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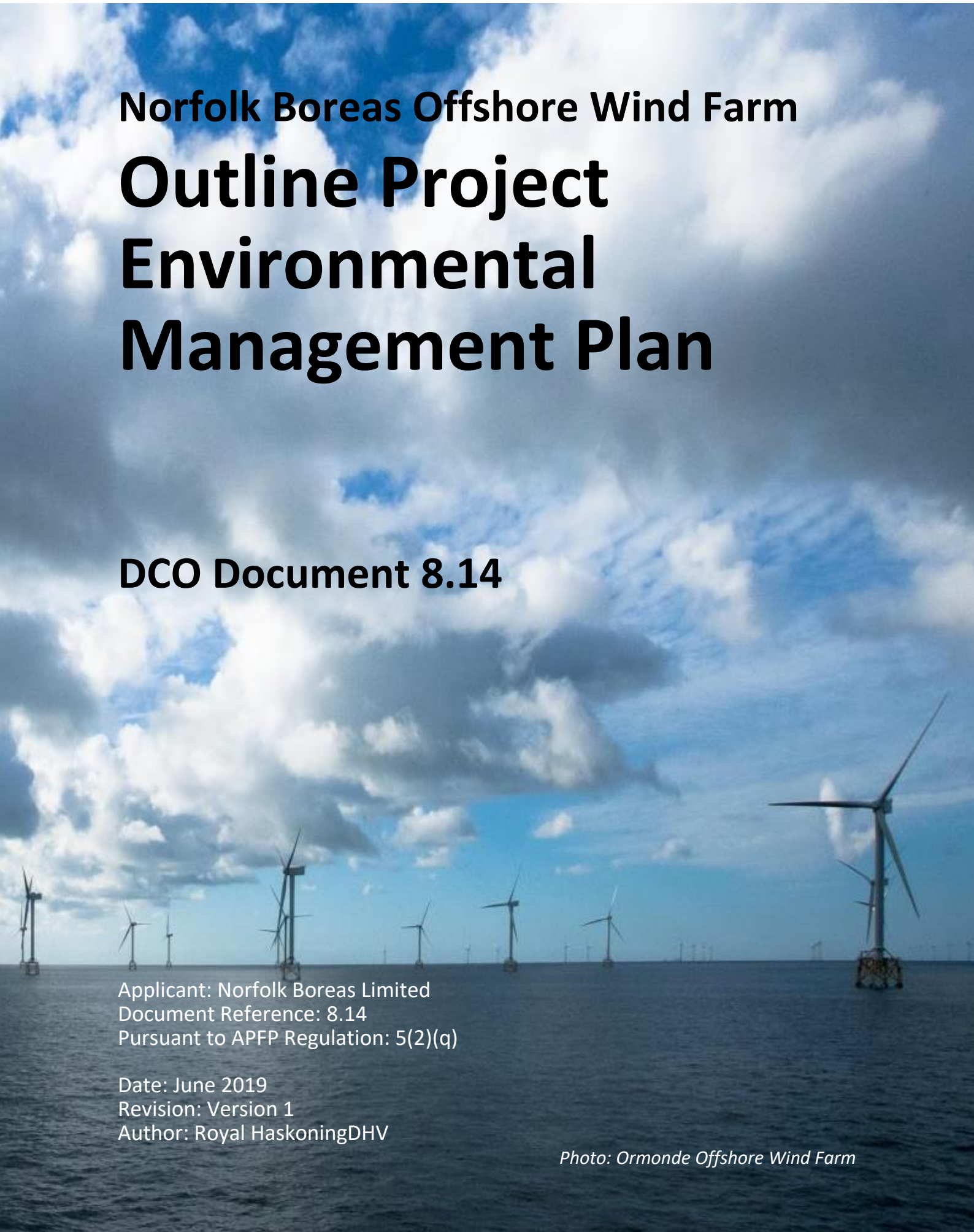

Norfolk Boreas Offshore Wind Farm

Outline Project Environmental Management Plan

DCO Document 8.14

Applicant: Norfolk Boreas Limited
Document Reference: 8.14
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Glossary of Acronyms

BMW	Ballast Water and Sediments Management
CoCP	Code of Construction Practice
DCO	Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EMS	Environmental Management System
EPCI	Engineering, Procurement, Construction and Installation
EPS	European Protected Species
ERCoP	Emergency Response Co-operation Plan
ES	Environmental Statement
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
HDD	Horizontal Directional Drilling
HHW	Haisborough, Hammond and Winterton
HSE	Health, Safety and Environment
IAPP	International Air Pollution Prevention
IMCA	International Marine Contractors Association
IMO	International Maritime Organisation
IOPP	International Oil Pollution Prevention Certificate
IPMP	In Principle Monitoring Plan
km	Kilometres
LiDAR	Light Detection and Ranging
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MW	Megawatt
NtMs	Notice to Mariners
NV East	Norfolk Vanguard East
NV West	Norfolk Vanguard West
OCoCP	Outline Code of Construction Practice
OWF	Offshore wind farm
PEMP	Project Environmental Management Plan
SAC	Special Area of Conservation
SECAs	Sulphur Emission Control Areas
SNCBs	Statutory Nature Conservation Bodies
SNS	Southern North Sea
SOPEP	Shipboard Oil Pollution Emergency Response Plan
UXO	Unexploded ordnance
VWPL	Vattenfall Wind Power Limited
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.
Interconnector cables	Offshore cables which link offshore electrical platforms within the Norfolk Boreas site.
Landfall	Where the offshore cables come ashore at Happisburgh South.
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.
Project interconnector cable	Offshore cables which would link either turbines or an offshore electrical platform in the Norfolk Boreas site with an offshore electrical platform in one of the Norfolk Vanguard sites.
Project interconnector search area	The area within which the project interconnector cables would be installed.
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.

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1 INTRODUCTION

1.1 Purpose of this Document

1. There are potential environmental sensitivities associated with an offshore wind farm development, which need to be identified and considered before construction of the project takes place.

2. These potential effects are outlined in the Norfolk Boreas Environmental Statement (ES) (document reference 6.1), including embedded mitigation through project design and additional mitigation in the form of good practice that will require to be adhered to during the construction and operation phases of the project.

3. This outline Project Environmental Management Plan (PEMP) is provided as part of the Development Consent Order (DCO) application in order to demonstrate the linkages between the impact assessments for the offshore components of Norfolk Boreas (detailed in ES Chapters 8 to 18), offshore development activities, and likely conditions associated with any development consent.

4. An Outline Code of Construction Practice (OCoCP) (document reference 8.1) is provided with the DCO application to provide information relating to the onshore works.

5. The main purpose of this outline PEMP is therefore to set out the framework for the final PEMP (required under Condition 14(1)(d) of Schedules 9 and 10 (the Generation Deemed Marine Licences (DMLs)), Condition 9(1)(d) of Schedules 11 and 12 (the Transmission DMLs) and Condition 7(1)(d) of Schedule 13 (The Project interconnector DML of the DCO), including the controls that are proposed to manage the environmental risks associated with the construction and operation of the offshore components of Norfolk Boreas. The document is based on the Norfolk Boreas ES, industry good practice and relevant legislation (at the time of preparation).

1.2 Background

6. Norfolk Boreas Limited (an affiliate company of Vattenfall Wind Power Limited (VWPL), 'the Applicant') is proposing to develop Norfolk Boreas, an offshore wind farm in the southern North Sea.

7. The Norfolk Boreas project comprises the Norfolk Boreas site, within which wind turbines, associated platforms and array cables will be located. The offshore wind farm will 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 60

kilometres (km) to the onshore project substation near to Necton, Norfolk. A full project description is given in the ES, Chapter 5 Project Description.

8. Norfolk Boreas Limited have included two scenarios within the DCO application; Scenario 1 where Norfolk Vanguard and Norfolk Boreas proceed to construction and Scenario 2 where Norfolk Vanguard does not. These two scenarios are presented in Chapter 5 Project Description of the ES (document reference 6.1.5). The two scenarios have not materially affected the drafting of this document as the environmental management principles being proposed would be the same regardless of which ever scenario is taken forward. However, it should be noted that If Norfolk Vanguard does not proceed (and if Norfolk Boreas does proceed under Scenario 2) then cables to connect Norfolk Boreas with Norfolk Vanguard (the "project interconnector" cables) would not be required. Therefore under this scenario Schedule 13 (the Project Interconnector DML) of the DCO would not be required.

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

- Wind turbines;
- Offshore electrical platforms;
- An offshore service platform;
- Monitoring equipment including Light Detection and Ranging (LiDAR) and wave buoys;
- Navigational buoys;
- Array cables;
- Interconnector cables or project interconnector cables[1]; and
- Export cables.

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

- Landfall;
- Onshore cable route, accesses, trenchless crossing (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] There may also be a requirement for cables to be placed within the project interconnector search area (Figure 5.1 of the ES) which would link the Norfolk Boreas project to the Norfolk Vanguard project (section 5.4.12 of ES Chapter 5 Project Description). Either "Interconnector cables" which would link platforms within the Norfolk Boreas site would be installed or "project interconnector cables" would be installed. Under no scenario would both be required.

11. The Norfolk Boreas site is located approximately 73km from the closest point of the Norfolk Coast. The site covers an area of approximately 725km^2.

12. The detailed design of Norfolk Boreas (e.g. numbers of wind turbines, layout configuration, foundation type and requirement for scour protection) would not be determined until post-consent. Therefore, realistic worst case scenarios in terms of potential impacts/effects are adopted to undertake a precautionary and robust impact assessment.

13. For Norfolk Boreas, several different sizes of wind turbine are being considered in the range of 10MW and 20MW. In order to achieve the maximum 1,800MW export capacity, there would be between 90 (20MW) and 180 (10MW) wind turbines.

14. In addition, up to two offshore electrical platforms, a service platform, two meteorological masts, two LiDAR platforms and two wave buoys, plus a network of up to 740km of offshore cables are considered as part of the worst-case scenario within the Norfolk Boreas site.

15. Norfolk Boreas Limited is considering constructing the project in either a single phase of up to 1,800MW or in two phases (up to a maximum of 1800MW). The layout of the wind turbines will be defined post consent.

16. The full construction window is expected to be up to three years for the full 1,800MW export capacity and offshore construction would be anticipated to commence around 2025. Chapter 5 Project Description provides indicative construction programmes for the single phase and two phase options.

2 SCOPE

17. Condition 14(1)(d) of Schedules 9 and 10 of the DCO states that the PEMP will include the following scope:

A project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation to include details of—

(i) a marine pollution contingency plan to address the risks, methods and procedures to deal with any spills and collision incidents of the authorised scheme in relation to all activities carried out;

(ii) a chemical risk assessment to include information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance;

(iii) waste management and disposal arrangements;

(iv) the appointment and responsibilities of a fisheries liaison officer; and

(v) a fisheries liaison and coexistence plan (which accords with the outline fisheries liaison and co-existence plan) to ensure relevant fishing fleets are notified of commencement of licensed activities pursuant to Condition [9] and to address the interaction of the licensed activities with fishing activities; and

(vi) procedures to be adopted within vessels transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities.

18. Condition 9(1)(d) of Schedules 11 and 12 of the DCO and Condition 7(1)(d) of Schedule 13 also secure (i) to (v) of the above (albeit that the condition referred to in Schedules 11 and 12 (v) is [4] and the Condition referenced to in Schedule 13 (v) is [3]).

19. The final PEMP would be produced prior to construction and would set out the controls and processes that are to be adopted to mitigate environmental impacts of Norfolk Boreas and measures set out to comply with consent conditions in the DMLs and in line with this outline PEMP. The PEMP is an iterative document that develops throughout the development and refinement of the project detailed design process, its procurement and construction.

20. A series of Engineering, Procurement, Construction and Installation (EPCI) contractors will be responsible for the detailed design, construction and installation of the main infrastructure associated with the project, including turbine foundations, turbine erection, offshore cable laying, offshore electrical platforms, service platforms, met masts and landfall. These may be managed as individual projects or as a framework.

21. As discussed in section 1.2, the PEMP is required under DCO Condition 14(1)(d) of Schedules 9 and 10, Condition 9(1)(d) of Schedules 11 and 12 and Condition 7(1)d of

the DCO. Requirements within the PEMP will be communicated to contractors, where relevant, to discharge the relevant licence conditions and to communicate project environmental requirements and standards to facilitate incorporation into their Environmental Management Plans. The PEMP must be the responsibility of the Project Manager to manage in close working with the Contractors.

22. It should be noted that a CoCP (Requirement 20, Schedule 1 Part 3 of the DCO), which includes environmental management requirements, will also be developed for the onshore elements of Norfolk Boreas and will be subject to agreement with relevant Local Planning Authorities. Therefore, the onshore components of Norfolk Boreas are not included within this PEMP.

23. Additional information with regard to environmental management requirements and project specific requirements are set out in the ES, DCO requirements and DML conditions, and in Vattenfall Wind Power Limited's Environmental Policy which is available at:

https://group.vattenfall.com/who-we-are/sustainability/environmental-responsibility

24. Vattenfall Wind Power Limited (parent company of Norfolk Boreas Limited) operates an Environmental Management System (EMS) based on the requirements of ISO 14001:2015, that describes the processes and procedures by which Norfolk Boreas Limited will identify and manage significant risks associated with its operations. The EMS is a primary mechanism by which environmental policy commitments, such as compliance with relevant legislation and standards, pollution prevention and continual improvement in environmental performance are delivered. Norfolk Boreas Limited will be compliant with the requirements of the EMS.

2.1 Typical content for a PEMP

25. The PEMP will include the following information:

- Project Description and Environmental Sensitivities;
- Environmental Management Structure and Responsibilities;
- Associated Documentation;
- Management of Key Environmental Issues;
- Monitoring and Vessel Inspections;
- Legislative and Regulatory Compliance;
- Training and Awareness;
- Communication and Reporting;
- Subcontractor Management; and
- Sustainable Construction.

26. Outline content for each section is described in sections 3 to 12.

3 PROJECT DESCRIPTION AND ENVIRONMENTAL SENSITIVITIES

27. Chapter 5 of the ES outlines the project description based on a design envelope. Following final design of the project, this section would set out information with regards to the detailed design and the associated environmental sensitivities. In particular, sensitive ecological, archaeological or human receptors, such as protected habitats, protected wrecks, constraints from other infrastructure, site layout plans, and the scope of works to be undertaken, would be considered.

28. The relevant EPCI contractors for the project will be expected to have their own Aspect and Impacts Register as part of their internal EMS.

4 ENVIRONMENTAL MANAGEMENT STRUCTURE AND RESPONSIBILITIES

29. Environmental Management roles and responsibilities for Norfolk Boreas would be documented. This section of the final PEMP would set out the environmental responsibilities for the project, including identification of key site staff, their environmental management responsibilities and how these link with other members of the Project Team, such as the Project Manager, the Project Health Safety and Environmental Manager(s) and / or Advisors along with environmental specialists such as Environmental Liaison Officer, Fisheries Liaison Officer (FLO), Ornithologists, Marine Mammal Observers or Archaeologists. The contact details for the key individuals listed should also be included in the PEMP.

30. Interactions with stakeholders such as Statutory Nature Conservation Bodies (SNCBs) and the Marine Management Organisation (MMO) would also be covered in this section.

31. It is expected that Norfolk Boreas Limited would employ a Principal Contractor who would be responsible for environmental management on site, including the preparation of environmental documentation.

5 ASSOCIATED DOCUMENTATION

32. This section would refer to relevant associated EMS and project/site specific documentation that requires to be taken into consideration in developing the final PEMP. Examples include, but are not limited to:

- Contract requirements (such as environmental standards);
- Contractor's EMS requirements;
- Project Emergency Response Plan;
- Project Health and Safety Plan;
- Project Environmental Statement;
- DCO requirements;
- DML conditions;
- Risk registers; and
- Legal registers.

6 MANAGEMENT OF KEY ENVIRONMENTAL ISSUES

33. This section provides an overview of the controls and procedures to be adopted to mitigate the environmental impacts associated with the project. Further details would be provided in the final PEMP following the final design.

34. This section covers the following issues.

- Marine ecology;
- Marine archaeology and cultural heritage;
- Dropped object in the marine environment;
- Wastewater discharges;
- Oils, fuel and chemicals;
- Waste management;
- Fisheries liaison;
- Emissions to air; and
- Method Statements and Risk Assessments.

35. A brief overview of some of the key issues for each item is provided below. However, it should be noted that the list of issues identified above is not exhaustive and would be specific to the final design of the project.

36. An In Principle Monitoring Plan (IPMP) (document reference 8.12) and a Schedule of Mitigation (document reference 6.5) are provided with the DCO application, outlining the approach to monitoring and mitigation for Norfolk Boreas based on the outcomes of the offshore impact assessments detailed in chapters 8 to 18 of the ES.

37. The final project PEMP would include the mitigation measures to be adopted. This would enable communication of awareness of any sensitive areas and potential protected features, such as reefs, to the designated members of the Project Team. The procedures to be adopted in the event of an incident in proximity to these features would also be set out in the PEMP.

6.1 Marine ecology

6.1.1 Benthic ecology

38. Pre-construction surveys (as required under DCO Condition 14(1)(b)(iii) of the Schedules 9 and 10, Condition 9(1)(b)(iii) of Schedules 11 and 12 and Condition 7(1)(b)(iii) of the Schedule 13 would be undertaken in advance of any cable and foundation installation works. The methodology for the pre-construction surveys would be agreed with the MMO and Natural England.

39. Should seabed features and obstacles (e.g. Annex 1 reef and unexploded ordnance (UXO)) be identified in the proposed wind turbine locations and/or on cable routes

during the pre-construction surveys, micrositing would be undertaken where possible, to minimise potential impacts (as required under Condition 14(1)(a)(vii) of the Schedules 9 and 10, Condition 9(1)(a)(vii) of Schedules 11 and 12 and Condition 7(1)(a)(iii)] of the Schedule 13.

40. Norfolk Boreas Limited is committed to burying offshore export cables where possible, thereby reducing Electromagnetic Fields (EMF) and the need for surface cable protection. An Outline Scour Protection and Cable Protection Plan (document reference 8.16) is provided with the Norfolk Boreas DCO Application. A cable burial risk assessment (as required under DCO Condition 14(1)(g)(ii) of Schedules 9 and 10, Condition 9(1)(g)(ii) of Schedules 11 and 12 and Condition 7(1)(f)(ii) of Schedule 13) will be undertaken post consent, in consultation with stakeholders.

41. Norfolk Boreas Limited have committed to the production of a Site Integrity Plan (SIP) for the Haisborough Hammond and Winterton (HHW) Special Area of Conservation (SAC). This commitment is secured through the DCO Condition 9(1)(m) of Schedules 11 and 12. The HHW SIP will be the framework for developing and agreeing mitigation and monitoring measures as is necessary to avoid adversely affecting the integrity of the sandbanks and *Sabellaria spinulosa* reef features of the site.

42. All seabed material arising from the Haisborough, Hammond and Winterton SAC during cable installation would be placed back within the SAC (see Site Characterisation Report (document reference 8.15) using an approach, to be agreed with SNCBs and the MMO. Sediment would not be disposed of within 50m of known Annex I reef, further detail of this mitigation is provided in the Site Characterisation Report.

43. The risk of spreading non-native invasive species would be mitigated through use of best-practice techniques, including:

- Appropriate vessel maintenance following guidance from the International Convention for the Prevention of Pollution from Ships (MARPOL);
- The Environmental Damage (Prevention and Remediation (England) Regulations 2015, which set out a polluter pays principle where the operators who cause a risk of significant damage or cause significant damage to land, water or biodiversity will have the responsibility to prevent damage occurring, or if the damage does occur will have the duty to reinstate the environment to the original condition; and
- The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), which provide global regulations to control the transfer of potentially invasive species.

6.1.2 Marine mammals

44. A construction method statement (as required under Condition 14(1)(c)(ii) of Schedules 9 and 10 and Condition 9(1)(c)(ii) of Schedules 11 and 12 of the DCO) would be produced following final design to detail the procedures for soft start and ramp up of piling activity, in accordance with those assessed in Chapter 12 of the ES.

45. A piling Marine Mammal Mitigation Protocol (MMMP) (as required under Condition 14(1)(f)] of Schedules 9 and 10 and Condition 9(1)(f) of Schedules 11 and 12 of the DCO) would detail the proposed mitigation measures to reduce the risk of any physical or permanent auditory injury to marine mammals during all piling operations. This would also include details of the embedded mitigation, for the soft-start and ramp-up. A draft MMMP (document reference 8.13) has been submitted as part of the DCO application.

46. In addition to the draft MMMP, a Norfolk Boreas Southern North Sea (SNS) Special Area of Conservation (SAC) Site Integrity Plan (SIP) is required under Condition 14(1)(m) of Schedules 9 and 10 and Condition 9(1)(l) of Schedules 11 and 12 of the DCO. This document would provide such mitigation as is necessary to avoid adversely affecting the integrity of the site. An In principle version of this document is provided as part of this DCO submission (document reference 8.17). It sets out the approach for Norfolk Boreas Limited to deliver the required mitigation measures for the Norfolk Boreas project to ensure the avoidance of significant disturbance of harbour porpoise in relation to the Southern North Sea SAC site Conservation Objectives.

47. It is likely that a risk assessment for European Protected Species (EPS) (cetaceans) will be incorporated into the PEMP and an EPS licence(s) applied for where applicable.

6.1.3 Offshore ornithology

48. The project PEMP would include the final procedures to be adopted within vessels transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities in accordance with Condition 14(1)(d)(vi) of Schedules 9 and 10 of the DCO.

49. Potential impacts on red-throated diver during operation and maintenance works will be mitigated through:

- Avoiding and minimising maintenance vessel traffic, where possible, during the most sensitive time period in January/ February/ March;
- Restricting vessel movements where possible to existing navigation routes (to areas where red-throated diver density is likely to be lowest);

- Maintaining direct transit routes (to minimise transit distances through areas used by red-throated diver);
- Avoidance of over-revving of engines (to minimise noise disturbance); and
- Avoiding rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid disturbance to areas with consistently high diver density.

50. Norfolk Boreas Limited would make maintenance vessel operators aware of the importance of the species and the associated mitigation measures through tool box talks.

6.2 Marine archaeology and cultural heritage

51. Chapter 17, Offshore and Intertidal Archaeology and Cultural Heritage, of the ES identifies sites / wrecks etc. of potential archaeological importance and these are identified in the Outline Offshore Written Scheme of Investigation (WSI) (document reference 8.6) with appropriate mitigation measures outlined, such as establishment of archaeological exclusion zones. The PEMP would include the final measures to be adopted, in accordance with the final offshore WSI (required under DCO Condition 14(1)(h) of the Schedules 9 and 10, Condition 9(1)(h) of Schedules 11 and 12 and Condition 7(1)(d) of Schedule 13 of the DCO), to communicate awareness of sensitive archaeological sites to the designated members of the Project Team and the procedures to be adopted in the event of an unanticipated find.

6.3 Dropped object in the marine environment

52. Condition 12(10) of Schedules 9 and 10, Condition 12(9) of Schedules 11 and 12 and Condition 5 (10) of Schedule 13 of the DCO states:

All dropped objects must be reported to the MMO using the Dropped Object Procedure Form as soon as reasonably practicable and in any event within 24 hours of the undertaker becoming aware of an incident. On receipt of the Dropped Object Procedure Form, the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the seabed at the undertaker's expense if reasonable to do so.

53. The procedure provided in the final PEMP should detail the proposed recovery for both floating and non-floating objects, and the reporting and documenting of the incident to the designated members of the Project Team and the regulator. The procedure must be reviewed by the designated members of the Project Team prior to the contractor commencing work.

6.4 Wastewater discharges

54. Controls for any waste water discharges (such as effluent discharges, ballast waters, bilge waters, and deck runoff) would be included in the final PEMP, in accordance with latest legislation, regulatory limits and good practice.

55. Monitoring records in relation to the disposal of foul water, bilge water or ballast water during the construction phase must be retained.

6.5 Oils, fuel and chemicals

56. It is the responsibility of each contractor to have in place adequate controls for the delivery, storage and use of fuels, oils and chemicals on vessels and other materials as required. This includes checks that chemicals to be used offshore comply with relevant regulations. The following control measures would be applied where possible:

- Oils and lubricants used in the wind turbines would be biodegradable where possible and all chemicals would be certified to the relevant standard.
- Where grout is required, careful use would be ensured at all times to avoid excess grout being discharged to the environment.
- All wind turbines would incorporate appropriate provisions to retain spilled fluids within the nacelle and tower. In addition, offshore electrical platforms would be designed with a self-contained bund to contain any spills and prevent discharges to the environment.
- Best practice procedures would be put in place when transferring oil or fuel between offshore electrical platforms and service vessels.
- Appropriate spill plan procedures would also be implemented in order to appropriately manage any unexpected discharge into the marine environment, these would be included in a Marine Pollution Contingency Plan to be agreed post-consent. To avoid discharge or spillage of oils it is anticipated that the transformers would be filled for their operational life and would not need interim oil changes.

57. Within their environmental management plan, each contractor must consider the delivery, storage and handling of hazardous materials and in particular oils and fuels taking into account the legal requirements and good practice guidelines.

58. Oils and chemicals must be clearly labelled and each contractor should retain an up-to-date hazardous substance register. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel.

59. Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas taking into account security, the location of sensitive receptors and pathways, and safe access and egress for plant and manual handling.

60. Spill response materials should be provided nearby and be readily accessible, with local project personnel trained in spill response.

61. Vessels of more than 400 gross tonnage should maintain an oil record book and the sulphur content of fuels must comply with MARPOL (International Convention for the Prevention of Pollution from Ships) Annex VI requirements in relation to Sulphur Emission Control Areas (SECAs) and hold a valid International Oil Pollution Prevention Certificate (IOPP).

6.6 Waste management

62. Where waste is produced, reuse, recycle or recovery should be considered where practical and economically feasible prior to considering disposal.

63. Each contractor is responsible for the collection, storage and disposal of any waste produced as part of the project. Vessel operators are required to liaise with port operators to facilitate appropriate storage, transfer, segregation and disposal of waste.

6.7 Fisheries liaison

64. A Fisheries Liaison and Coexistence Plan (as required under Condition 14(1)(d)(v) of Schedules 9 and 10, Condition 9(1)(d)(v) of Schedules 11 and 12 and Condition 7(1)(d)(v) of Schedule 13 of the DCO) which aligns with the Outline Fisheries liaison and Coexistence Plan (document reference 8.19) must be produced to ensure relevant fishing fleets are notified of commencement of licensed activities and to address the interaction of the licensed activities with fishing activities.

65. This would include the following:

- Timely and efficient Notice to Mariners (NtMs), Kingfisher notifications and other navigational warnings (of the position and nature of works including offshore cable corridor crossings) would be issued to the fishing community;
- Appropriate liaison would be undertaken with all relevant fishing interests to ensure that they are informed of development planning, construction and maintenance activities and any items which may accentuate risk such as UXOs, unburied cables cut and weighted cables, etc (as required, in the case of exposure of cables, under Condition 9(12) of Schedules 9 and 10, Condition 4(12) of Schedule 11 and 12 and Condition 3(12) of Schedule 13 of the DCO);

- A Fisheries Liaison Officer (FLO) (as required under Condition 14(1)(d)(iv) of Schedules 9 and 10, Condition 9(1)(d)(v) of Schedules 11 and 12 and Condition 7(1)(d)(v) of Schedule 13 of the DCO) will be appointed over the construction and operational phase of the project and Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Guidance (2014; 2015) adhered to; and
- Information on the location of areas of cable protection would be communicated to the fishing industry.

6.8 Emission to air

66. Vessel emissions associated with Norfolk Boreas would comply with MARPOL Annex VI requirements in relation to ozone depleting substances regulations, nitrogen oxide, sulphur oxide and particulate and volatile organic compounds. Where relevant, vessels must have a valid International Air Pollution Prevention (IAPP) certificate.

6.9 Method Statements and Risk Assessments

67. It is the responsibility of the contractors to have in place approved method statements and risk assessments for works being carried out on-site. Where relevant, the method statement should cross reference applicable environmental risk assessments.

68. The risk assessments should identify environmental hazards and outline subsequent control measures. Control measures should be developed, implemented and monitored to ensure that any impact on the environment is avoided or minimised. Approval for these method statements with the relevant authorities may be required.

69. Key personnel involved in the work activities should be given a method statement briefing by the Contractor, in the form of a tool box talk. The tool box talk should outline the risks involved and the control measures that personnel are expected to comply with. It is expected that individuals sign a method statement attendance briefing record sheet, acknowledging receipt of the information; these records should be maintained by the Contractor. Tool box talks should also be used to inform contractors of other environmental sensitivities as appropriate (see section 10.2).

7 ENVIRONMENTAL INCIDENT RESPONSE AND CONTINGENCY

70. It is essential that any environmental incidents (including dropped objects into the marine environment) are reported and managed correctly to allow their impact to be reduced to a minimum and to decrease the risk of the incident re-occurring.

7.1 Emergency Response Plan

71. Contractors will be required to have an Emergency Response Co-operation Plan (ERCoP) in accordance with Condition 15(4) of Schedules 9 and 10, Condition 10(4) of Schedules 11 and 12 and condition 8(4) of Schedule 13 of the DCO.

72. The plan should include a response flow chart and detail how to report and respond to an environmental incident, including the measures available to contain/clean up an incident, manage dropped objects in the marine environment and offsite emergency response resources.

73. For the offshore activities, a Marine Pollution Contingency Plan (MPCP) (required under Condition 14(1)(d)(i) of Schedules 9 and 10, Condition 9(1)(d)(i) of Schedules 11 and 12 and Condition 7(1)(d)(i) of Schedule 13 of the DCO), will also be developed for the Project.

74. Vessels working on behalf of the project will require to have a Shipboard Oil Pollution Emergency Response Plan (SOPEP) in accordance with International Maritime Organisation (IMO) and Maritime and Coastguard Agency (MCA) guidelines or an Oil Pollution Plan if under 400GT.

7.2 Reporting

75. All environmental incidents (including dropped objects into the marine environment) and near misses must be reported, investigated and recorded to the designated members of the Project Team.

76. Contractors are required to produce monthly reports for the designated members of the Project Team to record health, safety and environmental performance.

7.3 Lessons learned / Incident follow-up

77. If an environmental incident should occur, it must be thoroughly investigated by the relevant contractor to establish the root cause and prevent any recurrence. Dependent on the severity of the incident, the Project Team may wish to manage or assist with the investigation process.

8 MONITORING AND VESSEL INSPECTIONS

78. A programme of performance and compliance monitoring must be established for the site, this should be documented in the final PEMP and include, but not necessarily be restricted to, the following items, where relevant.

8.1 Environmental audits

79. Environmental audits should comprise both internal audit and external audits.

80. The Vattenfall Wind Power Limited (parent company of Norfolk Boreas Limited) audit programme includes a requirement to audit construction sites on a periodic basis. An audit checklist will be used by Norfolk Boreas Limited to ensure that a standard approach is applied consistently. Environmental audits would be carried out by experienced auditors, either from within the Vattenfall Wind Power Limited Environmental Team, or via delegated specialists.

8.2 Vessel inspections and audits

81. Environmental vessel inspections should be based on the International Marine Contractors Association (IMCA) standards, IMCA M 189/S 004 (Marine Inspection Check List for Small Boats) or IMCA M 149 (Common Marine Inspection Document). A log of all vessel audits and associated close out actions should be maintained. This is the approach adopted by Vattenfall.

8.3 Environmental monitoring

82. An In Principle Monitoring Plan (document reference 8.12) is submitted with the DCO application. It is recognised that monitoring is an important element in the management of the actual project impacts for certain receptors. The requirement for appropriate design and scope of monitoring will be agreed with the appropriate Regulators and stakeholders prior to construction works commencing.

9 LEGISLATIVE AND REGULATORY COMPLIANCE

9.1 Development Consent Order conditions

83. UK Offshore sites are granted permission to be constructed under specific consents and licences issued by Government bodies such as the MMO.

84. Specific limits for emissions to air, discharges to land and water and working practices (such as seasonal exclusions) are contained within these consents/licenses and may not be breached at any time. The DCO and DMLs will be the key permissions to be adhered to for offshore construction and operation of the project.

85. The Principal Contractor must ensure that all relevant requirements and conditions for the project are complied with.

86. Requirements and conditions will be reviewed by the designated members of the project team on a periodic basis, to ensure that they are being complied with.

9.2 Legal Register

87. It is Vattenfall Wind Power Limited 's (as the parent company of Norfolk Boreas Limited) policy to minimise the impact of its construction and O&M activities on the environment by complying with all relevant environmental legislation and good practice. In order to ensure that Norfolk Boreas Limited is aware of the requirements of current environmental legislation and good practice, an Environmental and Planning Legal Register will be maintained by the Vattenfall Wind Power Limited Environment Team.

88. The Legal Register details relevant environmental legislation requirements for the business and also includes details of associated control measures.

89. The Contractor will be required to ensure that all relevant environmental legislation and Good practice are complied with on site. Adequate records of environmental information and audits to demonstrate compliance with both legal and project environmental requirements will require to be maintained by the Contractor.

9.3 Regulatory reference material

90. Key reference material in this section of the final PEMP should include the following.

- Register of relevant DCO requirements /DML conditions;
- Project Legal Register; and
- Good Practice Guidance/Industry Standards.

10 TRAINING AND AWARENESS

91. A range of mechanisms would be used for training and raising awareness of project environmental issues; these include environmental inductions, tool box talks, environmental notice boards, and environmental bulletins and alerts.

10.1 Project / vessel inductions

92. All vessel personnel must have a vessel induction that includes an environmental component. Designated personnel from the Contractor's project team should be responsible for preparing and delivering the site induction and maintaining documented attendee records.

93. It is expected that the environmental management contents of vessel inductions will include reference to compliance with relevant requirements and conditions, environmental management contacts, site specific environmental sensitivities, waste management arrangements, hazardous material management, fuel, oil and chemical management; environmental emergency response, reporting of incidents and complaints.

10.2 Tool Box Talks

94. Tool box talks are considered to be an effective method for the dissemination of information relating to work activities. Environmental tool box talks must be delivered by the Contractor to on-site personnel on an as required basis. Tool box talks attendance sheets are likely to be inspected as part of environmental audits.

10.3 Emergency response

95. The Contractor must ensure that all staff including any subcontractors are trained in the project environmental emergency response procedures, so that they are able and prepared to respond to an incident promptly and effectively. Where appropriate, Norfolk Boreas Limited encourages environmental emergency response plans to be tested by the Principal Contractor.

11 COMMUNICATION AND REPORTING

11.1 Meetings

96. Environmental meetings and debriefs must be held local to the site. Periodic health, safety and environment (HSE) meetings are required to be held on all construction and maintenance vessels and are likely to comprise representatives from the Project Team, the Principal Contractor, and key sub-contractors. Minutes of meetings will be recorded and standard agenda items will include status of outstanding items, reports of environmental incidents or complaints, stakeholder engagement, tool box talks issued / delivered, and key findings of environmental inspections and audits.

97. The Principal Contractor is expected to convene regular project team meetings to convey environmental information to the designated members of the Project Team, including sub-contractors and to raise awareness of environmental issues.

11.2 Community Complaints

98. Norfolk Boreas Limited values its relationship with the communities that surround our sites. All work must be carefully planned to minimise disturbance to our neighbours.

99. Contractors must ensure that any complaints are reported to the designated members of the Project Team and investigated promptly.

100. The final PEMP must detail the procedure in place to report public complaints in relation to offshore works.

11.3 Fisheries Liaison

101. As discussed in section 6.7, a FLO will be appointed for the duration of the construction works.

11.4 Stakeholders

102. Reference should also be made to any reporting requirements set out under the DCO and / or DMLs.

12 SUB- CONTRACTOR MANAGEMENT

103. The final PEMP must set out how the Principal Contractor manages their subcontractors. This may range from the selection and assessment processes through to the assessment of performance on the vessel.

104. For example, expectations of Contractors working on behalf of Norfolk Boreas Limited are primarily detailed in this and the following documents:

- Contract Schedules including specific environmental requirements;
- Environmental Policy; and
- Environmental Statement.

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