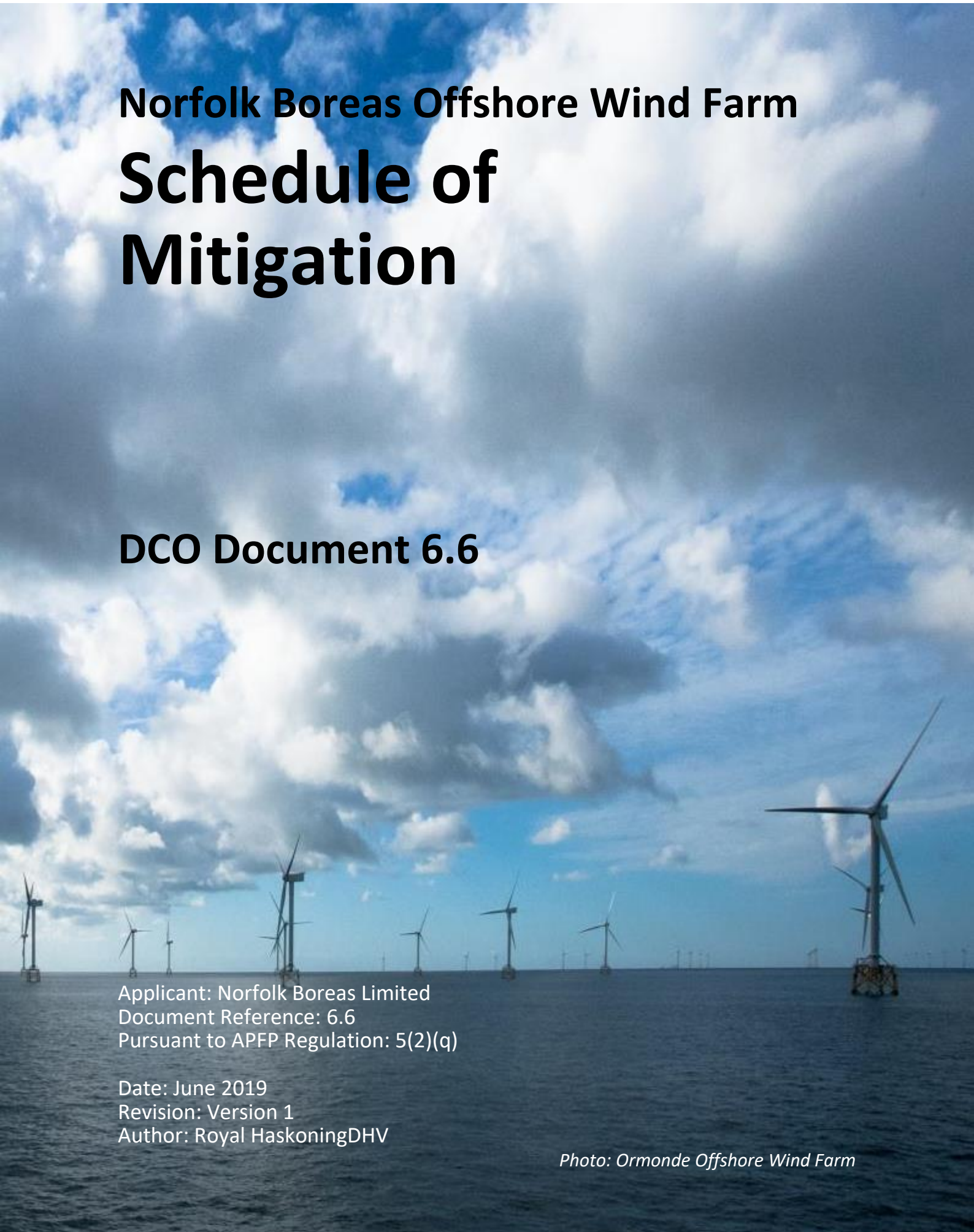
Norfolk Boreas Offshore Wind Farm

Schedule of Mitigation

DCO Document 6.6



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Glossary of Acronyms

ALO	Agricultural Liaison Officer
BAT	Best Available Technique
BPM	Best Practical Means
CAA	Civil Aviation Authority
CMS	Construction Method Statement
CoCP	Construction Code of Practice
COLREGS	International Regulations for Preventing Collisions at Sea
DCO	Development Consent Order
DGC	Defence Geographic Centre
ECoW	Ecological Clerk of Works
EMF	Electromagnetic Fields
ERCoP	Emergency Response Cooperation Plan
GAAC	General Aviation Awareness Council
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HMR	Helicopter Main Route
HRA	Habitat Regulation Assessment
HVDC	High Voltage Direct Current
IALA	International Association of Lighthouse Authorities
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Marine & Coastguard Agency
MCZ	Marine Conservation Zone
MHWS	Mean high water springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MMP	Materials Management Plan
MOD	Ministry of Defence
NATS	National Air Traffic Service
NOTAM	Notice to Airmen
NPPF	National Planning Policy Framework
NPS	National Planning Statement
NtM	Notice to Mariners
OLEMS	Outline landscape and ecological management strategy
ORPAD	Offshore Renewables Protocol for Archaeological Discoveries
PEMP	Project Environmental Management Plan
PMOW	Precautionary Method of Working
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidance
PRoW	Public Rights of Way
ROV	Remotely Operated Vehicle
RPE	Respiratory Protective Equipment
SAC	Special Area of Conservation
SAR	Search and Rescue
SCI	Sites of Community Importance
SIP	Site Integrity Plan

SMP	Soil Management Plan
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Urban Drainage
SWMP	Site and Excavated Waste Management Plan
TMP	Traffic Management Plan
TP	Travel Plan
UKHO	UK Hydrographic Office
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigation

Glossary of Terminology

Array cables	Cables which link wind turbine to wind turbine, and wind turbine to offshore electrical platforms.
Export capacity	Maximum power transfer from the wind farm into the National Electricity Transmission System (NETS) (i.e. at the offshore transmission entry point)
Indicative mitigation planting	Areas identified for mitigation planting at the onshore project substation and Necton National Grid substation.
Interconnector cables	Offshore cables which link offshore electrical platforms within the Norfolk Boreas site.
Jointing pit	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	Where the offshore cables come ashore at Happisburgh South
Landfall compound	Compound at landfall within which HDD drilling would take place
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing low voltage electrical earthing links
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
Mobilisation zone	Area within which a mobilisation area will be located.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
National Grid overhead line modifications	Area within which the work will be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction of the National Grid substation extension.

Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard
Offshore cable corridor	The corridor of seabed from the Norfolk Boreas site to the landfall site within which the offshore export cables will be located.
Offshore electrical platform	A fixed structure located within the Norfolk Boreas site, containing electrical equipment to aggregate the power from the wind turbines and convert it into a suitable form for export to shore.
Offshore export cables	The cables which transmit power from the offshore electrical platform to the landfall.
Offshore project area	The area including the Norfolk Boreas site, project interconnector search area and offshore cable corridor.
Offshore service platform	A platform to house workers offshore and/or provide helicopter refuelling facilities. An accommodation vessel may be used as an alternative for housing workers.
Onshore 400kV cable route	Buried high-voltage cables linking the onshore project substation to the Necton National Grid substation.
Onshore cable route	The up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore cables	The cables which take power and communications from landfall to the onshore project substation
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Onshore project substation temporary construction compound	Land adjacent to the onshore project substation which would be temporarily required during construction of the onshore project substation.
Overhead line	An existing 400kV power line suspended by towers.
Running track	The track along the onshore cable route which the construction traffic would use to access work areas.
Safety zones	An area around a vessel which should be avoided during offshore construction.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
The Applicant	Norfolk Boreas Limited
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.
Transition pit	Underground structures that house the joints between the offshore export cables and the onshore cables
Trenchless crossing zone (e.g. HDD)	Areas within the onshore cable route which will house trenchless crossing entry and exit points.
Workfront	A length of onshore cable route within which duct installation works will occur, approximately 150m.

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1 INTRODUCTION

1.1 Background

1. Norfolk Boreas Limited ('the Applicant' an affiliate company of Vattenfall Wind Power Ltd (VWPL)) is seeking a Development Consent Order for Norfolk Boreas, an offshore wind farm in the southern North Sea (herein 'Norfolk Boreas' or 'the project').

2. The offshore wind farm comprises of a 725km^2 area located approximately 73km from the Norfolk coastline within which wind turbines would be located. Norfolk Boreas would have a maximum export capacity of 1,800 megawatts (MW). The offshore wind farm would be connected to the shore by offshore export cables installed within the offshore cable corridor from the wind farm to a landfall point at Happisburgh South, Norfolk. From there, onshore cables would transport power over approximately 60km to the onshore project substation at Necton, Norfolk. A full project description is given in the Environmental Statement, Chapter 5 Project Description.

3. Vattenfall Wind Power Limited (VWPL) (the parent company of Norfolk Boreas Limited) is also developing Norfolk Vanguard, a 'sister project' to Norfolk Boreas. In order to minimise impacts associated with onshore construction works for the two projects, Norfolk Vanguard are seeking to obtain consent to undertake enabling works for both projects at the same time. However, Norfolk Boreas needs to consider the possibility that Norfolk Vanguard may not proceed to construction.

4. The Schedule of Mitigation therefore outlines the mitigation as proposed in the Norfolk Boreas Environmental Statement (ES) which considers the following two alternative scenarios:

    - **Scenario 1** – Norfolk Vanguard proceeds to construction and installs ducts and other shared enabling works for Norfolk Boreas.
    - **Scenario 2** – Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project.

5. Further details are presented in Chapter 5 Project Description of the Environmental Statement (ES) (document reference 6.1.5).

6. Once built, Norfolk Boreas would have an export capacity of up to 1,800MW, with the offshore components comprising:

    - Wind turbines;
    - Offshore electrical platforms;

- Offshore Service platform;
- Met masts;
- Measuring equipment (LiDAR and wave buoys);
- Array cables;
- Interconnector cables or project interconnector cables; and
- Export cables.

7. The key onshore components of the project are as following:

- 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 Necton National Grid substation and overhead line modifications.

1.2 Purpose of this document

8. This document lists all the mitigation proposed in the Environmental Impact Assessment (EIA) for Norfolk Boreas. The following schedule lists all measures proposed on a topic by topic basis and signposts where the commitment made in the Environmental Statement are secured in the draft Development Consent Order (DCO) and associated documents.

9. Where proposed mitigation measures differ under Scenario 1 and Scenario 2, this is explicitly stated, and mitigation measures are provided for both scenarios. Otherwise the mitigation detailed is applicable to both scenarios.

10. All mitigation proposed within the Offshore Schedules 9 to 12 of the DCO is relevant to both scenarios however any mitigation proposed in Schedule 13 of the DCO is only relevant to Scenario 1.

2 SCHEDULE OF MITIGATION

2.1 Offshore Schedule

11. All mitigation proposed within the Offshore Schedule (Table 1) is relevant to both development scenarios[1].

Table 1 Offshore mitigation measures

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Chapter 8 Marine Geology, Oceanography and Physical Processes					
Construction					
1	Section 8.7.4.1	Marine physical processes	Minimum separation of 720m between adjacent wind turbines	Minimise impact on marine physical process interactions	DCO Schedule 1, Part 3, Requirement 2(d) and Condition 1 (1) (d) of the DMLs (DCO Schedules 9 and 10)
2	Section 8.7.4.1	Seabed disturbance	Pile-driving techniques are to be used in preference of drilling where practicable to do so	Minimise quantity of sub-surface sediment released into water column	DCO Schedules 9 and 10 Condition 14(1)(c)(i) and Schedule 11 and 12 Condition 9(1)(c)(i) - Construction Method Statement, including foundation installation methodology
3	Section 8.7.4.1	Seabed disturbance	Micro-siting to be used where necessary	Minimise the requirements for seabed preparation	DCO Schedule 9 and 10 Condition 14(1)(a)(xi), Schedule 11 and 12 Condition 9(1)(a)(vii) and Schedule 13 Condition 7(1)(a)(iii)
4	Section 8.7.4.1	Sediment transport	Cables to be buried where possible	Reduce risk of cable exposure due to seabed level changes and need for cable protection, as such	DCO Schedule 9 and 10 Condition 14(1)(g), Schedule 11 and 12 Condition 9(1)(g) and Schedule 13 Condition 7(1)(f) - Cable

[1] Any mitigation proposed in Schedule 13 is only relevant to Scenario 1.

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
				minimising impacts on sediment transport	Specification, Installation and Monitoring Plan
5	Section 8.7.4.1	Coastal erosion	Long Horizontal Directional Drilling (HDD) to be used at landfall, with cables to be buried at sufficient depth below the coastal shore platform and cliff base	Avoid interference with natural coastal erosion	DCO Schedule 9 and 10 Condition 14(1)(g), Schedule 11 and 12 Condition 9(1)(g) and Schedule 13 Condition 7(1)(f) - - Cable Specification, Installation and Monitoring Plan
6	Section 8.7.4	Ecological receptors	Offshore cable corridor to be routed to the south of the Cromer Shoal Chalk Beds Marine Conservation Zone (MCZ)	Avoid potential impacts on the MCZ	Limits of the Agreement for Lease boundary
7	Section 8.7.4.1, Section 8.7.6.7	Coastal processes	Seabed material temporarily removed from the Haisborough, Hammond and Winterton Special Area of Conservation (SAC) will be deposited back into the SAC using an approach, to be agreed with Natural England and the Marine Management Organisation (MMO), which would ensure that the sediment is available to replenish the sandbank features	Reduce impacts to sediment cell processes	DCO Schedule 9 and 10 Condition 14(1)(c)(iii), Schedule 11 and 12 Condition 9(1)(c)(iv) and Schedule 13 Condition 7 (1)(c) (i)- Construction Method Statement for Cable Installation. Disposal site licencing based on the Site Characterisation Report (document 8.15)
Operation and Maintenance					
8	Section 8.7.7.6	Interruption of sediment transport due to cable protection	Cable protection will only be used at the HDD exit point. This means that cable protection in the nearshore zone would be limited to very short lengths at each of the HDD exit points.	Reduce impact to sediment processes	DCO Schedule 9 and 10 Condition 14(1)(g), Schedule 11 and 12 Condition 9(1)(g) and Schedule 13 Condition 7(1)(f) - Cable Specification, Installation and

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Monitoring Plan
Decommissioning					
9	Section 8.7.8	As construction impacts or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme
Chapter 9 Marine Water and Sediment Quality					
Construction					
10	Section 9.7.1	Deterioration in water quality	A Project Environmental Management Plan (PEMP) will be produced for the construction of the project, an outline version of which is submitted as part of the DCO application (document 8.14).	Minimising impacts of spills and discharges	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
11	Section 9.7.1	Seabed disturbance	Pile-driving techniques are to be used in preference of drilling	Minimise quantity of sub-surface sediment released	DCO Schedule 9 Condition 14(3), Schedule 10 Condition 14(4),

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			where practicable to do so and a limit on hammer energy is also stipulated as not to exceed 5,000kJ	into water column	Schedule 11 Condition 9(4) and Schedule 12 Condition 9(3).
12	Section 9.7.1	Seabed disturbance	Micro-siting to be used where necessary	Minimise the requirements for seabed preparation	DCO Schedule 9 and 10 Condition 14(1)(a)(xi), Schedule 11 and 12 Condition 9(1)(a)(vii) and Schedule 13 Condition 7(1)(a)(iii)
Operations and Maintenance					
13	Section 9.7.1	Effects of Scour and associated release of suspended sediment and bed level changes	For all types of foundations, scour protection material will be installed where required during the construction process in order to mitigate the effects of scour and the associated release of suspended sediment and bed level changes in the vicinity of each wind turbine location during the operational phase	Avoid impacts resulting from the release of suspended sediment from scour	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
Decommissioning					
14	Section 9.7.5	As construction impacts or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.		
Chapter 10 Benthic and Intertidal Ecology					
Construction					
15	Section 10.7.1	Ecological conservation designations	Extensive site selection and route refinement process of the offshore wind farm sites and cable corridor (Chapter 4 Site Selection and Assessment of Alternatives section 4.7)	Avoidance of marine designations of ecological conservation where practicable	Limits of the Agreement for Lease boundary
16	Section 10.7.1	Intertidal ecology and amenity disturbance	Long Horizontal Directional Drilling (HDD) will be used at the landfall between an onshore location to the subtidal zone (at least -5.5m LAT)	Reduction of impact to intertidal ecology and coastal amenity	DCO Schedule 1, Part 3, Requirement 17 – Landfall Method Statement, Schedule 9 and 10 Condition 14(1)(g), Schedule 11 and 12 Condition 9(1)(g) and Schedule 13 Condition 7(1)(f) - Cable Specification, Installation and Monitoring Plan
17	Section 10.7.1	Seabed disturbance	Reduction in the maximum number of turbines from 257 to 180	Minimise potential impacts to protected species and habitats	DCO Schedule 1, Part 3, Requirement 2(1)(a) and DCO Schedules 9 and 10 Condition 8(1)(b)

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
18	Section 10.7.1	Seabed disturbance	Use of High-voltage Direct Current (HVDC) solution in order to reduce the number of export cables and volume of cable protection. Results in: • Two cable trenches instead of six; • The volume and area of sediment arising from pre-sweeping and cable installation works is reduced; • The volume of cable protection is reduced.	Reduction in volume of sediment and area of disturbance	DCO Schedule 1, Part 3, Requirement 5
19	Section 10.7.1	Protected habitats/species	Pre-construction surveys undertaken within 12 months of installation for Habitats of Principle Importance (HPI) and Annex I reef habitats. Micrositing undertaken where possible if such habitats are identified within the location of construction works	Minimise potential impacts to protected species and habitats	DCO Schedule 9 and 10 Condition 14(1)(b)(iii) and Condition 14(1)(a)(xi), Schedule 11 and 12 Condition 9(1)(b)(iii) and Condition 9(1)(a)(xi) and Schedule 13 Condition 7(b)(iii)
20	Section 10.7.1	Temporary disturbance	Micrositing to be used where necessary and practicable	Avoid Annex 1 Reef where practicable	DCO Schedule 9 and 10 Condition 14(1)(a)(xi) and Schedule 11 and 12 Condition 9(1)(a)(xi)
21	Section 10.7.1	Minimising cable protection	Cables will be buried where possible	Minimise potential impacts to protected species and habitats	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g) - Cable Specification, Installation and Monitoring Plan DCO Schedules 11 and 12

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Condition 9(1) (m) - Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan
22	Section 10.7.1	Seabed disturbance	Seabed material temporarily removed from the Haisborough, Hammond and Winterton SAC will be deposited back into the SAC using an approach, to be agreed with the MMO, which would ensure that the sediment is available to replenish the sandbank features	Reduce impacts of disturbance	DCO Schedule 9 and 10 Condition 14(1)(c)(iii) and Schedule 11 and 12 Condition 9(1)(c)(iii) and Schedule 13 Condition 7(1)(c)(i)- Construction Method Statement for Cable Installation Disposal site licencing based on the Site Characterisation Report (document 8.15)
23	Section 10.7.1	Seabed disturbance	Sediment would not be disposed of within 50m of known core *Sabellaria* reef	Minimise potential impacts to protected species and habitats	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g) - Cable Specification, Installation and Monitoring Plan DCO Schedules 11 and 12 Condition 9(1) (m) - Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan
24	Section 10.7.1	Non-native invasive species	Use of best practice measures including appropriate vessel maintenance following International Convention for the Prevention of Pollution from	Reduce the risk (and impact) of spreading non-native invasive species	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Ships (MARPOL) guidance.		
25	Section 10.7.1, Section 10.7.4.9	Ecological and Marine receptors	All relevant construction activities will be covered by a Project Environmental Management Plan (PEMP) as well as emergency plans in the case of an accidental spillage or leak to ensure no release of contaminants as a result of the project.	Minimise risk of spillages / leakages.	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
Operations and Maintenance					
26	Section 10.7.1, Section 10.7.5.3	Permanent and Temporary disturbance/loss of habitat	As mitigation described for construction	The avoidance of disturbance to habitats during the construction phase also serves to minimise impacts over the project life	DCO Schedule 9 and 10 Condition 14(1)(d,i), Schedule 11 and 12 Condition 9(1)(d,i) and Schedule 13 Condition 7(1)(d) - PEMP
27	Section 10.7.1	Electromagnetic field (EMF)	Burial of cables where possible	Reduced impact on marine fauna and flora from EMF	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g) - Cable Specification, Installation and Monitoring Plan
Decommissioning					
28	Section 10.7.6	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.		
Chapter 11 Fish and Shellfish Ecology					
Construction					
29	Section 11.7.1	Impacts on Fish Ecology	Site selection of the offshore windfarm site and offshore cable corridor has been carefully undertaken to avoid designated sites where practicable	Avoidance of marine designations of ecological conservation where practicable	Limits of the Agreement for Lease boundary
30	Section 11.7.1	Impacts on Fish Ecology	Reduction in maximum number of turbines from 257 to 180	Minimise impact to seabed and fish and shellfish receptors	DCO Schedule 1, Part 3, Requirement 2(1)(a) and DCO Schedules 9 and 10 Condition 8(1)(b)
31	Section 11.7.1	Impacts on Fish Ecology	Use of High-voltage Direct Current (HVDC) solution in order to reduce the number of export cables and volume of cable protection. Results in: • Two cable trenches instead of six;	Reduction in volume of sediment and area of disturbance Minimises impacts to fish and shellfish receptors	DCO Schedule 1, Part 3, Requirement 5

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• The volume and area of sediment arising from pre-sweeping and cable installation works is reduced; • The volume of cable protection is reduced.		
32	Section 11.7.1	Construction period	Overnight 24 hour construction working practices will be employed where possible	Reduces overall length of time of potential impacts to fish and shellfish receptors	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
33	Section 11.7	Construction noise	Soft-start pile driving techniques will be implemented. Each piling event would commence with soft start and ramp up over 30 minutes.	Minimises impact to mobile fish and shellfish receptors able to vacate the vicinity	DCO Schedule 9 and 10 Condition 14(1)(c)(ii) and Schedule 11 and 12 Condition 9(1)(c)(ii) - Construction Method Statement on soft start procedures
Operations and Maintenance					
34	Section 11.7.1, Section 11.7.5	EMF Impacts on Fish Ecology	Offshore export cables will be buried to a depth of 1m below the seabed where possible	Reduces requirement for cable protection and impacts to fish and shellfish receptors from EMF	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g) - Cable Specification, Installation and Monitoring Plan
Decommissioning					
35	Section 11.7.6	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.		
Chapter 12 Marine Mammals					
Construction					
36	Section 12.7.1.1	Underwater noise impacts to marine mammals	Reduction in maximum number of turbines from 257 to 180	Reduce impact of noise on marine mammals	DCO Schedule 1, Part 3, Requirement 2(1)(a) and DCO Schedules 9 and 10 Condition 8(1)(b)
37	Section 12.7.1.1	Underwater noise impacts to marine mammals	Soft-start pile driving techniques will be implemented. Each piling event would commence with soft start and ramp up over 30 minutes.	Reduce impact of noise on marine mammals	DCO Schedule 9 and 10 Condition 14(1)(c)(ii) and Schedule 11 and 12 Condition 9(1)(c)(ii) - Construction Method Statement on soft start procedures. DCO Schedule 9 and 10 Condition 14(1)(f) Schedule 11 and 12 Condition 9(1)(f) - Marine Mammal Mitigation Protocol
38	Section 12.7.1.2.1, Section 12.7.1.2.2	Underwater noise impacts to marine mammals	Development of a Marine Mammal Mitigation Protocol (MMMP) will be developed in the	Minimise the potential risk of physical and auditory injury	DCO Schedule 9 and 10 Condition 14(1)(f) Schedule 11 and 12 Condition 9(1)(f) - Marine

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			pre-construction period and based upon best available information and methodologies. Specific MMMPs will be dives for both Piling activities and UXO clearance.		Mammal Mitigation Protocol
39	Section 12.7.1.2.1	Underwater noise impacts to marine mammals	A mitigation zone would be identified based on instantaneous Permanent Threshold Shift (PTS) impact ranges. Measures will aim to remove marine mammals from the mitigation zone prior to the start of piling.	Reduce impacts of noise on marine mammals, and risk of any physical or auditory injury	DCO Schedule 9 and 10 Condition 14(1)(m) and Schedule 11 and 12 Condition 9(1)(l) - Site Integrity Plan
40	Section 12.7.1.2.3	Underwater noise impacts to marine mammals	A Norfolk Boreas Southern North Sea Candidate Special Conservation Area cSAC/SCI Site Integrity Plan (SIP) will be developed. The SIP will set out the approach to deliver any project mitigation or management measures in relation to the SNS cSAC/SCI.	Reduce impacts of noise on marine mammals, and risk of any physical or auditory injury	DCO Schedule 11 and 12 Condition 9(1)(m) - Norfolk Boreas Haisborough, Hammond and Winterton Special Area of Conservation Site Integrity Plan
41	Section 12.7.1.1	Impacts on marine environment through impacts to water quality	A PEMP will be produced for the construction of the project which will include management of potential pollution.	Minimise the risk and impact of accidental spillages and discharges of chemicals	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
Operations and Maintenance					
42	n/a	n/a	n/a	n/a	n/a

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Decommissioning					
43	Section 12.7.5.	As construction impacts or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme
Chapter 13 Offshore Ornithology					
Construction					
44	Section 13.7.1	Physical disturbance	Extensive site selection and route refinement process identified through the Zonal Appraisal and Planning process	Avoidance of European protected sites and sensitive ecological receptors	Limits of the Agreement for Lease boundary
Operations and Maintenance					
45	Section 13.7.1	Collision risk	Reduction in maximum number of turbines from 257 to 180	Reduction of risk of collision.	DCO Schedule 1, Part 3, Requirement 2(1)(a) and DCO

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Schedules 9 and 10 Condition 8(1)(b)
46	Section 13.7.1	Physical disturbance	Extensive site selection and route refinement process identified through the Zonal Appraisal and Planning process	Avoidance of European protected sites and sensitive ecological receptors	Limits of the Agreement for Lease boundary
Decommissioning					
47	Section 13.7.6	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme
Chapter 14 Commercial Fisheries					
Construction and Operations and Maintenance					
48	Section 14.7.1	Fishing community	Reduction in maximum number	Minimise impact on fishing	DCO Schedule 1, Part 3, Requirement 2(1)(a) and DCO

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			of turbines from 257 to 180	community	Schedules 9 and 10 Condition 8(1)(b)
49	Section 14.7.1	Navigation and transit	Minimum separation distance of 720m between wind turbines, to be arranged in a regular pattern	Reduces impact on navigation through the offshore windfarm site	Embedded Mitigation DCO Schedule 1, Part 3, Requirement 2(d) and Condition 1(1) (d) of the DMLs (DCO Schedules 9 and 10)
50	Section 14.7.1	Fishing community	Use of High-voltage Direct Current (HVDC) solution in order to reduce the number of export cables and volume of cable protection. Results in: • Two cable trenches instead of six; • The volume and area of sediment arising from pre-sweeping and cable installation works is reduced; • The volume of cable protection is reduced.	Reduce extent of impacts on fishing community	DCO Schedule 1, Part 3, Requirement 5
51	Section 14.7.1	Fishing community	Timely and efficient Notice to Mariners, Kingfisher notifications and other navigational warnings issued to fishing community	Minimise impact on fishing community	DCO Schedule 9, 10, Condition 9, Schedule 11, 12 – Condition 4. Schedule 13, Condition 3.
52	Section 14.7.1	Fishing community	Appropriate liaison will be undertaken with all relevant fishing interests to ensure that they are fully informed of development planning, construction and maintenance	Reduce conflicts and minimise impact on fishing community	DCO Schedule 9 and 10 Condition 14(d)(v), Schedule 11 and 12 Condition 9(d)(v) and Schedule 13 7(d)(v), and Condition 7(1)(d)(v) of Schedule 13 - Fisheries Liaison and Coexistence

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Plan
53	Section 14.7.1	Fishing community	A Fisheries Liaison Officer (FLO) will be appointed during construction and operational phases of the project and FLOWW Guidance (2014; 2015) adhered to. Development of a Fisheries Liaison and Co-existence Plan post consent;	Minimise impacts on the fishing community	DCO Schedule 9 and 10 Condition 14(d)(v), Schedule 11 and 12 Condition 9(d)(v) and Schedule 13 7(d)(v) and Condition 7(1)(d)(v) of Schedule 13 - Fisheries Liaison and Coexistence Plan
54	Section 14.7.1	Impact on fishing community	Regular updates to the UK Hydrographic Office (UKHO) on both progress and completion of Norfolk Boreas	Avoid miscommunication between regulators and fishing community	DCO Schedule 9 and 10 Condition 9(10) and Schedule 11 and 12 Condition 4(10); Schedule 13, Condition 3(10).
55	Section 14.7.1	Fishing equipment	Array, interconnector and export cables to be buried where possible.	Minimises damage to and from fishing gear	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g); and Schedule 13, Condition 7(1)(f) - Cable Specification, Installation and Monitoring Plan
56	Section 14.7.1	Fishing equipment	Information on the location of areas of cable protection are to be communicated to the fishing industry	Reduced impact to fishing equipment	DCO Schedule 9 and 10 Condition 14(d)(v), Schedule 11 and 12 Condition 9(d)(v) and Schedule 13 7(d)(v) - Fisheries Liaison and Coexistence Plan
57	Section 14.7.1	Fishing community	All contractors undertaking site works would be contractually obliged, and monitored by client representatives, to ensure compliance with offshore	Minimises impact on fishing community	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP as well as

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			policies. These policies would prohibit the discarding of objects or materials overboard and require rapid recovery of any accidentally dropped objects.		Schedule 9 and 10 Condition 12(10), Schedule 11 and 12 Condition 7(11) and Schedule 13 Condition 5(11)
58	Section 14.7.1	Fishing equipment	Post-construction surveys will be undertaken to identify any construction related seabed obstacles. Any detected will be removed. Use of evidence based mitigation, as specified in the FLOWW Guidelines to be applied.	Minimise impact on fishing gear	DCO Schedule 9 and 10 Condition 14(1)(b)(iii) and Schedule 11 and 12 Condition 9(1)(b)(iii) and Schedule 13 Condition 7(1)(b)(iii) – Post construction surveys
59	Section 14.7.1	Ecological receptors	A Scour Protection and Cable Protection Plan would be provided	Minimise impact on fishing community and ecological receptors	DCO Schedule 9 and 10 Condition 14(1)(e) and Schedule 11 and 12 Condition 9(1)(e) and Schedule 13 Condition 7(1)(e)- Scour protection and cable protection plan
60	Section 14.7.1	Ecological receptors	Post-lay and burial inspection surveys will be undertaken. In addition to burial status, these will identify the presence of construction related seabed obstacles and, where appropriate and practicable rectification works would be undertaken.	Minimise impact on fishing community and ecological receptors	DCO Schedule 9 and 10 Condition 14(1)(b)(iii) and Schedule 11 and 12 Condition 9(1)(b)(iii) and Schedule 13 Condition 7(1)(b)(iii) – Post construction surveys
Decommissioning					
61	Section 14.7.6	As construction or less	Decommissioning approach to be finalised nearer to the end of the	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 -

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.		Decommissioning Programme
Chapter 15 Shipping and Navigation					
Construction, Operation and Maintenance					
62	Section 15.7.1	Impacts to safety of shipping industry	An Emergency Response and Cooperation Plan (ERCOP) will be produced post consent in accordance with Maritime Coastguard Agency (MCA) guidance.	Reduce the effect of diminishing emergency response resources.	DCO Schedule 9 and 10 Condition 15, Schedule 12 and 14 Condition 10 and Schedule 13 Condition 8 - ERCoP
63	Section 15.7.1	Impacts to safety of shipping industry	Application for “rolling” 500m safety zones surrounding all fixed structures where work is being undertaken by a construction vessel or maintenance vessel as well as an application for 50m	Reduce impacts to shipping industry	DCO Schedule 9 and 10 Condition 14(1)(c) , Schedule 11 and 12 Condition 9(1)(c) and Schedule 13 Condition 7(1)(c) - Construction Method Statement

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			safety zones around all surface structures up until the point of commissioning.		for Vessels Transit Corridors
64	Section 15.7.1	Impacts to safety of shipping industry	During pre-commissioning, a safety zone of up to 50m around wind turbines where construction has finished but some work is on-going (e.g. wind turbine incomplete or in the process of being commissioned)	Minimise safety impacts to shipping industry	DCO Schedule 9 and 10 Condition 14(1)(c) , Schedule 11 and 12 Condition 9(1)(c) and Schedule 13 Condition 7(1)(c) - Construction Method Statement for Vessels Transit Corridors
65	Section 15.7.1	Impact on shipping routes and navigation	Cable Burial Risk Assessment undertaken pre-construction, including consideration of under keel clearance. All subsea cables will be suitably protected based on the risk assessment, and the protection will be monitored and maintained as practicable	Reduce impact on shipping routes and navigation	DCO Schedule 9 and 10 Condition 14(1)(g) and Schedule 11 and 12 Condition 9(1)(g) - Cable Specification, Installation and Monitoring Plan
66	Section 15.7.1	Impact on shipping from collisions	Compliance from all vessels associated with the proposed project with international maritime regulations as adopted by the relevant flag state (e.g. International Convention for the Prevention of Collision at Sea (COLREGS) (IMO, 1972) and International Convention for the Safety of Life at Sea (SOLAS (IMO, 1974)	Reduce impact to marine mammals and shipping	DCO Schedule 9 and 10 Condition 14(1)(c) , Schedule 11 and 12 Condition 9(1)(c) and Schedule 13 Condition 7(1)(c) - Construction Method Statement for Vessels Transit Corridors

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
67	Section 15.7.1	Impact to shipping routes and navigation	Final site design to ensure no outlying or extreme peripheral turbines and regular edges either side of the Deep Water Routes. Discussions with neighbouring projects to understand relationship with Norfolk Boreas also required. Final foundations designs to be risk assessed post consent to ensure they do not impact on vessels transiting internally within the array.	Minimise impacts to shipping routes and navigation	DCO Schedule 9 and 10 Condition 14(1)(a) Schedule 11 and 12 Condition 9(1)(a) -Design Plan as well as DCO Schedule 9 and 10 Condition 10 , Schedule 11 and 12 Condition 5 and Schedule 13 Condition 4 – Aids to Navigation
68	Section 15.7.1	Impact on under keel clearance and shipping industry	Minimum keel clearance of 4m to be established and maintained where possible around turbines to ensure they do not impact on vessels transiting within the array.	Reduce impacts on shipping	This is outlined in MGN53 and is secured through Schedule 9 and 10 Condition 14(1)(a)(ix) - Design Pla.
69	Section 15.7.1	Impact on shipping	Floating foundation mooring lines will be independently verified by a third party and meet technical specifications in line with Regularity Expectation on Mooring for Floating Wind and Marine Devices (Health & Safety Executive (HSE) / MCA, 2017).	Minimise impacts to shipping	DCO Schedule 9 and 10 Condition 14(1)(c) , Schedule 11 and 12 Condition 9(1)(c) -Construction Method Statement for foundation installation
70	Section 15.7.1	Impact on fishing and shipping community	Information relevant to the proposed project will be promulgated via Notice to Mariners and other appropriate	Reduce impacts to shipping community	DCO Schedule 9, 10, Condition 9, Schedule 11, 12 – Condition 4. Schedule 13, Condition 3.

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			media including provision of information for use in fish plotters (where available)		
71	Section 15.7.1	Impact to shipping industry	Marine traffic coordination to manage Norfolk Boreas construction and operation vessels;	Mitigate impacts to shipping industry	DCO Schedule 9 and 10 Condition 14(1)(k), Schedule 11 and 12 Condition 9(1)(k) and Schedule 13 (7)(1)(j) - Aids to Navigation Management Plan
72	Section 15.7.1	Impacts to vessel navigation	Structures and all subsea cables will be clearly marked on appropriately scaled nautical charts and electronic charts	Minimise impacts to vessel navigation	DCO Schedule 9 and 10 Condition 14(1)(k), Schedule 11 and 12 Condition 9(1)(k) and Schedule 13 (7)(1)(j) - Aids to Navigation Management Plan
73	Section 15.7.1	Impacts to shipping industry and navigation	Suitable lighting and marking of the OWF sites complying with International Association of Lighthouse Authorities (IALA) Recommendations O-139 (IALA, 2013), to be finalised in consultation with TH and the MCA. Fog horns will alert vessels to the position of structures when visibility is poor	Reduce collision impacts to the shipping industry and navigation	DCO Schedule 9 and 10 Condition 14(1)(k), Schedule 11 and 12 Condition 9(1)(k) and Schedule 13 (7)(1)(j) - Aids to Navigation Management Plan
74	Section 15.7.1	Impacts on safety of shipping industry	Use of guard vessel during the deployment of safety zones, and during any other key construction periods	Reduce safety impacts to shipping industry	DCO Schedule 9 and 10 Condition 14(1)(k), Schedule 11 and 12 Condition 9(1)(k) and Schedule 13 (7)(1)(j) - Aids to Navigation Management Plan
75	Section 15.7.1	Impacts to shipping and	Wind turbines will have at least	Minimise impacts to shipping	DCO Schedule 9 and 10 Condition

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		navigation	22m clearance above Mean Highwater Springs (MHWS) as per RYA (2015) position paper and MGN 543 (MCA, 2016)	and navigation	1(1)(e)
76	Section 15.7.1	Impacts to shipping navigation	Third party vessels will adhere to rules and regulations set out in MGN 372 (MCA, 2008), COLREGs (IMO, 1972) and SOLAS (IMO, 1974)	Reduce impacts to shipping navigation	DCO Schedule 9 and 10 Condition 14(1)(c) , Schedule 11 and 12 Condition 9(1)(c) - Construction Method Statement
77	Section 15.7.1	Impacts to shipping	Wind turbines to be constructed in accordance with MGN 543 where applicable (MCA, 2016)	Minimise impacts to shipping	DCO Schedule 9 and 10 Condition 14(1)(a)(ix), 15(8), Schedule 11 and 12 Condition 10(8) and Schedule 13 Condition 8(8)
Decommissioning					
78	Section 15.7.7	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			the Secretary of State for approval.		
Chapter 16 Aviation and Radar					
Construction, Operations and Maintenance					
79	Section 16.7.1	Physical impacts to aviation	Notify aviation stakeholders of the location and dimension of any project infrastructure and all associated construction activities. Information will be passed to the Defence Geographic Centre (DGC) and the General Aviation Awareness Council (GAAC) at least 10 weeks in advance of the first wind turbine being constructed. During the erection of each wind turbine a follow up to these organisations shall be made with information in relation to: • Location, height (of all structures over 45.7m); and • Local aerodromes identified during consultation should be notified, particularly any police helicopter or air ambulance unit.	Minimise impacts to aviation industry	DCO Schedule 1, Part 3, Requirement 12(2)
80	Section 16.7.1	Impacts to aviation industry	Information to be circulated to the Defence Infrastructure Organisation (DIO). Information on potential aviation	Communication of potential impacts to aviation industry	DCO Schedule 1, Part 3, Requirement 12(2)

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			obstructions will be promulgated within the UK IAIP (NATS, 2017) and notified to DGC for marking on aeronautical related charts and documentation		
81	Section 16.7.2	Light impacts to aviation industry	CAP 393 Article 223 (CAA, 2016b) sets out the mandatory requirements for lighting of offshore wind turbines.	Reduce impacts from illumination to aviation industry	DCO Schedule 1, Part 3, Requirement 12(1)
82	Section 16.7.2	Impacts to helicopter hoisting operations and safety	CAP 437 (CAA 2016c) sets out a procedure to indicate to a helicopter operator that the wind turbine blades and nacelle are safely secured in position prior to helicopter hoist operations commencing.	Mitigate the impacts to helicopter hoisting and safety	DCO Schedule 1, Part 3, Requirement 12(1)
83	Section 16.7.2	Impacts on aviation	An Emergency Response Co-operation Plan (ERCoP) will be in place for the construction, operation and decommissioning phases of Norfolk Boreas	Decrease impacts to aviation	DCO Schedule 9 and 10 Condition 15, Schedule 12 and 14 Condition 10 and Schedule 13 Condition 8 - ERCoP
84	Section 16.7.2	Impacts of on Search and Rescue	The Search and Rescue (SAR) helicopter bases will be supplied with an accurate chart of Norfolk Boreas wind turbine Global Positioning System (GPS) locations and will provide agreed SAR access lanes, helicopter access positions and spacing between wind turbines.	Reduce impacts of turbines to aviation, and establish effective communication streams in the event of an emergency	DCO Schedule 9 and 10 Condition 15, Schedule 12 and 14 Condition 10 and schedule 13 Condition 8 - ERCoP

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Furthermore, the arrangements of liaison between the wind farm developer and HM Coastguard in the event of an emergency response will be detailed together with an explanation of procedures and processes carried out at the Norfolk Boreas control centre to shut down the wind turbines and the procedures for the CGOC to request a wind turbine shut down.		
85	Section 16.7.6.2	Interference on civil and military radar	Mitigation agreed with the Ministry of Defence (MoD) and NATS will be applied.	Ensure no impacts to civil and military Radar	DCO Schedule 1 Part 3 Requirement 12(1), Requirement 13, and Requirement 34(1)
86	Section 16.7.5.1	Impacts to aviation safety	Appropriate liaison will be undertaken to ensure information on the construction and decommissioning of the wind farm is circulated in a Notice to Airmen (NOTAM) and other appropriate media	Reduce impacts to aviation industry	DCO Schedule 1 Part 3 Requirement 12, 13 and 14 - Offshore Decommissioning Programme
87	Section 16.7.6.1	Impacts to helicopter/aviation industry	The Civil Aviation Authority (CAA) will be consulted with regard to co-locating Helicopter Main Routes (HMRs) with any proposed lanes within the Norfolk Boreas offshore wind site. The co-location of lanes/routes will:	Decrease impacts to helicopters/aviation industry	DCO Schedule 1, Part 3, Requirement 12, and through the Design Plan and Development Principles (Condition 14(1)(a) of Schedule 9-10).

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Allow helicopters to continue to operate using the established altitude banding system whilst operating on a HMR route systems; • Minimise any effect on helicopter operations when poor weather or icy conditions are encountered as lanes/routes would be clear of fixed obstacles; • Provide a route which was clear of fixed obstacles in the case of helicopter emergency situations.		
Decommissioning					
88	Section 16.7.7	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme.	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Chapter 17 Offshore and Intertidal Archaeology and Cultural Heritage					
Construction, Operation and Maintenance					
89	Section 17.7.2	Impact to archaeological and cultural heritage assets	50m Archaeological Exclusion Zones around the extents of known wreck sites (A1s) within which no development related activities will take place	Reduce impact to archaeological and cultural heritage assets	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
90	Section 17.7.2	Impact to archaeological and cultural heritage assets	50m Archaeological Exclusion Zones around the recorded point locations of previously recorded sites that have not been seen in the geophysical data (A3s) but at which archaeological material is likely to be present, possibly buried;	Reduce impact to archaeological and cultural heritage assets	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
91	Section 17.7.2	Impact to potential archaeological and heritage assets	Avoidance where possible of identified anomalies (A2s) or previously recorded sites that have not been seen in the geophysical data (A3s) by micro-siting of design	Avoidance of identified archaeological and heritage anomalies	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
92	Section 17.7.2	Impact to archaeological and cultural heritage assets	Further investigation of any identified anomalies (A2s) or previously recorded sites that have not been seen in the geophysical data (A3) that cannot be avoided by micro-siting of design	Minimise impacts to archaeological and cultural heritage assets	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
93	Section 17.7.2	Impact to geomorphology of historic and cultural interest	Further examination of potential pre-historic deposits including geoarchaeological recording of core samples, deposit modelling and archaeological input into any future sampling programme	Lessening impacts to archaeological geomorphological features	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
94	Section 17.7.2	Impacts to archaeological and cultural heritage assets	In the event of impact to potential sites, the establishment of a formal protocol to ensure that any finds are promptly reported, archaeological advice is obtained, and any recovered material is stabilised, recorded and conserved	Minimise impacts to archaeological and cultural heritage assets	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
95	Section 17.7.2	Potential for impacts to buried assets	Watching briefs where seabed material is brought to the surface, for example during pre-lay grapnel runs, and for any intrusive works carried out in the landfall zone (during long HDD)	Reduce impacts to buried assets once discovered	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
96	Section 17.7.2	Potential for impacts to the geophysical landscape	The archaeological assessment of any further geophysical data	Reduce impacts to geophysical landscape	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
97	Section 17.7.2	Impacts on unavoidable archaeological and cultural heritage assets	Where anomalies cannot be avoided, these must be investigated for the nature and	Decrease impacts to unavoidable archaeological and cultural heritage features	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			extent to establish the archaeological interest and to record them prior to removal.		Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
98	Section 17.7.2	Impacts to archaeology	A draft WSI setting out the methodology for all proposed embedded mitigation will be prepared in consultation with Historic England for submission alongside the DCO application for the project. . The WSI will take account of the standards and guidance presented in *Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects* (The Crown Estate, 2010)	Mitigate impacts to archaeology	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
99	Section 17.7.2	Impacts to geophysical and geotechnical features	The WSI will be set out in consultation with Historic England regarding the scope of all further post-consent geophysical and geotechnical surveys to be undertaken for the project in order to ensure that the data generated are sufficiently robust to enable professional archaeological interpretation and analysis	Minimise impacts to geophysical and geotechnical features	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
100	Section 17.7.2	Impacts to objects of archaeological interest	Follow guidance set out in the *Protocol for Archaeological Discoveries: Offshore Renewables*	Lessen impacts to unexpected archaeological finds	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Projects (The Crown Estate, 2014) (ORPAD) in the event that unexpected archaeological material(s) is discovered during construction, operation and decommissioning		Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
101	Section 17.7.5	Impacts to individual discoveries of archaeological or heritage importance	Individual discoveries would be considered independently and any requirements for further data gathering or analysis would be considered on a case by case basis according to the heritage significance of the discovery	Minimise impacts to individual archaeological/heritage discoveries	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
102	Section 17.7.6.1	Impacts to UXO and other heritage assets	Pre-construction survey data collected, including high resolution geophysics undertaken for the purposes of UXO identification, will be assessed to further clarify the nature and extent of anomalies and the scheme designed modified to avoid heritage assets wherever possible	Minimise impacts heritage assets including UXO	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
103	Section 17.7.6.2	Impacts to identified pre-historic sites	Should *in situ* prehistoric sites be identified as a result of assessing pre-construction geotechnical and geophysical data, then mitigation measures to record and/or protect such sites would be agreed in consultation with	Decrease impacts to prehistoric sites	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Historic England		
104	Section 17.7.6.2	Impacts to in situ prehistoric sites	Undertake a programme of geoarchaeological assessment to ascertain the nature and archaeological potential of sub-seabed deposits within study area	Minimise impact to potential in situ prehistoric sites	DCO Schedules 9 and 10 Condition 14(1)(h) and Schedules 11 and 12 Condition 9(1)(h) and Schedule 13 Condition 7(1)(g) - Archaeological Written Scheme of Investigation (WSI) (offshore)
105	Section 17.7.6.1	Impacts to known archaeology	Within the intertidal zone, the use of HDD construction methods will be utilised	Reduce impacts to known archaeology remains	DCO Schedule 1, Part 3, Requirement 17 – Landfall Method Statement
Decommissioning					
106	Section 17.7.8	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Programme. However, prior to commencement of offshore decommissioning works, a written decommissioning programme will be submitted to the Secretary of State for approval.	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Chapter 18 Infrastructure and Other Users					
Construction					
107	Section 18.7.1	Impacts to infrastructure assets and users	Extensive site selection and route refinement to avoid of existing infrastructure such as oil and gas wells, licensed dredging and extraction areas, MOD danger areas, Practice and Exercise Areas (PEXA), pipelines, telecommunication and transmission cables where possible	Minimise impacts to neighbouring infrastructure	Limits of the Agreement for Lease boundary
108	Section 18.7.1	Impacts to infrastructure and the owners, and impacts to infrastructure users	Consultation with owners and operators of existing infrastructure or licence holders	Minimise impacts to infrastructure, the owners and users	Project design - embedded mitigation
109	Section 18.7.3.1	Impacts to infrastructure and users	Proactive cable and pipeline crossing agreements with operators will be agreed prior to construction	Reduce the risk of impact to existing infrastructure	Schedule 9 and 10 Condition 22, Schedule 11 and 12 Condition 17 and Schedule 13 Condition 13 – Reporting of cable protection
Decommissioning					
110	Section 18.7.5	As construction or less	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting	Decommissioning impacts to be managed based on latest information	DCO Schedule 1, Part 3, Requirement 14 - Decommissioning Programme

Reference	Cross Reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			approach, and would be undertaken in accordance with an approved Decommissioning Programme.		

2.2 Onshore Schedule

12. The majority of the onshore mitigation proposed in the EIA (Table 2) is relevant to both Scenario 1 and Scenario 2; however considering the works required by Norfolk Boreas under Scenario 2 (onshore) are of a greater magnitude, the mitigation that is relevant to Scenario 2 only is divided out under a separate heading under the relevant topic subsection.

Table 2 Onshore Mitigation Measures

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Chapter 19 Ground Conditions and Contamination					
Construction (Scenario 1 and Scenario 2)					
111	Section 19.7.4.1.1	Impacts to coastline, including designated geological sites	Trenchless crossing techniques (HDD) will be used for cable installations at the landfall.	To ensure there is no impact to the coastline arising from construction works at landfall	DCO Schedule 1, Part 3, Requirement 17 (Landfall Method Statement), Requirement 20(2)(g) Code of Construction Practice (CoCP) – Construction method statements
112	Section 19.7.4.2.1, Section 19.7.4.2.2	Contamination of secondary aquifers	A Code of Construction Practise (CoCP) will be produced and followed for the Environment Agency's Pollution Prevention Guidance (PPG1, PPG5, PPG21 and PPG22).	Reduce risk and impact of pollution to land.	DCO Schedule 1, Part 3, Requirement 20(2)(d) CoCP – Contaminated Land and Groundwater
113	Section 19.7.4.3.1, Section 19.7.4.3.2	Groundwater quality impacts in the principal aquifer (including SPZ areas and abstractions) from ground excavation	All ground excavation work, will be designed to minimise groundwater disturbance. If works are required in Source Protection Zone (SPZ) 1 or 2 areas, the best available techniques (BAT) will be adopted, in accordance with the Energy Network Engineering Recommendations (EREC).	Minimise disturbance to groundwater	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction Surface Water and Drainage

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
114	Section 19.7.4.4.2	Groundwater quality impacts in the principal aquifer from piling and HDD	Ground investigations and a hydrogeological risk assessment would be undertaken at landfall and at the onshore project substation site.	Minimise disturbance to groundwater	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction Surface Water and Drainage
115	Section 19.7.4.6.1	Impacts to Human Health	A CoCP would be prepared and implemented during construction to minimise the exposure of workers and the general public to potentially harmful substances. This will include details of: • Site security and preventing public access; • Personal hygiene, and washing and changing procedures; • Use of PPE and where necessary, RPE; Adoption of dust suppression methods, wheel washing facilities for vehicles leaving site, covering of stockpiled materials and materials being transported to and from site; and Measures to avoid surface water ponding.	Minimise the impact to Human Health	DCO Schedule 1, Part 3, Requirement 20(2) CoCP
116	Section 19.7.4.7.1	Sterilisation of Mineral Resources	A Materials Management Plan (MMP) will be developed post-consent and will include information regarding the coordination of planning, sourcing, purchasing, moving, storing and controlling materials in a sustainable manner, for example reusing materials on site where possible. The contractor will have to comply with the MMP during construction. This worst case estimate will be discussed with the MMP in the context of aggregate resources available in the local area and the cost effectiveness of pre-excavating and using the material for construction purposes within the project and reinstating the cable trench with imported backfill. Dependent on the	Reduce risk of sterilisation of mineral safeguarding areas	DCO Schedule 1, Part 3, Requirement 20(2)(j) CoCP - Materials Management Plan (MMP)

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			outcome of consultation post-consent, further quantification of resource quality and value may be undertaken. The agreed construction approach will be set out in a MMP to be followed during construction, which would also deal with excavated waste management.		
117	19.7.4.6	Contamination impacts to ground	A Site and Excavated Waste Management Plan (SWMP) will be prepared, which would ensure that waste arising is closely monitored and that waste prevention, re-use or recycling opportunities are maximised. The appropriate waste management route will be confirmed following a waste hierarchy assessment	Reduce risk of contamination from construction waste through the waste management process	DCO Schedule 1, Part 3, Requirement 20(2)(h) CoCP - SWMP
118	19.7.4.6.1	Ground contamination impacts	A written scheme (based on the Model procedures for the management of land contamination, CLR11) for the management of contamination of any land and groundwater will be submitted and approved by the Local Planning Authority (LPA)	Ameliorate ground contamination impacts arising from construction activities	DCO Schedule 1, Part 3, Requirement 20(2)(d) CoCP – Contaminated Land and Groundwater
119	19.7.1	Impact to sea defences which protect soil/ground from erosive processes	Trenchless crossing techniques (HDD) will be used for cable installations at the landfall	To impact on sea defences which would open up impacts on ground conditions	DCO Schedule 1, Part 3, Requirement 20(2)(g) Code of Construction Practice (CoCP) – Construction method statements
110	19.7.4.7	Contamination and waste impacts to ground	The agreed construction approach will be set out in a Materials Management Plan (MMP) to be followed during construction, which will consider excavated waste management procedures	Minimise impacts from construction and waste arisings	DCO Schedule 1, Part 3, Requirement 20(2)(j) CoCP - Materials Management Plan

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					(MMP)
Construction (Scenario 2 only)					
111	Section 19.7.4.4.1	Groundwater quality impacts in the principal aquifer (including SPZ areas and abstractions) from trenchless crossing conduit construction and piling	Ground investigations and a hydrogeological risk assessment would be undertaken at each trenchless crossing (e.g. HDD) site. Where works are proposed within any SPZ 1 or 2 areas, a more detailed hydrogeological risk assessment will be taken meeting the requirements of Groundwater Protection Principles and Practice (GP3) (Environment Agency, 2017), and in agreement with the Environment Agency and Anglian Water, would be undertaken for each trenchless crossing location.	Minimise disturbance to groundwater	DCO Schedule 1, Part 3, Requirement 20(2)(d) CoCP – Contaminated Land and Groundwater
Operations and Maintenance (both scenarios)					
n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning (both scenarios)					
112	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 20 Water Resources and Flood Risk					
Construction (Scenario 1 and Scenario 2)					
113	Section 20.7.1	Surface drainage	Changes in surface water runoff as a result of the increase in impermeable area from the substation will be attenuated and discharged at a controlled rate, in	Reduce impacts to drainage, surface water run-off and	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP –

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			consultation with the LLFA and Environment Agency. The controlled runoff rate will be equivalent to the greenfield runoff rate. An attenuation pond has been allowed for at the onshore project substation to provide sufficient attenuation to greenfield runoff rates into the closest watercourse or sewer connection. Allowance for increased attenuation of surface water drainage (an extension to the existing pond or a new pond in proximity to the existing pond) at the Necton National Grid substation has also been included to accommodate additional impermeable ground associated with the National Grid substation extension for Norfolk Boreas.	sediment loading	Construction Surface Water and Drainage Plan (SWDP)
114	Section 20.7.1	Impact to surface waters and drainage from site access	Utilising and upgrading existing accesses where possible to avoid impacting undisturbed ground.	Reduce the impacts on drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
115	Section 20.7.1	Foul drainage	During construction, foul drainage at the onshore project substation and mobilisation areas will be collected through a mains connection to existing local authority sewer system (if available) or septic tanks located within the development boundary. Foul drainage from welfare facilities along the cable route will be collected in septic tanks and taken off site for disposal at a licensed site.	Reduce impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
116	Section 20.7.4.1.3	Pollution or contamination of water courses due to running track development/	The width of the running track at watercourse crossings will be minimised from 6m to 3m to limit the area of direct disturbance.	Minimise impact on water bodies	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		reinstatement			statements
117	Section 20.7.4.1.3, Section 20.7.4.1.2	Impacts on surface water bodies from temporary water culverts	Where temporary culverts are required: • The culvert will be adequately sized to avoid impounding flows (including an allowance for potential increases in winter flows as a result of projected climate change). • Installing the culvert below the active bed of the channel, so that sediment continuity and movement of fish and aquatic invertebrates can be maintained. • Temporary bridges will be considered where appropriate (e.g. where installation of a temporary culvert is likely to have an impact on channel morphology and ecology).	Reduce impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
118	Section 20.7.4.2.1, Section 20.7.4.2.2, Section 20.7.4.3.2, Section 20.7.4.3.3	Impacts to sediment supply and Pollution or contamination of surface water drainage systems from cable pulling and construction of jointing pits	A CMS will be developed for the construction activities and will adhere to construction industry good practice guidance as detailed in the Environment Agency's Pollution Prevention Guidance (PPG) notes (including PPG01, PPG05, PPG08 and PPG21), and CIRIA's 'Control of water pollution from construction sites – A guide to good practice' (2001). Specific measures will include: • Subsoil exposure minimised and strips of undisturbed vegetation retained on the edge of the working area where possible; • On-site retention of sediment maximised by routing all drainage through the site drainage system; • Silt fences at the foot of soil storage areas to intercept sediment runoff at source. Where practicable, runoff will be routed into swales, which incorporate check dams to further intercept sediment and/or attenuation ponds which	Reduce impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			incorporate sediment forebays. Suitable filters will be used to remove sediment from any water discharged into the surface drainage network; • Additional silt fences included in parts of the working area that are in close proximity to surface drainage channels; and • Soil and sediment will not be allowed to accumulate on roads. Traffic movements restricted to minimise the potential for surface disturbance. Buffer strips will be retained adjacent to watercourses where possible. Where surface vegetation has been removed, it will be reseeded to prevent future runoff (excluding arable crops).		
119	Section 20.7.4.3.2, Section 20.7.4.3.3	Pollution or contamination of surface water drainage systems from cable pulling, construction of joint pits and the reinstatement of the running track	In addition to the sediment management measures, additional measures to prevent contamination will include the following: • Concrete and cement mixing and washing areas will be situated at least 10m away from the nearest watercourse. These will incorporate settlement and recirculation systems to allow water to be re-used. • All washing out of equipment will be undertaken in a contained area, and all water will be collected for off-site disposal. • All fuels, oils, lubricants and other chemicals will be stored in an impermeable bund with at least 110% of the stored capacity. Damaged containers will be removed from site. All refuelling will take place in a dedicated impermeable area, using a bunded bowser. Biodegradable oils will be used where possible.	Prevent contamination	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Spill kits will be available on site at all times. Sand bags or stop logs will also be available for deployment on the outlets from the site drainage system in case of emergency spillages.		
120	Section 20.7.4.3.2, Section 20.7.4.3.3	Risk of contamination and spread of invasive non-native species from cable pulling, construction of joint pits and the reinstatement of the running track	Suitable biosecurity protocols (such as those outlined by the Non-Native Species Secretariat (NNSS)) would be put in place during the works in order to minimise the risk of contamination and the spread of the invasive non-native species (INNS), including the spread of crayfish plague. This includes the implementation of strict biosecurity protocols such as stringent 'Check, Clean, Dry' working methodology for plant, equipment and construction crews.	Avoid impacting spread of invasive species	DCO Schedule 1, Part 3, Requirement 20(2)(m) CoCP – Invasive Species Management
121	Section 20.7.4.3.2, Section 20.7.4.3.3	Pollution or contamination of surface water drainage systems in SPZ areas from cable pulling, construction of joint pits and the reinstatement of the running track	If works are required in a groundwater SPZ1 or SPZ2, the construction working methodology (for example a Construction Method Statement) will stipulate that the best available techniques (BAT) are used for any installations, in accordance with the Energy Network Association Guidance, and in agreement with the Environment Agency.	Decrease significance of impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(i,g) CoCP – Construction SWDP and Requirement 20(2)(g) CoCP – Construction method statements
122	Section 20.7.4.3.3	Pollution or contamination of surface water drainage systems at the substation site	A pre-construction drainage plan will be developed as part of the SWDP, agreed with regulators and implemented to minimise water within the working area and ensure ongoing drainage of surrounding land.	Decrease significance of impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
123	Section 20.7.4.3.3	Impacts on surface water runoff and flood risk at the substation site	Surface water drainage requirements will be presented in the final SWDP and will be designed to meet the requirements of the NPPF and NPS EN-5, with runoff limited, where feasible, through the use of infiltration	Reduce impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			techniques which can be accommodated within the area of development. The drainage strategy will be developed according to the principles of the SuDS (Sustainable Drainage Systems) discharge hierarchy.		
124	Section 20.7.4.3.3	Pollution or contamination of surface water drainage systems at the substation site	Existing land drains at the onshore project substation will be reinstated following construction. A local specialised drainage contractor will undertake surveys to locate drains and create drawings both pre- and post-construction, and ensure appropriate reinstatement. The pre-construction drainage plan will include provisions to minimise water within the working area and ensure ongoing drainage of surrounding land.	Ensure no permanent impacts to existing land drains	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
Construction (Scenario 2 only)					
125	Section 20.7.1	Sediment management	Topsoil would be stripped from the entire width of the onshore cable route for the length of the workfront (150m), and stored and capped to minimise wind and water erosion. Once all the trenching is completed and back-filled, the stored topsoil will be re-distributed over the area of the workfront, with the exception of the running track and any associated drainage.	Reduce impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management
126	Section 20.7.1	Sediment management	The area of open ground at any one time within one sub-catchment will be restricted, across a notional 5km length, to 2 working areas (configured as 35m x 300m strips), 50% of one mobilisation area, 50% of one set of trenchless crossing compounds and 25% of 5km running track.	Minimise impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements
127	Section 20.7.1	Impacts to drainage	Temporary works areas (e.g. mobilisation areas and	Reduce impacts to	DCO Schedule 1, Part

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		from mobilisation areas	trenchless crossing areas) within the onshore project area will comprise hardstanding of permeable gravel aggregate underlain by geotextile, or other suitable material to a minimum of 50% of the total area to minimise the area of open ground.	surface drainage regimes	3, Requirement 20(2)(f) CoCP – Soil management and Requirement 20(2)(i) CoCP – Construction SWDP
128	Section 20.7.1	Surface drainage	During construction, the onshore cable route will be bounded by drainage channels (one on each side) to intercept drainage from within the working corridor. Additional drainage channels will be installed to intercept water from the cable trench.	Reduce impacts to drainage	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management and Requirement 20(2)(i) CoCP – Construction SWDP
129	Section 20.7.1, Section 20.7.4.1.3	Impacts on surface water bodies from trenchless crossing techniques (e.g. HDD)	Trenchless crossing techniques (e.g. HDD) will be employed at the River Wensum, River Bure, King's Beck, Wendling Beck (two crossings), and North Walsham and Dilham Canal. Typically for a river crossing HDD cable ducts will be installed at least 2m beneath the watercourse using a technique such as HDD, micro-tunnelling or auger boring. Stop ends would be employed on the running track at each of the trenchless crossing points outlined above, with the exception of the crossing of Wendling Beck at Bushy Common.	Ensure limited impacts to drainage, surface water run-off and sediment loading on sensitive water bodies	DCO Schedule 1, Part 3, Requirement 16 and Requirement 20(2)(g) CoCP – Construction method statements
130	Section 20.7.4.1.3	Impacts on hydrology and geomorphology from trenchless crossing techniques (e.g. HDD)	Reinstatement of the channel following trenchless crossing activities would achieve the pre-construction depth of the watercourse, and the dams removed.	Ensure no permanent impacts on water bodies	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
131	Section 20.7.4.1.3	Impacts on surface water bodies from trenched crossings	Selecting the appropriate trenched crossing technique to best reflect the sensitivity of the location to ensure that impacts are minimised. Temporary dam and divert will be most likely be used for watercourses that are shallower than 1.5m. Permanent culvert to allow the cable ducting to cross watercourses will likely be used for watercourses that are 1.5m or deeper, it may be possible to use the approach outlined above, however in some cases it may be necessary to install a pipe or box culvert.	Minimise impact on water bodies	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements
132	Section 20.7.4.1.3	Impacts on surface water bodies from trenched crossing techniques	The following additional measures will be applied where trenched crossings are considered: • A specific dam and divert method for larger watercourses will be agreed at detailed design with internal drainage boards and flood management agencies, as part of the relevant secondary consent processes. • The amount of time that temporary dams are in place will be restricted, e.g. typically no more than one week. • Fish rescue will be undertaken in the area between the temporary dams prior to dewatering. • Ensure pumps, flumes (pipes) or diversion channels are appropriately sized to maintain flows downstream of the obstruction whilst minimising upstream impoundment. • Select technique that can allow fish passage to be maintained in watercourses which support migratory fish species such as brown trout, where appropriate.	Minimise impact on surface water bodies and associated drainage	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management, Requirement 20(2)(i) CoCP – Construction SWDP and Requirement 20(2)(g) CoCP – Construction method statements

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Geotextiles or similar techniques will be used to line diversion channels and prevent sediment entering the watercourse. • Where possible, localised improvements to the geomorphology and in-channel habitats will be considered where they are crossed using open cut techniques e.g. by replacing resectioned banks with more natural profiles that are typical of the natural geomorphology of the watercourse. Any improvements would be restricted to within the working area of the project.		
133	Section 20.7.4.2.2	Impacts to sediment supply from duct installation	Works for the cable route will be undertaken in 150m sections, and the time from topsoil strip to reinstatement would typically be a maximum of two weeks in each 150m section, and reversible once activities have been completed.	Reduce impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements
134	Section 20.7.1, Section 20.7.4.2.2	Impacts to sediment supply from duct installation	Where water enters the trenches during installation, this will be pumped via settling tanks, sediment basins or mobile treatment facilities to remove sediment, before being discharged into local ditches or drains via temporary interceptor drains to prevent increases in fine sediment supply to the watercourses.	Reduce impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management, Requirement 20(2)(i) CoCP – Construction SWDP and Requirement 20(2)(g) CoCP – Construction method statements
135	Section 20.7.4.3.3	Pollution or contamination of surface water drainage systems from trenching for cable duct	Additional mitigation will also be implemented under the circumstance of trenching associated with cable duct installation: • In consultation with the Environment Agency, cable excavations will be designed not to disturb	Reduce impacts to drainage, surface water run-off and sediment loading	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management, Requirement 20(2)(i)

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		installation	groundwater in any significant manner. Excavations will be shallow (approximately 1.5m) and above the water table of the Principal Aquifer. • If works are required in the SPZ1 or SPZ2 areas or across the functional floodplain of the main watercourses, the construction working methodology (for example a Construction Method Statement) will stipulate that best available techniques (BAT) are used for any installations, in accordance with the Energy Network Association Guidance, and in agreement with the Environment Agency. • Furthermore, a hydrogeological risk assessment in accordance with Groundwater Protection Principles and Practice (GP3) (Environment Agency, 2017), will be undertaken for any trenchless crossing locations in SPZ1 or SPZ2 areas (specifically the North Walsham and Dilham Canal). If significant risks are identified, alternatives including alternative trenchless drilling techniques (other than HDD) to cross the SPZ area will be considered.		CoCP – Construction SWDP and Requirement 20(2)(g) CoCP – Construction method statements
Operations and Maintenance (Scenario 1 and Scenario 2)					
136	Section 20.7.1	Foul drainage	During operation, foul drainage at the onshore project substation will be collected through a mains connection to the existing local authority sewer system (if a suitable connection is available) or collected in a septic tank located within the development boundary and transported off site for disposal at a licensed facility	Ensure no impacts from foul drainage at the onshore project substation	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP and Requirement 32 - Operational Drainage Plan
137	Section 20.7.5.1.2	Impacts to surface water run-off,	Existing land drains along the onshore cable route will be reinstated following construction so that they do	Reduce impacts to	DCO Schedule 1, Part 3, Requirement

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		groundwater flows and changes to flood risk	not affect subsurface flows during the operational phase. A local specialised drainage contractor will undertake surveys to locate drains and create drawings both pre- and post-construction, and ensure appropriate reinstatement. Surface water drainage requirements for the permanent substation developments will be presented in the final Surface Water Drainage Plan (SWDP) and will be designed to meet the requirements of the National Planning Policy Framework (NPPF) and NPS EN-5, with runoff limited, where feasible, through the use of infiltration techniques which can be accommodated within the area of development. The drainage strategy will be developed according to the principles of the SuDS discharge hierarchy. Generally, the aim will be to discharge surface water runoff as high up the following hierarchy of drainage options as reasonably practicable: i) into the ground (infiltration); ii) to a surface water body; iii) to a surface water sewer, highway drain or another drainage system; or iv) to a combined sewer.	existing land drains	20(2)(i) CoCP – Construction SWDP and Requirement 32 - Operational Drainage Plan
138	Section 20.7.5.2.2	Impacts to supply of fine sediment and other contaminants	All fuels, oils, lubricants and other chemicals will be stored in an impermeable bund with at least 110% of the stored capacity. Damaged containers will be removed from site. All refuelling will take place in a dedicated impermeable area, using a bunded bowser. Biodegradable oils will be used where possible. Spill kits will be available on site at all times. Sand bags or stop logs will also be available for deployment on the outlets from the site drainage system in case of	Reduce impact to sediment supply	DCO Schedule 1, Part 3, Requirement 20(2) CoCP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			emergency.		
139	Section 20.7.5.2.2	Groundwater contamination	Use of inert solid plastic insulation within the cables, rather than historic oil insulated cables	Reduce potential for fluid leakage from cables	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements
Decommissioning (Scenario 1 and Scenario 2)					
140	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 21 Land Use and Agriculture					
Construction (Scenario 1 and Scenario 2)					
141	Section 21.7.1	Agricultural land taken out of use	Land take has been minimised where possible, reducing sterile land parcels, aligning with field boundaries and avoiding the BMV land.	Minimise land taken out of use	Embedded Mitigation, Schedule 1 Authorised Development and Order Limits.
142	Section 21.7.1	Impact on drainage associated with ground excavations	An attenuation pond at the onshore project substation and National Grid substation extension will accommodate additional impermeable ground. Sufficient cable burial depth to minimise impact and interaction with drainage.	Minimise impacts and interaction with drainage	DCO Schedule 1, Part 3 Requirement 20(2)(i) CoCP – Construction SWDP
143	Section 21.7.1	Impact on utilities	Identify existing utility services and contact providers prior to construction. Undertake utility crossings in	Prevent disruptions to utilities	DCO Schedule 17 Protective Provisions

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			accordance with industry standard practice		
144	Section 21.7.4.1.1, Section 21.7.4.1.2	Impact on land drainage systems	Best practice mitigation measures will be undertaken including maintaining/reinstating land drainage systems following construction, the provision of an Agricultural Liaison Officer (ALO) and a local specialised drainage contractor (to undertake surveys and create drawings pre- and post-construction, to locate drains and ensure appropriate reinstatement).	Ensure appropriate re-instatement of drainage systems impacted by construction	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management and Requirement 20(2)(i) CoCP – Construction SWDP
145	Section 21.7.4.1.1, Section 21.7.4.1.2	Impacts on soil resource caused by drainage	Production of a soil management plan (SMP) approved by the relevant regulator prior to construction works. The SMP would include construction method statements for soil handling, would be produced by a competent soil science contractor and agreed with the relevant stakeholder, in advance of the works.	Ensure on-going drainage of the surrounding land	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management
146	Section 21.7.4.1.1, Section 21.7.4.1.2	Range of impacts associated with construction phase	Production of a CoCP, to include: • Storage of topsoil and excavated material; and • Minimising excavation volumes and disturbances, as well as replacement of soils inadvertently disturbed.	Minimise soil degradation among other impacts of construction	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management
147	Section 21.7.4.1.1, Section 21.7.4.1.2	Spreading of disease caused by drainage	Best practice soil handling would be implemented during the pre-construction and construction phases to prevent the spread of plant and animal diseases, including following the EA (2010) guidance: Managing Invasive Non-native Plants.	Prevention of the potential spread of disease (plants and animals)	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management and Requirement 20(2)(i) CoCP – Construction SWDP
148	Section 21.7.4.1.1, Section 21.7.4.1.2	Control of Invasive weed species	Measures contained in relevant Defra and EA best practice guidance on the control and removal of invasive weed species would be implemented during the pre-construction and construction phases.	Control of invasive weed species	DCO Schedule 1, Part 3, Requirement 20(2)(m) CoCP – Invasive Species

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Management
149	Section 21.7.4.1.1, Section 21.7.4.1.2	Impacts on private land	A pre-construction land survey would be undertaken by a qualified ALO to record details of crop regimes, position and condition of field boundaries, existing drainage and access arrangements, and private water supplies.	To minimise impacts on private land caused by construction	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management Plan
150	Section 21.7.4.1.1, Section 21.7.4.1.2	Impacts on private land caused by trenching and duct installation activities	Land would be reinstated to its pre-construction condition as soon as reasonably possible following duct installation (and subsequently in isolated sections for cable installation), dependent on weather conditions and excluding permanent infrastructure. Provision of temporary access to severed fields for vehicles and machinery.	Minimise impacts on private land caused by construction	DCO Schedule 1, Part 3, Requirement 20(2) CoCP
151	Section 21.7.4.1.1, Section 21.7.4.1.2	Impacts on existing drains caused by trenching for duct installation activities	At locations where the onshore cable route crosses existing drains, the running track would be installed over a pre-installed culvert pipe or other temporary bridging to allow continued access to the onshore cable route during construction. The pipe would be installed in the drain bed so as to avoid upstream impoundment, and would be sized to accommodate reasonable 'worst-case' water volumes and flows. Where drains are shallower than 1.5m, temporary damming, culverting or diverting may be employed, with agreement from relevant internal drainage boards and flood management agencies. The cable circuits would nominally be installed in a flat formation (each cable core installed alongside each other) to a minimum depth of 1.05m, in a trench of	Avoid interference of existing drainage patterns	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			approximate 1m width. This depth would allow the cables (and protective tiles and tape) to be laid below the level of typical field drainage pipes and other underground services to minimise impact and interaction.		
152	Section 21.7.4.2.1, Section 21.7.4.2.2	Access for farm vehicles during construction works	Access for farm vehicles to land severed by the construction works would be maintained wherever practicable in consultation and subject to individual agreements with landowners and occupiers. Where necessary, crossing points would be agreed pre-construction to minimise severed areas of land.	Minimise the amount of time that land access for farm vehicles is disrupted	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements
153	Section 21.7.4.2.1, Section 21.7.4.2.2	Impacts on landowners/ crop loss caused by construction activities	Wherever practicable, appropriate planning and timing of works will be agreed with landowners and occupiers, subject to individual agreements, to reduce conflicts. Private agreements (or compensation in line with the compulsory purchase compensation code) will be sought between Norfolk Boreas Limited and relevant landowners/occupiers regarding any measures required in relation to crop loss incurred as a direct consequence of the construction phase of the project.	Minimise conflicts with landowners	Landowner Agreements
154	Section 21.7.4.2.1, Section 21.7.4.2.2	Land taken out of use/ disruption to agricultural activities	Where possible, reinstatement of hedgerows and their associated features (banks and ditches) and drainage systems to previous conditions as far as reasonably possible would occur following the duct installation phase. Removal of trees or interference with roots would be avoided where possible	Avoid long-term impact on landscape character and hydrology	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements Requirement 19 – Landscape Management Scheme

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
155	Section 21.7.4.3.1, 21.7.4.3.2	Degradation of natural soil resource	Implement best practice soil handling (adherence to MAFF (2000)) including: • Soils handling, storage and reinstatement by a competent contractor under Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites; • Topsoil stripping within all construction areas and storage adjacent to where it is extracted, where practical; • Storage of the excavated subsoil separately from the topsoil, with sufficient separation to ensure segregation; • Handling of soils according to their characteristics -– e.g. within wooded areas it is unlikely that topsoil resources of any quality could be separated and preserved for reuse. If current wooded areas are to be used for storage it would not be necessary to undertake topsoil stripping. Topsoil from agricultural land may be treated as a single resource for stockpiling and reuse; • Where necessary, tree roots would be removed by screening; • Where under storage areas, loosening of subsoils is proposed when dry to improve permeability before the topsoil is replaced; • For most after-uses, subsoils may be treated as a single resource for stockpiling; • During wet periods, limiting mechanised soil handling in areas where soils are highly vulnerable to compaction; • Restricting movements of heavy plant and vehicles to specific routes and avoidance of trafficking of	Minimise degradation of natural soil resource	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management Plan

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			construction vehicles in areas of the site which are not subject to construction phase earthworks; • Minimising the excavation footprint where possible; and • In circumstances where construction has resulted in soil compaction, further remediation may be provided, through an agreed remediation strategy.		
156	Section 21.7.4.3.1, 21.7.4.3.2	Loss of soil Resource - Erosion	The MAFF (2000) Good Practice Guide for Handling Soils and Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites will be adhered to. These recommend the following: • Only working in appropriate weather conditions where soil type dictates; • Appropriate soil storage; • Maintaining effective drainage systems during construction; and • Ensuring reinstatement of individual areas occurs as soon as practicable after construction. Planting vegetation shortly afterwards.	Minimise any potential loss of soil resource	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management Plan
157	Section 21.7.4.5.1, 21.7.4.5.2	Impact to ESSs	A commitment will be made within the private agreements between Norfolk Boreas Limited and the landowner/occupier to compensate for losses incurred due to potential impacts on ESS during the construction phase of the project.	Minimise impacts on ESS' and ensure no conflicts with landowners	Landowner Agreements
Operations and Maintenance (both scenarios)					
158	Section 21.7.1	Drainage and flooding	An attenuation pond at the onshore project substation and National Grid substation extension will accommodate additional impermeable ground.	Avoid interference of existing drainage patterns	Embedded Mitigation Schedule 1, Authorised Development.

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
159	Section 21.7.5.1.1	Impacts on drainage at the onshore substation	Drainage requirements at the onshore project substation would be compliant with the Flood Risk Assessment	Minimise potential impacts on drainage resulting from the operation of the substation	DCO Schedule 1, Part 3 Requirement 32 - Operational Drainage Plan
160	Section 21.7.5.2.4	Permanent changes to land use	Protection of the soil resource and reinstatement of land to previous conditions will be sought as far as reasonably possible through the CoCP and the SMP. Private agreements will be sought between Norfolk Boreas Limited and relevant landowners/occupiers regarding any permanent loss of land incurred as a direct consequence of the operation phase of the project.	Minimise any permanent changes to current land use and reduce impact to landowners regarding unavoidable permanent loss	DCO Schedule 1, Part 3, Requirement 20(2)(f) CoCP – Soil management Plan
Decommissioning					
161	Section 21.7.6	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 22 Onshore Ecology					
Construction (Scenario 1 and Scenario 2)					
162	Section 22.7.1	Impacts on ecological receptors due to onshore cable route construction	The construction programme for the onshore cables has been designed to minimise the duration and extent of impacts to ecological receptors at any given location along the onshore cable route.	Minimise interaction with sensitive ecological receptors	Embedded Mitigation

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Route refinements have been a priority and included consideration of more detailed ecological constraints.		
163	Section 22.7.1	Impact on ecological receptors	During route refinements the following principles have been applied when refining the onshore project area: • Ancient woodland –a buffer of 15m around all ancient woodlands has been used • Areas of woodland, standing water bodies, trees, hedges and agricultural ditches have been avoided where possible during the route selection process; • The number of hedgerow crossings has been minimised as far as possible, taking other fixed constraints into account.	Avoidance of impacts on receptor or associated features	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and DCO Schedule 1, Part 3, Requirement 24 Ecological Management Plan (EMP)
164	Section 22.7.1	Hedgerow and watercourse crossings	Where hedgerow gaps are required for the duration of the two-year cable pulling phase, the number of gaps required will be minimised as far as possible and will be no wider than 6m (the width of the running track).	Minimise the width of hedgerow gaps related to construction works	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 19, and Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements
165	Section 22.7.1	Impact on Landscape in relation to permanent infrastructure	Mitigation measures associated with the onshore project substation, National Grid substation extension and access from the A47 form part of a strategic approach to enhancing landscape character and biodiversity in the local area.	Minimises visual and land impacts at the onshore project substation and surrounding area	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 19, and DCO Schedule 1, Part 3, Requirement 24 EMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
166	Section 22.7.5.1.2, Section 22.7.5.6.2, Section 22.7.5.16.2, Section 22.7.5.17.2	Sediment or pollutant release into watercourses	Best practice topsoil management practices will be followed; a Surface Water and Drainage Management Plan will be produced pre construction; existing tracks and roadways will be utilised for access where possible; geotextile, or other suitable material, will be used, where required; the working methodology will follow construction industry good practice guidance, as detailed in the Environment Agency's Pollution Prevention Guidance (PPG) notes (including PPG01, PPG05, PPG08 and PPG21). *The detailed mitigation in relation to watercourses is outlined in this document under the heading "Water Resources and Flood Risk". Further details can also be found in Chapter 20 Water Resource and Flood Risk.*	Minimise impacts to habitat during construction	DCO Schedule 1, Part 3, Requirement 20(2)(i) CoCP – Construction SWDP
167	Section 22.7.2	Construction related impacts on ecological receptors	Mitigation and control measures set out in the Ecological Impact Assessment will be delivered via the OLEMS. The OLEMS will ensure that all mitigation proposed within the EcIA is joined up and is part of an integrated management strategy. The OLEMS provides detail on planting schemes, in line with mitigations set out in Chapter 29 Landscape and Visual Impact Assessment of the ES.	Implementation of mitigation measures	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and Requirement 19 Implementation and maintenance of landscaping
168	Section 22.7.5.1.2, Section 22.7.5.9.2, Section 22.7.5.10.2, Section 22.7.5.10.3	Hedgerows	Hedgerow removal will be programmed for winter where possible; to give bats time to adjust to the change prior to maternity period. Hedgerows will be removed as close to the onset of works as possible, and works will not commence after nights of poor weather (in case of bad weather roosts being used).	Reduces impacts on bats	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 19, Requirement 24 EMP and Requirement

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					20(2)(g) CoCP – Construction method statements
169	Section 22.7.5.1.2, Section 22.7.5.5.2, Section 22.7.5.9.2, Section 22.7.5.10.2, Section 22.7.5.10.3	Hedgerows	Replanting will where possible follow in the first winter after construction, with the exception of the 6m gap required for the running track (BCT, 2012). Replanting will follow guidance within the Norfolk hedgerow BAP and will include appropriate species for north-east Norfolk (NBP, 2009), including ground flora planting designed to encourage insect biomass (BCT, 2012). Future hedgerow management to include allowing standard trees to develop to improve quality of the hedgerow as a foraging resource. Hedges will be double-planted with 2m grassland strips on both sides so there is always a leeward side to forage	Reduces impacts on bats	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 19, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements
170	Section 22.7.5.1.2, Section 22.7.5.10.2	Hedgerows identified as important for commuting bats within the Paston Great Barn SAC and SSSI	Subject to landowner permissions, those hedgerows identified in the supporting ecology surveys as important for foraging and commuting bats would be left to become overgrown either side of the section to be removed prior to construction.	Reduces impacts on bats	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 24 EMP
171	Section 22.7.5.1.2, Section 22.7.5.5.2, Section 22.7.5.9.2, Section 22.7.5.10.2, Section 22.7.5.10.3	Hedgerows	During detailed project design undertaken post-consent, the project will seek to avoid mature trees within hedgerows through the micro-siting of individual cables, in order to retain as many mature trees as possible given the benefits they provide within linear commuting / foraging features	Reduces impacts on bats	DCO Schedule 1, Part 3, Requirement 18 Provision of Landscaping and Requirement 20(2)(g) CoCP – Construction method statements
172	Section 22.7.5.1.2, Section 22.7.5.5.2, Section 22.7.5.10.2,	Removal of areas of species-rich hedgerows at the onshore project	Landscaping has been designed so that any ecological connections severed by construction of the onshore project substation are recreated to replace and	Reduces impacts on bats	DCO Schedule 1, Part 3, Requirement 18, Provision of

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
	Section 22.7.5.10.3	substation	improve all ecological connections currently located within the onshore project substation footprint.		Landscaping, Requirement 24 EMP
173	Section 22.7.5.2.2	Impact on CWS due to temporary loss of habitat caused by the installation of the running track	Control of the young (pioneer) species of the broadleaved woodland parcel on the site should be prevented from establishing within the grazed meadow where possible. Methods other than grazing should be used to achieve this. Furthermore, continued monitoring of the site is recommended (NWT, 1996). As such a pre-construction botanical survey of Wendling Carr CWS will be undertaken. Following the botanical survey and subsequent consultation with NWT, manual clearance of any pioneer woodland species establishing within the meadow should be carried out within the grazed meadow prior to construction of the running track.	Minimise impact on ecological receptors in CWS	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 24 EMP
174	Section 22.7.5.3.2, Section 22.7.5.3.3	Impacts upon habitats that support protected species	All cereal field margins identified in the 2017 Extended Phase 1 Habitat Surveys or during post-consent surveys of the unsurveyed areas will be recorded, and these habitats will be reinstated post-construction, where possible.	Reduce permanent impact to habitat	DCO Schedule 1, Part 3, Requirement 24 EMP
175	Section 22.7.5.4.2	Woodland	A pre-construction arboricultural walkover survey will be undertaken by an appropriately experienced arboriculturalist to define specific mitigation measures to protect trees situated adjacent to the working width, including defining root protection areas. The arboricultural report will be submitted to and agreed with the local authority prior to the commencement of any construction works.	Minimise impacts to trees and hedgerows identified to support birds or bats	DCO Schedule 1, Part 3, Requirement 24 EMP
176	Section 22.7.5.4.2	Woodland	The roots of retained trees along the edge of the working width will be protected from soil compaction	Minimise impacts to	DCO Schedule 1, Part 3, Requirement

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			by the enforcement of Root Protection Areas that will be fenced off from the construction (the extent of which will be calculated using guidance from BS5837: 2012).	trees	20(2)(g) CoCP – Construction method statements
177	Section 22.7.5.4.2	Woodland	Facilitation pruning may be recommended where tree crowns are at risk from impact by machinery or high sided vehicles	Minimise impacts to trees	DCO Schedule 1, Part 3, Requirement 24 EMP
178	Section 22.7.5.4.2	Loss of woodland habitat	Where possible, removal of vegetation will be timed to avoid the bird breeding season (March to October inclusive)	Minimise impacts to breeding birds	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and Requirement 24 EMP
179	Section 22.7.5.6.2	Loss of grassland habitat	All grassland habitats would be reinstated following the completion of works, including coastal floodplain grazing marsh. Reinstatement of these grasslands will be by natural regeneration following demobilisation.	Minimise permanent loss of grassland habitats	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and Requirement 24 EMP
180	Section 22.7.5.8.2, Section 22.7.5.8.3	Loss of ponds	All pond habitats lost during construction will be reinstated as far as possible following the completion of works. All pond restoration will follow the guidelines set out in the Norfolk Ponds BAP (NBP, 2009).	Ensure no permanent impact from loss of ponds	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and Requirement 24 EMP
181	Section 22.7.5.9.2, Section 22.7.5.9.3	Protected species	A pre-construction badger survey of all active badger setts found within the habitat and species study area will be undertaken in advance of construction to ensure that the location of setts has not changed. If setts have moved closer to the onshore project area, a suitably qualified ecologist would assess whether a disturbance licence may be required (or alternatively	Minimise impacts to badgers	DCO Schedule 1, Part 3, Requirement 24 EMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			works under a badger class licence). All active setts found within the onshore project area would need to be closed and destroyed. An artificial sett would also be required for all main setts that are to be closed and destroyed.		
182	Section 22.7.5.9.2, Section 22.7.5.10.3	Protected species	In order to minimise the potential disturbance effects on badger during the construction phase, mitigation measures will be agreed in advance of any works within 30m of an active badger sett (following Natural England's Standing Advice on the impact of development on badgers (Natural England, 2015a; English Nature, 2002), which will include consideration of habitat manipulation, buffer zones for different construction activities within 30m of known badger setts, timing of construction works and construction lighting.	Minimise impacts to badgers	DCO Schedule 1, Part 3, Requirement 24 EMP
183	Section 22.7.5.9.2	Protected species	For all unsurveyed areas of the onshore cable route, a full badger survey will be undertaken to search for field signs of badgers within the habitat and species study area.	Minimise impacts to badgers	DCO Schedule 1, Part 3, Requirement 24 EMP
184	Section 22.7.5.10.2, Section 22.7.5.10.3	Protected species	A tree survey of the trees which have been identified as supporting bat roosts will be constructed prior to works; and the tree's Root Protection Area (RPA) will be calculated and no works will take place within the trees' RPA.	Minimise impacts to bats	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping and Requirement 24 EMP
185	Section 22.7.5.10.2, Section 22.7.5.10.3	Protected species	Construction phase lighting will be used between 7am-7pm in low light conditions, with lower-level security lighting outside of these times; and All temporary lighting will be designed in line with the	Minimise impacts to bats	DCO Schedule 1, Part 3, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			BCT Bats and Lighting in the UK guidance (2009). This will include the use of directional lighting during construction.		statements
186	Section 22.7.5.10.2, Section 22.7.5.10.3	Protected species	All unsurveyed areas will be surveyed during the post-consent survey effort to confirm whether they support roosting bats. If bats or signs of bats are found in any of the features, appropriate mitigation measures would be developed adhering to Natural England Standing Advice (Natural England, 2015b).	Ensure all bat roosts in the project area are identified to minimise impacts to bats	DCO Schedule 1, Part 3, Requirement 24 EMP
187	Section 22.7.5.11.2, Section 22.7.5.11.3	Protected species	A pre-construction survey for water voles will be undertaken prior to work to identify current distribution of water voles within the habitat and species study area, and post-construction monitoring during breeding season one year after completion of construction will also be undertaken; habitats will be fully reinstated following works.	Minimise impacts to water voles	DCO Schedule 1, Part 3, Requirement 24 EMP
188	Section 22.7.5.11.2, Section 22.7.5.11.3	Protected species	The guidelines for habitat restoration set out in Water Vole Mitigation Handbook (2016) will be adhered to; and for works to habitats immediately adjacent to WV05, a pre-construction survey will be undertaken to ensure that the water vole populations have not changed.	Minimise impacts to water voles	DCO Schedule 1, Part 3, Requirement 24 EMP
189	Section 22.7.5.12.2, Section 22.7.5.12.3	Protected species	Wherever possible, night-time working near watercourses will be avoided or else minimised.	Reduce impacts to water voles and otters	DCO Schedule 1, Part 3, Requirement 24 EMP
190	Section 22.7.5.12.2, Section 22.7.5.12.3	Protected species	Exit ramps from excavations will be provided at night near watercourses with confirmed presence, to provide otters with a means of escape.	Reduce impacts to water voles and otters	DCO Schedule 1, Part 3, Requirement 24 EMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
191	Section 22.7.5.13.2, Section 22.7.5.13.3	Protected species	A pre-construction presence / absence survey of all water bodies located within 250m of the onshore project area and 250m of each confirmed breeding pond will be undertaken post-consent, one year in advance of construction to ensure that the local great crested newt population distribution has not changed	Reduce impacts to great crested newts	DCO Schedule 1, Part 3, Requirement 24 EMP
192	Section 22.7.5.13.2, Section 22.7.5.13.3	Protected species	A precautionary method of working (PMoW) will be followed during the construction phase in areas within 250m of all confirmed breeding ponds (TF9614-154, TF9614-155, TG0721-256 and TF9010-50). The PMoW will be agreed with Natural England prior to construction.	Reduce impacts to great crested newts	DCO Schedule 1, Part 3, Requirement 24 EMP
193	Section 22.7.5.13.2, Section 22.7.5.13.3	Protected species	For all unsurveyed areas in the onshore project area, these areas will be surveyed during the post-consent survey effort. If Great Crested Newts are found appropriate mitigation will be applied in accordance with measures outlined within that draft licence application are in accordance with the Great Crested Newt Mitigation Guidelines (English Nature, 2001).	Reduce impacts to great crested newts	DCO Schedule 1, Part 3, Requirement 24 EMP
194	Section 22.7.5.14.2, Section 22.7.5.14.3	Protected species	A precautionary method of working (PMoW) will be followed during the construction phase in those locations where reptiles have been recorded.	Reduce impacts to reptiles	DCO Schedule 1, Part 3, Requirement 24 EMP
195	Section 22.7.5.14.2, Section 22.7.5.14.3	Protected species	For all unsurveyed areas in the onshore project area, these areas will be surveyed during the post-consent survey effort. If reptile are found appropriate mitigation will be applied in accordance with measures outlined within that draft licence application are in accordance with the Reptile Mitigation Guidelines (Natural England, 2011) and agreed with Natural	Reduce impacts to reptiles	DCO Schedule 1, Part 3, Requirement 24 EMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			England in advance of works.		
196	Section 22.7.5.17.2	Protected Species	Prior to construction, a survey of the following locations will be undertaken to assess potential loss of spawning grounds: • Reepham Stream (western branch); • Reepham Stream (eastern branch); and • Booton Watercourse. If suitable habitat for these species is identified, appropriate mitigation (such as ecological supervision during works, timing of works to avoid sensitive seasons or micrositing) would be agreed with Natural England post-consent.	Reduce impacts to brown trout and bullhead fish species	DCO Schedule 1, Part 3, Requirement 24 EMP
197	22.7.5.19.1	Protected species	The unsurveyed areas will be surveyed as part of the post-consent survey effort, and the locations of all stands of invasive species will be recorded and their extent mapped. • A plan of all invasive species locations and extents; • A protocol for removing the Japanese knotweed stand east of the River Bure and for managing the waste generated; • Good site practice measures for managing the spread of invasive species; • Good site practice measures for managing the spread of invasive species during works at watercourses; • A requirement for an Ecological Clerk of Works (ECoW) and details of their responsibilities with respect to non-native invasive species.	Reduce impact to invasive non-native species	DCO Schedule 1, Part 3, Requirement 20(2)(m) CoCP – Invasive Species Management
Construction (Scenario 2 only)					
198	Section 22.7.1	Prolonged impacts on	During the two-year duct installation phase each duct	Reduce prolonged	DCO Schedule 1, Part

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		ecological receptors due to onshore cable route construction	installation team will work along a short section of the cable route, approximately 150m at a time. Where possible, each 150m workfront (approximately 0.7ha in area) will be reinstated following duct installation, before works commence on the next section.	impacts to ecological receptors	3, Requirement 18, Provision of Landscaping, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements
199	Section 22.7.1	Hedgerow and watercourse crossings	The working width at hedgerow and watercourse crossings is 13m[2] (reduced from 25m) due to the selection of a HVDC electrical solution. Where hedgerow gaps are required beyond the two-year duct installation phase (i.e. for the duration of the subsequent two-year cable pulling phase), the number of gaps required will be minimised as far as possible and will be no wider than 6m (the width of the running track).	Minimise the width of hedgerow gaps related to construction works	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements
200	Section 22.7.1	Impacts to key environmental features and protected wildlife sites	Commitment to trenchless crossing techniques (e.g. HDD) at key sensitive environmental features, including but not limited to; waterways, protected wildlife sites and woodlands to avoid significant environmental disturbance. These include avoiding specific features such as; • Wendling Carr County Wildlife Site; • Little Wood County Wildlife Site; • Land South of Dillington Carr County Wildlife Site;	Avoids impacting sensitive habitats	DCO Schedule 1, Part 3, Requirement 16, Requirement 18, Provision of Landscaping, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements

[2] This width assumes that the onshore cable route bisects each hedgerow in a perpendicular fashion. In reality, some hedgerows will be crossed at an angle, therefore increasing the maximum width of the gap required up to a possible 16.5m. Where this is the case for a particular receptor, it is noted within this report.

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Kerdiston proposed County Wildlife Site; • Marriott's Way County Wildlife Site / Public Right of Way (PRoW); • Paston Way and Knapton Cutting County Wildlife Site; • Norfolk Coast Path; • Witton Hall Plantation along Old Hall Road; • King's Beck; • River Wensum; • River Bure; • Wendling Beck; • Wendling Carr; and • North Walsham and Dilham Canal.		
Operations and Maintenance (both scenarios)					
201	Section 22.7.1.4	Protected species	A lighting scheme will be designed and implemented for the permanent infrastructure, which is expected to include measures to minimise light spill and be designed in line with the 'Bats and Lighting in the UK' guidance (BCT, 2009)	Reduce impact to bats	DCO Schedule 1, Part 3, Requirement 20(2)(c) - Artificial light emissions
Decommissioning (both scenarios)					
202	Section 22.7.7	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 23 Onshore Ornithology					
Construction (Scenario 1 and Scenario 2)					

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
203	Section 23.7.1	Impact on ornithological receptors in Designated sites	Constraints mapping was undertaken to determine the route options for the onshore project area. The following ecological receptors were considered as part of the constraints mapping process and have been avoided during route selection: • International designated sites for nature conservation (SAC, SPA, Ramsar sites); • National designated site for nature conservation (The Broads National Park, SSSI, NNR, LNR); and • Ancient woodland.	Avoidance of impacts to selected ornithology and associated designated sites	Embedded Mitigation Schedule 1, Authorised Development.
204	Section 23.7.1	Impact on ornithological receptors	Route refinements have included consideration of more detailed ecological constraints, and the following principles have been applied when refining the onshore project area: • Ancient woodland –a buffer of 15m around all ancient woodlands has been used • Areas of woodland, standing water bodies, trees, hedges and agricultural ditches have been avoided where possible during the route selection process; • The number of hedgerow crossings has been minimised as far as possible, taking other fixed constraints into account.	Avoidance of impacts on receptor or associated features	Embedded Mitigation Schedule 1, Authorised Development.
205	Section 23.7.1	Hedgerow and watercourse crossings	Where hedgerow gaps are required for the two-year cable pull phase, the number of gaps required will be minimised as far as possible and will be no wider than 6m.	Minimise physical impact to habitat	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 24 EMP and Requirement 20(2)(g) CoCP – Construction method statements

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
206	Section 23.7.1	Impact on ornithological receptors	Mitigation planting associated with the onshore project substation, National Grid substation extension and access from the A47 form part of a strategic approach to enhancing landscape character and biodiversity in the local area. The planting will contribute to the wider landscape structure of the area and help consolidate green corridors for wildlife.	Restoring habitat for birds	DCO Schedule 1, Part 3, Requirement 18, Requirement 19, Provision of Landscaping, Requirement 24 EMP
207	Section 23.7.5.1.1, Section 23.7.5.1.2	Impact on ornithological receptors in Statutory Designated sites	Adherence to JNCC's scheme to reduce disturbance to waterfowl during severe winter weather during construction works at the landfall and along the onshore cable route in areas within 5km of the Broadland SPA and Ramsar site, including ceasing operations when temperatures drop below agreed criteria during the period 9th November to 20th February.	Reduce disturbance to waterfowl	DCO Schedule 1, Part 3, Requirement 24 EMP
208	Section 23.7.5.1.1, Section 23.7.5.1.2, Section 23.7.5.2.1, Section 23.7.5.2.2	Impact on ornithological receptors in Statutory Designated sites	All habitats which are temporarily lost during construction will be reinstated following completion of construction.	Restoring habitat for birds	DCO Schedule 1, Part 3, Requirement 24 EMP
209	Section 23.7.5.2.1, Section 23.7.5.2.2	Impact on ornithological receptors	Habitats using arable land will only be subject to works for one winter period in any one area in consecutive years (for example, if works occur during the winter period 2021-2022 (November to February), no winter works are to be undertaken in the same location in winter 2022-2023).	Minimise the potential effects upon wintering/ on passage birds arable land	DCO Schedule 1, Part 3, Requirement 24 EMP
210	Section 23.7.5.2.1, Section 23.7.5.2.2, Section 23.7.5.3.1, Section 23.7.5.3.2	Impact on wintering/ on passage birds	All hedgerows which are removed to enable the project will be reinstated following guidance within the Norfolk hedgerow BAP and will include appropriate species for north-east Norfolk (NBP, 2009).	Restoring habitat to reduce impact on wintering/ on passage birds	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping,

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Future hedgerow management to include allowing standard trees to develop.		Requirement 24 EMP
211	Section 23.7.5.2.1, Section 23.7.5.2.2	Impact on wintering/ on passage birds	Although considered unlikely; if land north of Penny Spot Beck within the River Wensum floodplain is required during construction, then works will endeavour to take place outside of the winter period (October – February inclusive). If this is not possible, an area of the floodplain habitat will be left undisturbed to provide wintering habitat for waders / wildfowl using this site for the duration of the works in this area.	Reduce impact due to loss of habitat on wintering/ on passage birds	DCO Schedule 1, Part 3, Requirement 24 EMP
212	Section 23.7.5.3.1, Section 23.7.5.3.2, Section 23.7.5.3.1, Section 23.7.5.3.2	Impact on breeding bird species	Construction methodologies for site vegetation and hedgerow clearance include the removal of all nesting habitat for common breeding birds outside of the bird breeding season (typically between March and August inclusive, but is weather and temperature dependant).	Minimise impact to nesting birds	DCO Schedule 1, Part 3, Requirement 24 EMP
213	Section 23.7.5.3.1, Section 23.7.5.3.2	Impacts to ground nesting birds	Keep the winter crop stubble within the onshore project area low during bird breeding season.	Minimise chance of notable ground nesting birds nesting prior to work on arable land	DCO Schedule 1, Part 3, Requirement 24 EMP
214	Section 23.7.5.3.1, Section 23.7.5.3.2	Impact to breeding bird species	Set aside ground-nesting bird areas outside of 50m of the cable route prior to construction works. The locations for these set-aside mitigation areas would be agreed in consultation with Natural England post-consent, and would follow the RPSB's Skylark: Advice for Farmers in creating skylark habitat	Minimise physical impact to habitat	DCO Schedule 1, Part 3, Requirement 24 EMP
215	Section 23.7.5.3.1, Section 23.7.5.3.2	Impact to breeding bird species	Hedgerows will be reinstated during early winter when they have the greatest chance of taking root, meaning that in practice there will be a gap of one season (one	Restoring habitat for birds	DCO Schedule 1, Part 3, Requirement 18, Provision of

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			year) between each hedgerow removal and its reinstatement.		Landscaping, Requirement 24 EMP
216	Section 23.7.5.3.1, Section 23.7.5.3.2	Impact to breeding bird species	Recommendations regarding birds in the Bat Conservation Trust's (BCT) Artificial lighting and wildlife guidance (2014) will be adhered to when designing lighting during temporary works at the HDD compound.	Minimise impacts on bats	DCO Schedule 1, Part 3, Requirement 24 EMP
217	Section 23.7.5.3.1, Section 23.7.5.3.2	Impact to breeding bird species	New planting is to be created to compensate for the permanent loss of species-rich hedgerow at the onshore project substation. This is provided for in chapter 29 Landscape and Visual assessment of the ES.	Restoring habitat for birds	DCO Schedule 1, Part 3, Requirement 24 EMP
Construction (Scenario 2 only)					
218	Section 23.7.1	Duration of impact	Construction programme for onshore works has been designed to minimise duration and extent of impacts at any given location along the cable route. Works around watercourses will only occur during the two-year duct installation phase.	Minimise duration of impact to ornithology and associated features	Embedded Mitigation Schedule 1, Authorised Development
219	Section 23.7.1	Impact on ornithological receptors	Norfolk Boreas Limited is proposing to use trenchless crossing techniques (e.g. HDD) at all CWS, mixed lowland deciduous woodlands (Witton Hall Plantation and King's Beck), and main watercourses (Rivers Wensum and Bure, King's Beck, Wendling Beck and Dilham Canal) crossed by the onshore project area in order to minimise the impacts upon the habitats	Avoidance of impacts on receptor or associated features	DCO Schedule 1, Part 3, Requirement 16, Requirement 18, Provision of Landscaping
220	Section 23.7.1	Impact on ornithological receptors	The working width at hedgerow and watercourse crossings is 13m (reduced from 25m) due to the selection of a HVDC electrical solution.	Avoidance of impacts on receptor or associated features	DCO Schedule 1, Part 3, Requirement 18, Provision of Landscaping, Requirement 24 EMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					and Requirement 20(2)(g) CoCP – Construction method statements
221	Section 23.7.1	Prolonged impacts on ecological receptors due to onshore cable route construction	During the two-year duct installation phase each duct installation team will work along a short section of the cable route, approximately 150m at a time. Where possible, each 150m workfront (approximately 0.7ha in area) will be reinstated following duct installation, before works commence on the next section.	Minimise duration of impact to ornithology and associated features	Requirement 20(2)(g) CoCP – Construction method statements
Operations and Maintenance (both scenarios)					
222	Section 23.7.6.2.3	Impacts to protected species	A lighting scheme will be designed for the final design for the permanent infrastructure, including measures to minimise light spill following BCT Artificial Lighting and Wildlife guidance (2014)	Reduce the impacts of artificial light to birds and other protected species	DCO Schedule 1, Part 3, Requirement 20(2)(c) CoCP - Artificial light emissions
Decommissioning (both scenarios)					
223	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 24 Traffic and Transport					
Construction (Scenario 1 and Scenario 2)					

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
224	Section 24.7.1	Cable Pull and Jointing Stage access	Suitable side accesses and road crossing locations reviewed from initial schedule of 200+ access points to 70+ realistic potential access points to minimise local route impacts.	Minimise impacts to local routes	Embedded Mitigation
225	Section 24.7.1	Vehicle Movement	Carefully selected delivery routes acknowledging the sensitive receptors within the traffic and transport study area. Management measures to control timing of deliveries.	Minimise impacts on local routes	DCO Schedule 1, Part 3, Requirement 21 – Traffic Management Plan (TMP)
226	Section 24.7.1	Vehicle Movement	Construction of an (up to) 6m wide running track with a maximum approximate length of 12km. This would reduce the number of access points required and HGV movements on the local road network.	Minimise impacts on local routes	Embedded Mitigation

227	Section 24.7.6.2.1, Section 24.7.6.2.3, Section 24.7.6.3.1	Range of impacts	Development of a Traffic Management Plan (TMP) to manage employee and HGV movements to the parameters assessed. Norfolk Boreas will also provide the following 'enhanced' mitigation measures to be contained within the finalised TMP:
			• Driver training and toolbox talks
			• Driver information packs to include:
			  ○ Delivery timing constraints (e.g. school arrival/departure times);
			  ○ HGV delivery routes;
			  ○ Diversion routes; and
			  ○ Identify safe areas to pull over to reduce the effect of slow moving platoons of vehicles
			• Safety Awareness – Educate drivers to report 'near misses'
			• Engagement structure – to provide clear governance and reporting (stakeholders) structure
				Reduce impacts from travel associated with the project	DCO Schedule 1, Part 3, Requirement 21 - TMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Monitoring and Reporting – To monitor traffic flows at mobilisation areas and the onshore project substation • Contact information at all roadwork sites and robust complaint response standards (7 days)		
228	Section 24.7.6.4.1, Section 24.7.6.4.2	Driver Delay	Mobile traffic management is proposed to control low HGV demand on lightly trafficked narrow roads. It is envisaged that mobile traffic management would comprise of a suitably marked pilot vehicle (with flashing ambers) with two-way radio communication with the HGV driver.	Reduce impacts from travel associated with the project	DCO Schedule 1, Part 3, Requirement 21 - TMP
229	Section 24.6.3.1	Impact on road safety at access points	An Outline Access Management Plan has been produced and delivered alongside the DCO application detailing generic designs of each access type (to relevant standards). Exact designs of each access will be agreed with Norfolk County Council and Highways England post DCO application.	Minimise impacts to road safety	DCO Schedule 1, Part 3, Requirement 22- Access Management Plan (AMP) and Highway accesses
230	Section 24.7.6.3.1	Impact on road safety at access points	All new access points will be subject to an independent road safety audit	Reduce impacts to road safety	DCO Schedule 1, Part 3, Requirement 22- Access Management Plan (AMP) and Highway accesses
Construction (Scenario 2 only)					

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
231	Section 24.7.1	Mobilisation Areas	Mobilisation areas will be developed and located close to main A-roads where possible, minimising impacts upon local communities and utilising the most suitable roads. Mobilisation areas will be located away from population centres where practical to reduce impact on local communities and population centres.	Minimise impacts on local communities	DCO Schedule 1, Part 3, Requirement 22- Access Management Plan (AMP) and Highway accesses
232	Section 24.7.1	Vehicle Movement	Construction of an (up to) 6m wide running track with a maximum approximate length of 60km. This would reduce the number of access points required and HGV movements on the local road network.	Reduce vehicle movements along more sensitive local routes, Minimise individual journey distances	DCO Schedule 1, Part 3, Requirement 22- Access Management Plan (AMP) and Highway accesses
233	Section 24.7.1	Vehicle Movement	Consolidating HGVs at mobilisation areas to reduce vehicle movements along more sensitive local routes.	Reduce vehicle movements along more sensitive local routes, Minimise individual journey distances	DCO Schedule 1, Part 3, Requirement 21 - TMP
234	Section 24.7.1	Onshore Cable Route Sections	Consolidating onshore cable route section construction employee movements at mobilisation areas. Onward travel along the running track to place of work reducing vehicle movements along local routes.	Reduce vehicle movements along more sensitive local routes, Minimise individual journey distances	DCO Schedule 1, Part 3, Requirement 21 – Travel Plan (TP)
235	Section 24.7.6.1.1, Section 24.7.6.2.1	Impacts on pedestrian amenity and severance	For link 69 the following applies: • Splitting HGV payloads into smaller 10t vehicles at mobilisation area (MA)10.	Reduction of impacts on sensitive receptors including link 69, link 42, link 47c and link	DCO Schedule 1, Part 3, Requirement 21 - TMP

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Extend construction programme for section 16a of the duct installation; • Locate the reception sides of TC 14 and TC 15 to the area which link 69 serves; and • Sequential planning of construction activities to reduce peak HGV demand	49.	
236	Section 24.7.6.2.1	Impacts on pedestrian amenity	For link 42 • Extend construction programme for TC 6; • Sequential planning of construction activities to reduce HGV demand For link 47c, 49: • Extend construction programme for TC16; and • Sequential planning of construction activities to reduce HGV demand • Deliveries are restricted so that no HGV movements occur within the village during school drop off (8am to 9am) and pick up times (3pm to 4pm).	Reduction of impacts on sensitive receptors including link 42, link 47c and link 49.	DCO Schedule 1, Part 3, Requirement 21 - TMP
237	Section 24.7.6.3.1	Impacts on road safety	A 'Queuing Ahead' sign is proposed for cluster 12 in the event that the corridor improvement programme is delayed. This will provide advance warning of potential queuing at the staggered B1140 junction reducing the potential for rear end shunts. This commitment will be contained in the OTMP.	Reduce impacts from travel associated with the project	DCO Schedule 1, Part 3, Requirement 21 - TMP
Operations and Maintenance					
n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning					
238	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.		Decommissioning Plan
Chapter 25 Noise and Vibration					
Construction (Scenario 1 and Scenario 2)					
239	Section 25.8.5.6.1	Range of impacts	Standard construction noise mitigation practices and good practice construction management will be adopted throughout the construction phase. These will be captured within a Construction Noise Management Plan (CNMP) which forms part of the Code of Construction Practice (CoCP)	Reduce impacts to noise sensitive receptors	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise and vibration
240	Section 25.8.5.6.1	Noise and vibration impacts to sensitive receptors	Production of a Noise Management Plan prior to the construction phase, which will set out the Best Practicable Means (BPM) to be followed, for example: • Where possible, locating temporary plant so that it is screened from receptors by on-site structures, such as site cabins; • Using modern, quiet equipment and ensuring such equipment is properly maintained and operated by trained staff; • Applying enclosures to particularly noisy equipment where possible; • Ensuring that mobile plant is well maintained such that loose body fittings or exhausts do not rattle or vibrate; • Ensuring plant machinery is turned off when not in use; • Providing local residents with 24-hour contact details for a site representative in the event that	Reduce impacts to noise sensitive receptors	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise and vibration

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			disturbance due to noise from the construction works is perceived; and • Establishing a community engagement process including informing local residents about the construction works, detailing the timing and duration of any particularly noisy elements, and providing a contact telephone number to them; • Keeping noisy deliveries to the middle of the day where possible.		
241	Section 25.8.5.6.1	Noise and vibration impacts to sensitive receptors	Good working practice guidelines/instructions could include, but not be limited to, the following points: • Avoiding unnecessary revving of engines; • Plant used intermittently should be shut-down between operational periods, where possible; • Avoiding reversing wherever possible; • Reporting any defective equipment/plant as soon as possible so that corrective maintenance can be undertaken; and • Handling material in a manner that minimises noise.	minimise noise whilst working on the site	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise and vibration
242	Section 25.8.5.7.1	Noise impacts that exceed a negligible impact to sensitive receptors following standard mitigation measure employment	In order to ensure these impacts are mitigated as far as reasonably possible, the aforementioned standard mitigation will be augmented by a suite of enhanced mitigation measures. The detail of the enhanced mitigation measures will be drawn up and agreed as part of the Construction Noise Management Plan (CNMP)	Reduce impacts to noise sensitive receptors	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise and vibration
243	Section 25.8.5.7.1, Section 25.8.5.7.2	Noise impacts to sensitive receptors	Installation of localised screening, noise barriers or temporary soil bunds to be undertaken in areas in close proximity to particularly sensitive receptors This will be drawn up and agreed as part of the	Reduce impacts to noise sensitive receptors	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Construction Noise Management Plan (CNMP).		and vibration
244	Section 25.8.5.7.3	Noise impacts to sensitive receptors	Enhanced mitigation measures will include the selection and deployment of particularly low noise plant near the identified receptors. Careful scrutiny of plant selection at procurement stage would ensure that the associated noise impact of the aforementioned plant is reduced as much as reasonably possible.	Reduce impacts to noise sensitive receptors	DCO Schedule 1, Part 3, Requirement 20(2)(e) CoCP – Construction noise and vibration
Operations and Maintenance (both scenarios)					
245	Section 25.8.1	Operational impacts to sensitive receptors	Applying Best Available Techniques (BAT) during the design phase and to any sound emitting mobile and fixed plant included in the onshore infrastructure. Onshore infrastructure will be operated and managed by adhering to DCO requirements	Operational noise levels at nearest residential receptors will not exceed 35dBA	DCO Schedule 1, Part 3, Requirement 27
246	Section 25.8.1	Operational impacts to sensitive receptors	O&M staff will visit onshore project substation on a regular basis (e.g. weekly) to carry out routine checks and maintenance. These elements represent BAT for proactive and reactive maintenance to minimise noise. A regular inspection of all plant and equipment should be undertaken to ensure that: • All plant is in a good state of repair and fully functional; • Any plant found to be requiring interim maintenance has been identified and taken out of use; • Acoustic enclosures fitted to plant are in a good state of repair; • Doors and covers to such enclosures remain closed during operation; and	Early detection of adverse changes in operational noise levels, triggering diagnosis and remediation of the underlying issue.	DCO Schedule 1, Part 3, Requirement 27

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			• Any repairs are being undertaken by a fully qualified maintenance engineer		
Decommissioning (both scenarios)					
247	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 26 Air Quality					
Construction (Scenario 1 and Scenario 2)					
248	Section 26.7.4.1.1	Construction dust and fine particulate matter	Recommended mitigation measures set out in the IAQM guidance document in relation to dust and PM10 for construction activities will be adopted throughout the construction phase of the project to minimise the production and transmission of dust from construction activities.	Minimise impacts to air quality	DCO Schedule 1, Part 3, Requirement 20(2)(l) CoCP – Air quality
249	Section 26.7.4.1.1	Range of impacts	The outline CoCP will set out management measures for any onshore construction works associated with the project, and include measures to suppress the generation of dust.	Minimise impacts to air quality	DCO Schedule 1, Part 3, Requirement 20(2)(l) CoCP – Air quality
250	Section 26.7.4.1.1	Impacts to dust-sensitive receptors	Visual onsite and offsite inspections of dust deposition levels during construction phase will be employed.	Identify and minimise dust generation	DCO Schedule 1, Part 3, Requirement 20(2)(l) CoCP – Air quality

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
Operations and Maintenance (both scenarios)					
n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning (both scenarios)					
251	Section 26.7.6	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 27 Human Health					
Construction (Scenario 1 and Scenario 2)					
252	Section 27.6.1	Electromagnetic Fields (EMF)	Norfolk Boreas' commitment to using High Voltage Direct Current (HVDC) cables avoids many of the potential health risks sometimes associated with High Voltage Alternating Current (HVAC) equipment.	Minimise impacts to human health	DCO Schedule 1, Part 1, Authorised Development
253	Section 27.6.1	Visual impacts to local communities	The commitment to use underground cable systems for the onshore cable route over the 60km route between the landfall and electrical connection point at the onshore project substation, avoids the requirement to construct new overhead lines.	Minimise impacts to local populations	DCO Schedule 1, Part 1, Authorised Development Part 3, Requirement 18, Provision of Landscaping
254	Section 27.6.3	Biological, chemical, physical or mental impacts to humans	Potential impacts will be managed through various topic specific means (e.g. air quality measures, noise measures, etc.)	Minimise impacts to human health	DCO Schedule 1, Part 3, Requirement 20(2)(e,l) CoCP – Construction noise and Air quality and

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					DCO Schedule 1, Part 3, Requirement 21 - TMP
Operations and Maintenance (both scenarios)					
255	Section 27.6.5.1	Noise impacts from operational activities	Potential noise impacts will be managed through the mitigation outlined in Chapter 25 Noise and Vibration. *The detailed mitigation in relation to noise is outlined in this document under the heading "Noise and Vibration".*	Minimise impacts to human health	DCO Schedule 1, Part 3, Requirement 27
Decommissioning (both scenarios)					
256	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 28 Onshore Archaeology and Cultural Heritage					
Construction (Scenario 1 and Scenario 2)					
257	Section 28.7.2.1	Impact to heritage assets	Micro-siting of the onshore infrastructure has been undertaken to avoid non-designated above ground heritage assets where possible. As new information is gathered	Avoidance of known heritage to reduce impacts	DCO Schedule 1, Part 3, Requirement 20(2)(g) CoCP – Construction method statements and Requirement 23 –

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					Archaeological Written Scheme of Investigation (WSI)
258	Section 28.7.2.1	Impact to heritage assets and archaeology	The decision to deploy HVDC cable technology has facilitated the micrositing process, with the maximum onshore cable route width being reduced affording a greater level of flexibility with a view to routeing around areas where extant non-designated heritage assets or potentially significant sub-surface archaeological remains may be present.	Assist in avoidance of known heritage to reduce impacts	DCO Schedule 1, Part 1, Authorised Development
259	Section 28.7.2.1	Impact to heritage assets	In the event that non-designated heritage assets cannot be avoided, initial informative stages of mitigation work will be employed and undertaken post-consent, followed by additional mitigation measures.	Reduce impact to heritage assets where avoidance is not possible	Onshore Written Scheme of Investigation (WSI)
260	Section 28.7.2.1	Impact to heritage setting	Incorporate effective, appropriate and suitable landscape screening and planting (as part of the onshore project substation design process)	Reduce impact to the heritage landscape character	DCO Schedule 1, Part 3, Requirement 18 Landscaping Management Scheme
261	Section 28.7.2.2.1	Impact to archaeology	Implementation of a temporary suspension of intrusive groundworks in any area where previously unknown remains are encountered until remains have undergone appropriate archaeological investigation. In the event of a discovery, archaeological requirements and necessary 'next steps' will be agreed in consultation with NCC HES and HE	Minimise the impact to below ground unknown archaeology	DCO Schedule 1, Part 3, Requirement 23 – Archaeological WSI
262	Section 28.7.2.2.2	Impact on heritage landscape character	Commitment to return field boundaries and hedgerows to their preconstruction condition and character once construction works have finished wherever possible	Reduce impact to the heritage landscape character	DCO Schedule 1, Part 3, Requirement 23 – Archaeological WSI

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
					and Requirement 18 Landscaping Management Scheme
263	Section 28.7.2.2.3	Impact to archaeology	the project will submit a project-specific draft (outline) WSI as part of the final DCO submission, outlining a commitment to undertake additional programmes of survey and evaluation post-consent (to be referred to as initial informative stages of mitigation work), as previously discussed and agreed in consultation with NCC HES and HE.	Minimisation and avoidance of impacts to below ground unknown archaeology	DCO Schedule 1, Part 3, Requirement 23 – Archaeological WSI
Operations and Maintenance					
n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning					
264	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 29 Landscape and Visual Impact Assessment					
Construction (Scenario 1 and Scenario 2)					
265	Section 29.7.1	Impact on landscape character and view	Underground cable systems for the onshore cable route, over the 60km route between the landfall and electrical connection point, avoids the requirement to construct new overhead lines.	Reduce the visual impact of the project	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme
266	Section 29.7.1	Impact on landscape	Incorporate effective, appropriate and suitable	Reduce the visual	DCO Schedule 1, Part

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
		character and view	landscape screening and planting (as part of the onshore project substation design process). *The detailed mitigation and visualisations in relation to planting can be found in Chapter 29 Landscape and Visual Assessment.*	impact of the project	3, Requirement 18, 19 Landscaping Management Scheme
267	Section 29.7.1	Impact on landscape character and view	National Grid's Guidelines on Substation Siting and Design (The Horlock Rules) have been taken into consideration during the site selection process. Those relevant to the LVIA include the following; • To avoid landscape designations including National Parks and AONBs; • To protect areas of local amenity value including ancient woodland and historic hedgerows; and • To take advantage of screening provided by landform and existing features;	Reduce the visual impact of the project	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme
Construction (Scenario 2 only)					
268	Section 29.7.4.3.2, Section 29.7.4.4.3	Impact on landscape character and view	Following the construction phase, land over the onshore cable route, mobilisation areas, trenchless drilling compounds and running tracks would be reinstated to agricultural use.	Reduce long-term visual impact of construction phase	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme
269	Section 29.7.4.3.2	Impact on landscape character and view	Hedgerows would be reinstated in the 13m to 16.5m sections where they have been removed for open-cut trenching	Reduce long-term visual impact of construction phase	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme
270	Section 29.7.2	Impact on landscape character and view	Where appropriate, smoothly profiled earthwork bunds will be created at the onshore project substation to raise the overall height and extent of vertical screening. Bunds shall be low and complement the natural flow of the surrounding landscape	Reduce the visual impact of the project	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
271	Section 29.7.4.3.2	Impact on landscape character and view	Spoil from the cut and fill works to level land for the substation will be used to create bunds for planting to give an incremental increase to the overall height of screening along this sensitive boundary.	Minimise the visual impact of the project substation	DCO Schedule 1, Part 3, Requirement 18, 19 Landscaping Management Scheme
Operations and Maintenance (both scenarios)					
272	Section 29.7.2	Visual impact associated with permanent above ground infrastructure (onshore project substation and National Grid substation extension)	Mitigation planting to screen the onshore project substation and National Grid substation extension. In locations where it is possible to achieve advanced planting this would be implemented at the start of the construction phase, anticipated in 2020.	Reduce visual effects from sensitive viewpoints/receptors as soon as practicable.	DCO Schedule 1, Part 3, Requirement 19 Implementation and maintenance of landscaping
273	Section 29.7.1	Impact on landscape character	The onshore project substation has been designed so that it does not require permanent operational lighting.	Minimise the visual impact of the project substation	Embedded Mitigation
Decommissioning					
274	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan
Chapter 30 Tourism and Recreation					
Construction (Scenario 1 and Scenario 2)					
275	Section 30.7.1	Impact on tourism and recreation	Careful site selection, use of buried cables, commitment to HVDC technology, concurrent duct installation for Norfolk	Avoidance of sensitive tourism	Embedded mitigation

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			Vanguard and use of trenchless techniques (e.g. HDD) at high sensitivity locations	and recreational receptors	DCO, Part 1, Authorised Development
276	Section 30.7.1	Impact on tourism and recreation	Use of long HDD at landfall removes the need for beach and PRoW closures along the coast. Norfolk Boreas Limited have also committed to not using the beach car park at Happisburgh South.	Avoidance of sensitive tourism and recreational receptors	Embedded mitigation DCO, Part 1, Authorised Development
277	Section 30.7.1	Impact on tourism and recreation	Community engagement is ongoing and will continue after submission of the DCO and throughout the development of the project.	Minimise disturbance to local communities and tourists	DCO Schedule 1, Part 3, Requirement 20(2)(b)
278	Section 30.7.4.1.1	Impacts to offshore tourism and recreation	Production of a Project Environmental Management Plan (PEMP) which will include details on a construction Liaison Committee who would work with local businesses and stakeholders to minimise adverse impacts to an acceptable level.	Minimise impacts to offshore tourism and recreation	DCO Schedule 9 and 10 Condition 14(1)(d), Schedule 11 and 12 Condition 9(1)(d) and Schedule 13 Condition 7(1)(d) - PEMP
279	Section 30.7.4.2.1	Impacts to tourism and recreation	Establishment of safety zones and the communication of relevant information via a Notice to Mariners and other appropriate media, and compliance with international maritime regulations	Reduces impact to sea-based tourism and recreation activities	DCO Schedule 9, 10, Condition 9, Schedule 11, 12 – Condition 4. Schedule 13, Condition 3.
280	Section 30.7.4.4.5	Impact to communities and tourists	Production of traffic management plan (TMP) with prior approval of the Local Planning Authority	Minimise disturbance to local	DCO Schedule 1, Part 3,

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
				communities and tourists	Requirement 21 - TMP
281	Section 30.7.4.4.5	Impacts to offshore tourism and recreation	Production of CoCP detailing methodologies to be used during construction activities and requirements	Minimise impacts to tourism and recreational features such as PRoWs	DCO Schedule 1, Part 3, Requirement 20 - CoCP
282	Section 30.7.4.4.5	Impact to wildlife	OLEMS submitted alongside the ES	Minimise impacts to nature and wildlife related tourism	DCO Schedule 1, Part 3, Requirement 24 EMP
283	Section 30.7.4.4.3	Obstruction or disturbance to users of PRoW, paths and non-motorised routes	Development of a PRoW Strategy (document reference 8.4) to detail methodologies to be used during onshore construction activities, including all requirements for provision of alternative routes of linear recreation routes including long distance trails, cycle routes, PRoW and local footpath networks.	Reduce impacts on users of PRoW, minimise disruption to PRoW and provide alternative routes where necessary.	DCO Schedule 1, Part 3, Requirement 20(2)(n) Proposals for managing public rights of way
Operations and Maintenance (both scenarios)					
284	Section 30.7.1	Disturbance to local communities and wildlife	The onshore project substation has been designed so that it does not require permanent lighting, other than during infrequent inspection and maintenance activities (within working hours only)	Minimise impacts to nature and wildlife related tourism	Embedded mitigation
Decommissioning (both scenarios)					
285	Section 30.7. 6	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore

Reference	Cross reference to ES	Environmental impact	Mitigation measure commitment	Effect of mitigation	Means of implementation
			and consenting approach, and would be undertaken in accordance with an approved Decommissioning Plan.		Decommissioning Plan
Chapter 31 Socio-Economics					
Construction (both scenarios)					
n/a	n/a	n/a	n/a	n/a	n/a
Operations and Maintenance (both scenarios)					
n/a	n/a	n/a	n/a	n/a	n/a
Decommissioning (both scenarios)					
286	n/a	Range of impacts	Decommissioning approach to be finalised nearer to the end of the lifetime of the project in accordance with the current legislation, policy and guidance at the time. Decommissioning would be subject to a separate licencing and consenting approach and would be undertaken in accordance with an approved Decommissioning Plan.	Decommissioning impacts	DCO Schedule 1, Part 3, Requirement 29 – Onshore Decommissioning Plan

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