



# Hornsea Project Four

## Outline Ecological Management Plan

**Deadline 1, Date: 08 March 2022**

**Document Reference: F2.3**

**Revision: 02**

**Prepared** Royal HaskoningDHV, March 2022  
**Checked** Orsted, March 2022  
**Accepted** Thomas Watts, Orsted, March 2022  
**Approved** Julian Carolan, Orsted. March 2022

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Version C

## Revision Summary

<i>Rev</i>	<i>Date</i>	<i>Prepared by</i>	<i>Checked by</i>	<i>Approved by</i>
01	29/09/2021	Royal Haskoning DHV	Thomas Watts	Julian Carolan
02	08/03/2022	Royal Haskoning DHV	Thomas Watts	Julian Carolan

## Revision Change Log

<i>Rev</i>	<i>Page</i>	<i>Section</i>	<i>Description</i>
01	N/A	N/A	Submitted as part of DCO Application
02	13 21 25	3 3.3.1 3.3.3	Addition of text in response to the Environment Agency Relevant Representation.
02	35	4.4.3	Removal of typographical error relevant to ExA written question OE.1.6.

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## Glossary

Term	Definition
Code of Construction Practice (CoCP)	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.
Commitment	<p>A term used interchangeably with mitigation and enhancement measures. The purpose of Commitments is to reduce and/or eliminate Likely Significant Effects (LSEs), in EIA terms.</p> <p>Primary (Design) or Tertiary (Inherent) are both embedded within the assessment at the relevant point in the EIA (e.g. at Scoping, Preliminary Environmental Information Report (PEIR) or ES).</p> <p>Secondary commitments are incorporated to reduce LSE to environmentally acceptable levels following initial assessment i.e. so that residual effects are acceptable.</p>
Dark corridor	An area created to encourage/guide bats away from lit areas or around lit obstacles (such as roads). These areas (corridors) should be placed with consideration for the use of the landscape as a whole in relation to key commuting routes, linking bat foraging and roosting sites.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects (NSIP).
EIA Directive	European Union Directive 85/337/EEC, as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC and then codified by Directive 2011/92/EU of 13 December 2011 (as amended in 2014 by Directive 2014/52/EU).
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Energy balancing infrastructure (EBI)	The onshore substation includes energy balancing Infrastructure. These provide valuable services to the electrical grid, such as storing energy to meet periods of peak demand and improving overall reliability.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations

Term	Definition
Export cable corridor (ECC)	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Hornsea Project Four array area to the Creyke Beck National Grid substation, within which the export cables will be located.
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
High Voltage Direct Current (HVDC)	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.
Hornsea Project Four Offshore Wind Farm	The term covers all elements of the project (i.e. both the offshore and onshore). Hornsea Four infrastructure will include offshore generating stations (wind turbines), electrical export cables to landfall, and connection to the electricity transmission network. Hereafter referred to as Hornsea Four.
Landfall	The generic term applied to the entire landfall area between Mean Low Water Spring (MLWS) tide and the Transition Joint Bay (TJB) inclusive of all construction works, including the offshore and onshore ECC, intertidal working area and landfall compound. Where the offshore cables come ashore east of Fraisthorpe.
National Grid Electricity Transmission (NGET) substation	The grid connection location for Hornsea Four at Creyke Beck.
Onshore substation (OnSS)	Comprises a compound containing the electrical components for transforming the power supplied from Hornsea Project Four to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid. If a HVDC system is used the OnSS will also house equipment to convert the power from HVDC to HVAC.
Order Limits	The limits within which Hornsea Four (the 'authorised project') may be carried out.
Orsted Hornsea Project Four Ltd.	The Applicant for the proposed Hornsea Project Four Offshore Wind Farm Development Consent Order (DCO).
Trenchless Techniques	Also referred to as trenchless crossing techniques or trenchless methods. These techniques include Horizontal Directional Drilling (HDD), thrust boring, auger boring, and pipe ramming, which allow ducts to be installed under an obstruction without breaking open the ground and digging a trench.

## Acronyms

Acronym	Definition
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
CoCP	Code of Construction Practice
DCO	Development Consent Order
EBI	Energy Balancing Infrastructure
ECC	Export Cable Corridor
ECoW	Ecological Clerk of Works
EMP	Ecological Management Plan
ERYC	East Riding of Yorkshire Council
GCN	Great Crested Newt
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ILE	Institute of Lighting Engineers
LMP	Landscape Management Plan
MHWS	Mean High Water Springs
NGET	Nation Grid Electricity Transmission
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OEMP	Outline Ecological Management Plan
OnSS	Onshore substation
PEIR	Preliminary Environmental Information Report
RAMS	Risk assessment and Method Statement
WCA	Wildlife and Countryside Act (1981)

## Units

Unit	Definition
ha	hectares
km	kilometres
m	meters
Mph	miles per hour

## 1 Introduction

1.1.1.1 Orsted Hornsea Project Four Limited (the 'Applicant') is proposing to develop the Hornsea Project Four Offshore Wind Farm (hereafter 'Hornsea Four'). Hornsea Four will be located approximately 69 km offshore the East Riding of Yorkshire in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone. Hornsea Four will include both offshore and onshore infrastructure including an offshore generating station (wind farm), export cables to landfall, and on to an onshore substation (OnSS) with energy balancing infrastructure (EBI), and connection to the electricity transmission network.

1.1.1.2 Details of the activities and infrastructure associated with Hornsea Four are fully set out in [Volume A1, Chapter 4: Project Description](#). In summary, the onshore elements of Hornsea Four will comprise of:

- **Landfall** – including transition joint bays connecting the offshore export cable corridor (ECC) and onshore ECC, one temporary landfall compound and temporary access tracks;
- **Onshore ECC** – including the onshore export cables, eight temporary logistics compounds, joint bays and link boxes, and temporary access tracks;
- **OnSS and EBI** – including the temporary working area, temporary and permanent access tracks, the permanent working area (inclusive of the OnSS, EBI and associated landscaping and attenuation feature); and,
- **400 kV National Grid Electricity Transmission (NGET) connection area** – the area within which a 400 kV section of the onshore ECC will connect to the existing National Grid Electricity Transmission (NGET) substation at Creyke Beck.

1.1.1.3 Hornsea Four has adopted several commitments (primary design principles inherent as part of the project). These commitments (set out within [Volume A4, Annex 5.2: Commitment Register](#)) include; installation techniques and engineering designs/modifications, to avoid a number of impacts or to reduce impacts as far as possible.

## 1.2 Purpose and Implementation of the Outline EMP

1.2.1.1 This OEMP will form the basis for a final EMP, which will be prepared and submitted by the Principal or the Applicant (dependant on organisational structure) prior to the commencement of construction activities associated with Hornsea Four. This is supported by inclusion of Requirement 10 of the draft Development Consent Order (DCO) which states:

**10.—(1)** *No stage of the connection works may commence until a written ecological management plan (which accords with the outline ecological management plan and the relevant recommendations of appropriate British Standards) for that stage of the connection works reflecting the survey results and ecological mitigation and enhancement measures included in the environmental statement has been submitted to and approved in writing by the relevant planning authority in consultation with the*



*relevant SNCBs and (where works have potential to impact wetland habitats) the Environment Agency.*

*(2) The ecological management plan must include an implementation timetable and must be carried out as approved.*

1.2.1.2 This OEMP has been developed to support **Volume A3, Chapter 3: Ecology and Nature Conservation** of the Hornsea Four Environmental Statement (ES) as part of the project's DCO application.

1.2.1.3 Hornsea Four will adopt a staged approach to the approval of DCO requirements enabling requirements to be approved in part or in whole prior to the commencement of the relevant stage of works according to whether a staged approach is to be taken to construction of the works in question. This approach will be governed by the inclusion of Requirement 27 within the draft DCO which requires a written scheme setting out the stages of construction to be approved prior to the commencement of the authorised development. The Construction Staging Scheme must be approved by the relevant Planning Authority in respect of the onshore connection works and by the MMO in relation to authorised works seaward of MHWS.

1.2.1.4 The Construction Staging Scheme will detail the stages of construction and the timing of approval of relevant DCO requirements with respect to the relevant construction stages identified within the scheme.

*(1) The authorised development may not be commenced until a written scheme setting out the stages of construction of the authorised development has been submitted to and approved by the relevant planning authority, in relation to the connection works, or the MMO, in relation to works seaward of MHWS.*

*(2) The stages of construction referred to in sub-paragraph (1) shall not permit the authorised development to be constructed in more than one overall phase.*

*(3) The scheme must be implemented as approved.*

### **1.3 oEMP Scope**

1.3.1.1 The purpose of the OEMP is to provide a single document that presents the ecology and nature conservation management and mitigation measures that will be undertaken prior to, during and post the construction of the onshore elements of Hornsea Four. It also provides information on any long-term management measures required to enable the reinstatement and/ or enhancement of habitats.

1.3.1.2 This OEMP is a live document and will be updated as necessary prior to its implementation. It provides details of pre-construction ecology surveys which will be required post consent in order update the ecological baseline and inform the final management and mitigation plan.

- 1.3.1.3 The aim of this OEMP is to ensure the protection and appropriate management of ecological receptors within the area to be affected by Hornsea Four. Alongside adherence to legislative requirements relating to ecology and nature conservation. Information relating to enhancement is provided in [Volume F2, Chapter 14: Outline Enhancement Strategy](#).
- 1.3.1.4 This OEMP has been drafted based on the findings of pre-consent surveys undertaken in 2019. Further information with regard to specific survey findings and locations can be found within the following documents.
- [Volume A6, Annex 3.1: Extended Phase 1 Habitat Survey Report & 2021 Addendum](#);
  - [Volume A6, Annex 3.2: Extended Phase 1 Target Note Tables & 2021 Addendum](#);
  - [Volume A6, Annex 3.3: Onshore Ornithology – Wintering and Migratory Birds Survey Report](#);
  - [Volume A6, Annex 3.4: Breeding Bird Survey Report](#);
  - [Volume A6, Annex 3.5: Great Crested Newt Environmental DNA \(eDNA\) Survey Report](#);
  - [Volume A6, Annex 3.6: Water Vole Survey Report](#);
  - [Volume A6, Annex 3.7: Otter Survey Report \(Confidential\)](#);
  - [Volume A6, Annex 3.8: Bat Static Detector Survey Report Part A](#);
  - [Volume A6, Annex 3.9: Bat Static Detector Survey Report Part B](#);
  - [Volume A6, Annex 3.10: Bat Activity Transect Survey Report Part A](#);
  - [Volume A6, Annex 3.11: Bat Activity Transect Survey Report Part B](#);
  - [Volume A6, Annex 3.12: Bat Emergence and Re-entry Survey Report Part A](#);
  - [Volume A6, Annex 3.13: Bat Emergence and Re-entry Survey Report Part B](#);
  - [Volume A6, Annex 3.14: Hedgerow and Arboricultural Survey Report](#); and
  - [Volume A6, Annex 3.15: Badger Survey Report \(Confidential\)](#).
- 1.3.1.5 As the OEMP is considered to be a live document, updates will be made following pre-construction surveys and all relevant plans and ecological receptor locations will be included within the final EMP, in accordance with Requirement 10 of the draft DCO.
- 1.3.1.6 Hornsea Four have developed a range of Commitments to eliminate or reduce impacts as far as possible. All Commitments identified for Hornsea Four to date are detailed in the Commitments Register (see [Volume A4, Annex 5.2: Commitments Register](#)) and are summarised within the relevant topic specific chapters of the ES. The Commitments Register includes the following commitments relevant to the OEMP:

**Table 1: Ecology and Nature Conservation Commitments.**

Commitment ID	Type	Measure Proposed	How the measure will be secured
Co26	Primary	Where hedgerows and/or trees require removal, this will be undertaken prior to topsoil removal. Sections of hedgerows and trees will be replaced using like for like hedgerow species.	DCO Requirement 17 (CoCP);  and;  DCO Requirement 10 (EMP)
Co27	Primary	Trees identified to be retained within the Onshore Crossing Schedule will be fenced off and worked around. Where works are required close to trees that will remain in situ, techniques will be used to safeguard the root protection zone.	DCO Requirement 17 (CoCP);  and;  DCO Requirement 10 (EMP)
Co33	Tertiary	All vegetation requiring removal will be undertaken outside of the bird breeding season. If this is not reasonably practicable, the vegetation requiring removal will be subject to a nesting bird check by a suitably qualified ECoW. If nesting birds are present, the vegetation will not be removed until the young have fledged, or the nest failed.	DCO Requirement 10 (EMP); and  DCO Requirement 17 (CoCP)
Co35	Secondary	Where required, provision will be made for badger access in relevant construction areas, when work is not taking place in order to ensure normal movements as far as reasonably possible. Provision will be made to ensure avoiding the entrapment of any animals within relevant construction areas. Checks will be made prior to be made prior to the start of any works to ensure no animals are trapped and if any have fallen in. Appropriate checks will be made as required by the ECoW.	DCO Requirement 10 (EMP); and  DCO Requirement 17 (CoCP)
Co69	Secondary	Construction site lighting will only operate when required and will be positioned and directed to avoid unnecessary illumination to residential properties, sensitive ecological receptors, footpath users, and minimise glare to users of adjoining public highways. Construction site lighting will be designed in accordance with latest relevant available guidance and legislation and the details of the location, height, design and luminance of lighting to be used will be detailed within the final Code of Construction Practice. The design of construction site lighting will accord with the details provided in the Outline Code of Construction Practice (Co124) and Outline Ecological Management Plan (Co168).	DCO Requirement 17 (CoCP); and  DCO Requirement 10 (EMP)
Co78	Primary	All ponds identified during the route planning and site selection process have been avoided where possible. During construction	DCO Requirement 10 (EMP)

Commitment ID	Type	Measure Proposed	How the measure will be secured
		and newly identified ponds will be avoided through micro-siting of the onshore export cable where reasonably practicable.	
Co119	Secondary	In areas of confirmed presence, or potential for great crested newt (i.e. within 250 m of an identified great crested newt pond) appropriate exclusion fencing will be erected and working areas 'trapped out' prior to the commencement of relevant onshore construction works, in line with Great crested newt mitigation guidelines, English Nature, 2001 or the latest available relevant guidance.	DCO Requirement 10 (EMP); and  DCO Requirement 17 (CoCP)
Co120	Secondary	Habitat manipulation will be undertaken in order to discourage reptiles from the working area(s). A qualified ecologist will undertake a search of all working areas identified as being suitable for reptiles. Any reptiles found within the working area will be relocated into suitable adjacent habitat.	DCO Requirement 10 (EMP); and  DCO Requirement 17 (CoCP)
Co122	Secondary	Prior to the commencement of construction activities, pre-construction surveys will be undertaken by the Ecological Clerk of Works (ECoW) where necessary in accordance with the Outline Ecological Management Plan and latest available species specific guidance	DCO Requirement 10 (EMP); and  DCO Requirement 17 (CoCP)
Co168	Tertiary	An Ecological Management Plan (EMP) will be developed in accordance with the Outline Ecological Management Plan (OEMP). The OEMP includes, but is not limited to pre-construction (Section 3), construction (Section 4) and post-mitigation measures (Section 5) relating to: habitats, hedgerows, birds, bats, badgers, otters, water voles, reptiles, great crested newts, terrestrial invertebrates, and other protected or notable species where relevant. The EMP will include details of any long-term mitigation and management measures relevant to onshore ecology and nature conservation. The EMP will be developed in consultation with the relevant responsible authorities.	DCO Requirement 10 (EMP)

1.3.1.7 Specific details and locations of some ecological receptors (e.g. in relation to badger setts) have been omitted from this OEMP and will only be provided once a request has been submitted and approved by Hornsea Four. This will also apply to the final EMP. Information in relation to badgers can be found in [Volume A6: Annex 3.15: Badger Survey Report \(confidential\)](#) accompanying this ES.

1.3.1.8 This OEMP should be read in conjunction with the Outline Code of Construction Practice (CoCP) ([Volume F2, Chapter 2: Outline Code of Construction Practice](#)).

## 1.4 Structure

1.4.1.1 This OEMP adheres to the following structure:

- **Section 2** – General responsibilities;
- **Section 3** – Pre-construction mitigation measures;
- **Section 4** – Construction mitigation measures;
- **Section 5** – Post construction mitigation measures;
- **Section 6** – Long term ecological management;
- **Section 7** – Monitoring and Reporting; and
- **Paragraph 7.2.3.2** – Indicative timetable of suitable works period.

## 2 General Responsibilities

2.1.1.1 The roles and responsibilities will be appointed by the Principal Contractor or the Applicant. All of the ecological work described in this OEMP will be undertaken under the guidance of the appointed Hornsea Four Ecological Clerk of Works (ECoW).

2.1.1.2 Site inductions and toolbox talks for all site workers will include reference to the requirements of both the EMP and CoCP.

2.1.1.3 The ECoW will undertake the following tasks:

- Arrange all specialist environmental surveys;
- Undertake regular environmental site inspections;
- Assist (where deemed necessary) the Principal Contractor or Hornsea Four Manager(s) in delivering site inductions and toolbox talks (i.e. presentations and the dissemination of information to site personnel on ecological matters). All briefings will include reference to the requirements set out in the EMP and CoCP. The site-wide ecological requirements will be explained within these briefings. Additional toolbox talks may also be provided for each new area of works to ensure that area-specific requirements are fully understood and implemented;
- Assist in reviewing Risk Assessments and Method Statements (RAMS); and
- Notifying the Principal Contractor of any issues/breaches in the EMP and/or CoCP.

2.1.1.4 All site workers will be briefed on the role and responsibility of the ECoW. Contact details for the ECoW will be provided within the EMP and will be made available to site workers and contractors. A copy of the EMP will be kept on site at all times and site workers will be made aware of its location along with the details of the person to contact in order to obtain a copy.

2.1.1.5 Any known breaches of the requirements documented within the EMP will be reported to the ECoW by the Principal Contractors Site Manager or site workers (either directly or through the Principal Contractor Site Manager) as soon as practicable.

- 2.1.1.6 Should it become evident to the ECoW that a breach of the requirements of the EMP has occurred, the ECoW will be responsible for reporting this breach to the responsible Hornsea Four Onshore Environment Manager and Site Manager. Where necessary, the responsible Hornsea Four Onshore Environmental Manager will report any breaches to the relevant authorities.
- 2.1.1.7 The ECoW will be responsible for developing an appropriate ecology and nature conservation incident response plan for any breach of the EMP, should an ecology and nature conservation incident occur. The responsible Hornsea Four Onshore Environmental Manager will ensure that any remedial measures proposed are communicated and where required, approved by ERYC. Where appropriate Natural England will be consulted with to obtain their agreement for any remedial measures that may be required, as will the Environment Agency specifically in relation to wetlands.
- 2.1.1.8 The EMP, which will be based on this OEMP, will be a live document and therefore regularly reviewed and updated by the ECoW as appropriate. The ECoW will be responsible for the reviewing and updating of the EMP, ensuring that all site personnel are aware of the current version as well as submitting amended versions to ERYC for their re-approval. In instances where updates are made, and re-approved by ERYC, the ECoW will provide the Site Manager with details of any updates.

### **3 General pre-construction mitigation measures**

- 3.1.1.1 This section describes the ecology and nature conservation mitigation measures adopted as part of Hornsea Four that will be undertaken prior to the commencement of construction of the connection works to ensure the protection of ecological receptors.
- 3.1.1.2 Trees that will require removal will be felled in sections and left on site for a period of 24-28 hours, prior to being chipped and spread on site (subject to landowner agreement) or removed from site altogether.
- 3.1.1.3 Due to the mobility of species and the period of time which will have lapsed between the pre-application surveys and the start of construction, all features surveyed during the pre-application survey effort, and any additional survey locations or features (e.g. including at the River Hull Headwaters SSSI crossing point), will be re-surveyed where necessary in accordance with industry guidance and methodology (Co122).. It is possible that additional ecological receptors may be recorded during these pre-construction surveys. Where this occurs, the EMP will be reviewed and updated to include measures for such receptors where appropriate. Where there is a significant update in terms of protected species and/or the need for updated/additional mitigation measures, further consultation with stakeholders (including statutory nature conservation bodies and the local authority) will be undertaken. All pre-construction surveys will be undertaken by an appropriately experienced and where necessary, licenced ecologist(s). All surveys will be carried out in accordance with bio-security risk assessments and safe systems of works (i.e. RAMS), which will be produced by the appropriately experienced surveying ecologist and subsequently approved by Hornsea Four, prior to the commencement of a survey.

3.1.1.4 **Table 2** presents an indicative list of the pre-construction surveys that will be undertaken alongside each optimal survey period.

**Table 2: Indicative pre-construction surveys.**

Survey	Number of visits	Survey Season
Bat activity transect	One per month	April to October (inclusive)
Bat static detector	One per month	April to October (inclusive)
Bat emergence/re-entry	Two to three visits depending on feature suitability for roosting bats	March to October (to include consideration for hibernation and transitional roosts)
Badger	One visit	February to December (avoiding summer months due to density of vegetation potentially limiting survey results)
Breeding birds	Two visits per month	April to June
Great crested newt (GCN) (population survey)	Minimum of four survey visits with an additional two survey visits if GCN are recorded	Mid-April till the end of June
Water vole and otter	Two visits, one in the first half of the breeding season (April to June) and one in the second half of the breeding season (July to September)	April to September (inclusive)

## 3.2 Habitats

### 3.2.1 Protective Buffer Zones

3.2.1.1 The Hedgerow Regulations 1997 (The Hedgerow Regulations 1997) protect hedgerows meeting the criteria specified in the regulations from removal without the prior permission of ERYC, with additional protections for those defined as "important". It should be noted that where works to hedgerows are permitted under the consented Hornsea Four DCO these are exempt from protection under The Hedgerow Regulations 1997, however, their removal will be limited as far as is practicable and protective buffer zones will be established (see [paragraph 3.3.1.3](#)).

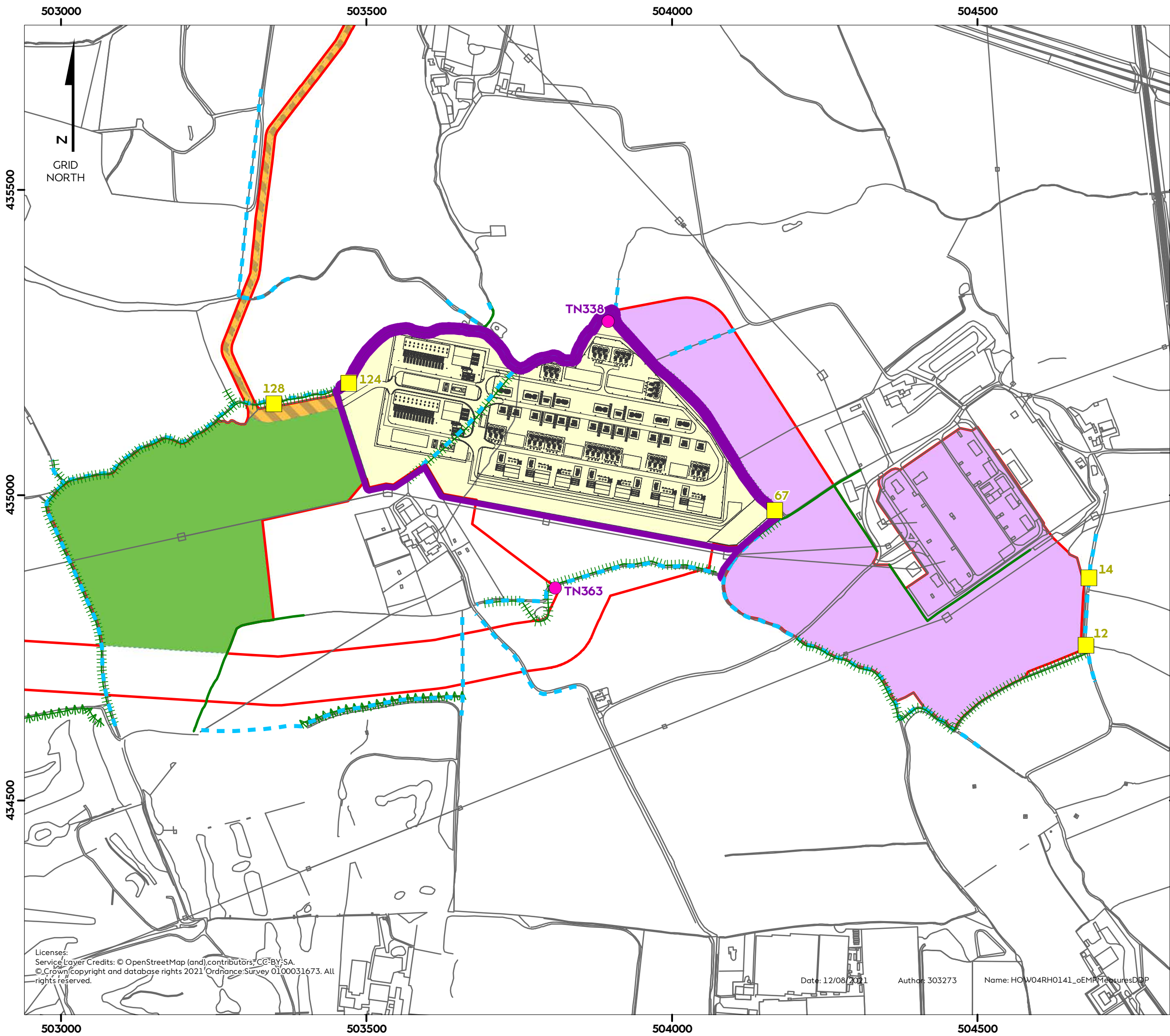
3.2.1.2 A full hedgerow survey report is provided in [Volume A6, Annex 3.14: Hedgerow and Arboricultural Survey Report](#), and [Volume D1, Annex 11.1: Tree Preservation Order and Hedgerow Plan](#), to support the Environmental Statement (ES). All identified Important hedgerows can also be found in [Volume A4, Annex 4.2: Onshore Crossing Schedule](#).

3.2.1.3 Where habitats of ecological value are to be retained, protective buffer zones will be established by the ECoW, for example woodland, mature broadleaved trees (including veteran trees), ponds and sections of watercourses. No works will be undertaken within these buffer zones. The buffer zones will be identified in accordance with industry guidance

(i.e. BS5837:2012) and details of which will be presented in the final EMP. These buffer zones will be maintained throughout the construction works period.

- 3.2.1.4 Buffer zones surrounding retained areas of woodland and mature broadleaved trees will be at least 15 m in width or at least the width of the tree root protection zone, as advised by an appropriately qualified Arboriculturalist. This includes a 15 m protective buffer zone around Birkhill Wood Ancient Woodland.
- 3.2.1.5 A small number of veteran trees have been identified within and adjacent to the Hornsea Four Order Limits and have been assigned a unique reference number. Further details on these veteran trees can be found in [Volume A6, Annex 3.14: Hedgerow and Arboricultural Survey Report](#), and [Volume D1, Annex 11.1: Tree Preservation Order and Hedgerow Plan](#) using these unique reference numbers. The veteran tree identified in the vicinity of the OnSS and associated 15 m buffer zones are shown on [Figure 1](#) and with another example on the onshore ECC shown on [Figure 2](#).
- 3.2.1.6 Where practicable, buffer zones around hedgerows being retained will be at least 5 m in width. Additional buffer zones, where required, will be ascertained by a qualified Arboriculturalist and established around habitat features of value to protected species.
- 3.2.1.7 All buffer zones will prohibit the tracking of heavy vehicles, and the storage of vehicles, machinery, equipment and soils. Buffer zones will be clearly marked out using high-visibility Netlon fencing or coloured tape, and/or signs describing the prohibitive requirements of the zones will be installed at appropriate locations. Where necessary, specific locations and any requirements will be discussed on site.




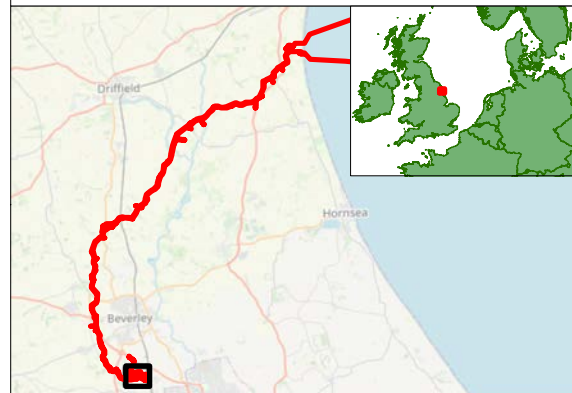


# Hornsea Four

## Figure 1

### oEMP Measures Sheet 1 of 4

-  Order Limits
-  Permanent Access Track
-  Temporary Access Track
-  Grid Connection Works
-  Onshore Substation (Permanent)
-  Onshore Substation (Temporary)
-  Intact Hedge - Species-poor
-  Hedge and Trees - Native species-rich
-  Hedge and Trees - species-poor
-  Dry Ditch
-  Veteran Tree
-  Potential Bat Roost Tree
-  Dark Corridor Buffer



Coordinate system: British National Grid  
 Scale@A3: 1:6,000  
 0 100 200 300 Metres  
 0 100 200 300 Yards

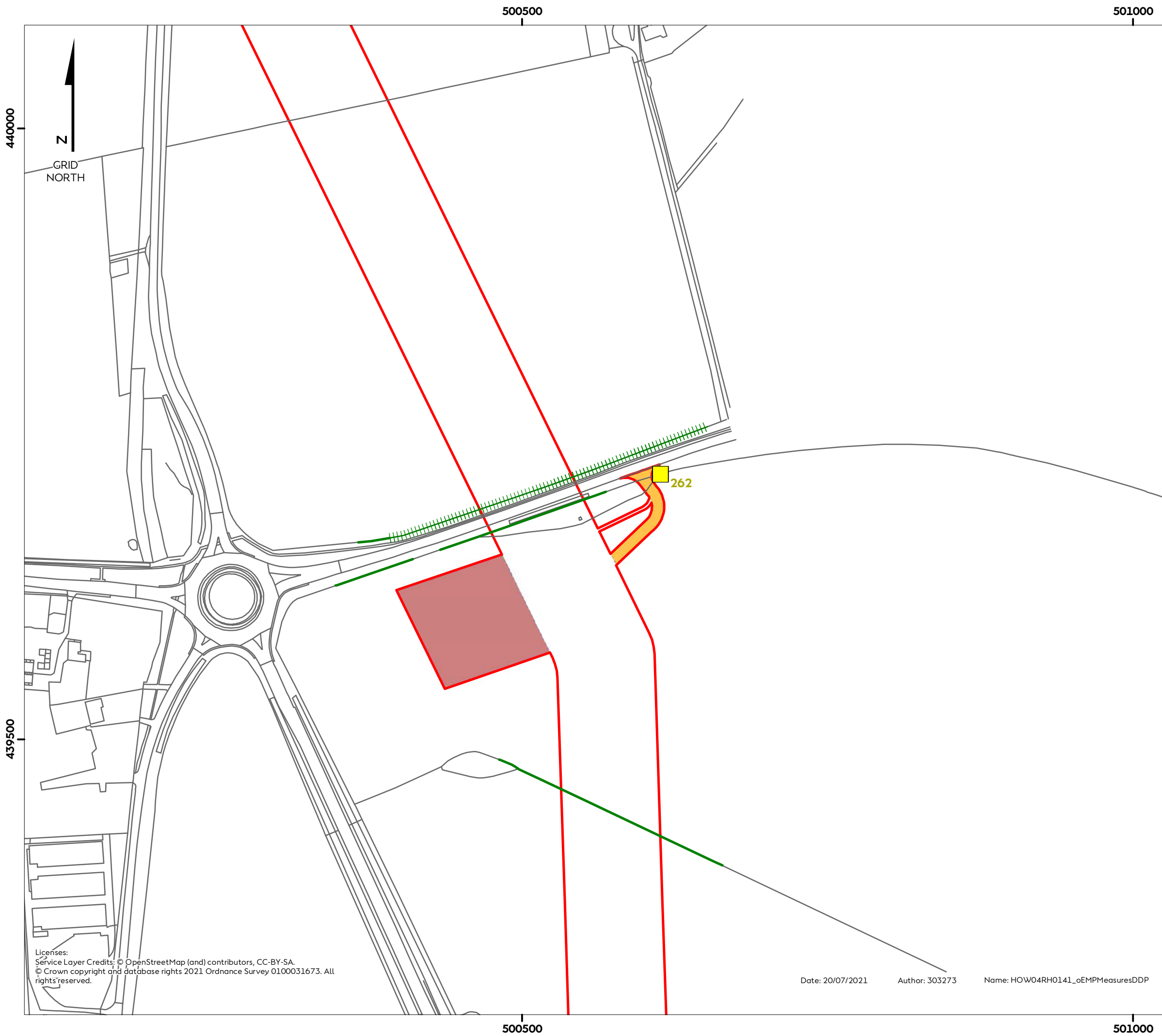
REV	REMARK	DATE
	First Issue for DCO	12/08/2021

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 Document no: HOW04RH0141  
 Created by: AZ  
 Checked by: CC  
 Approved by: CS









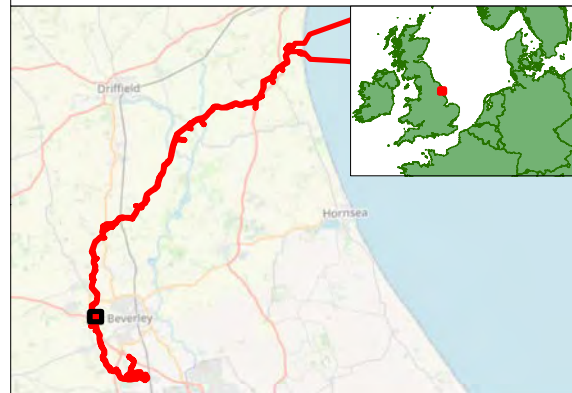


# Hornsea Four

## Figure 2

oEMP Measures Sheet 2 of 4

-  Order Limits
-  Temporary Access Track
-  Logistics Compound
-  Intact Hedge - Species-poor
-  Hedge and Trees - species-poor
-  Veteran Tree



Coordinate system: British National Grid  
 Scale@A3: 1:3,000  
 0 100 Metres  
 0 100 Yards

REV	REMARK	DATE
	First Issue for DCO	20/07/2021

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504000

448000

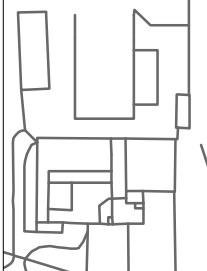
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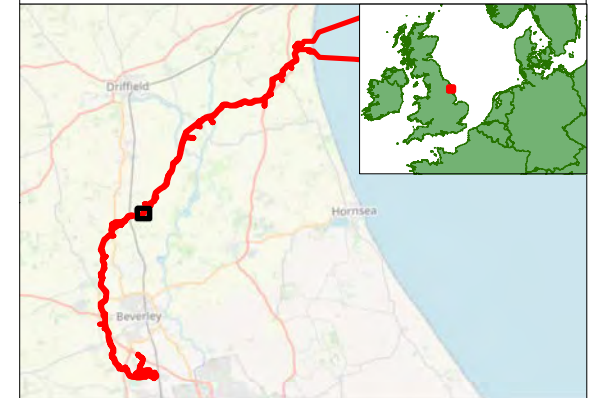


Ditch\_B39

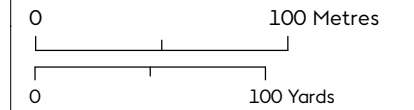
# Hornsea Four

Figure 3  
oEMP Measures Sheet 3 of 4

- Order Limits
- Standing Water
- Intact Hedge - Species-poor
- Defunct Hedge - Species-poor
- Ditch with Water Vole Presence



Coordinate system: British National Grid  
Scale@A3: 1:3,000



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	First Issue for DCO	20/07/2021

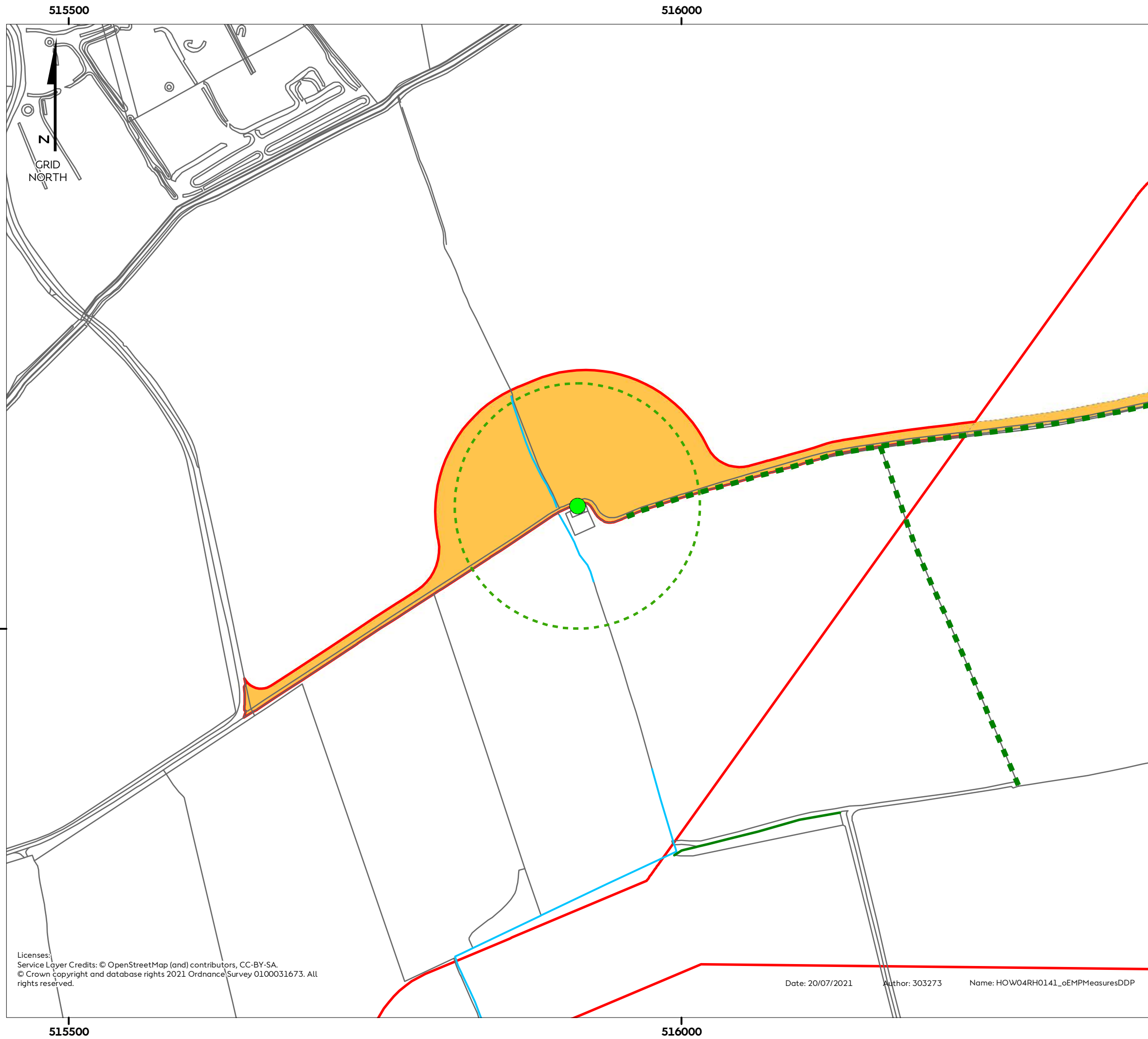
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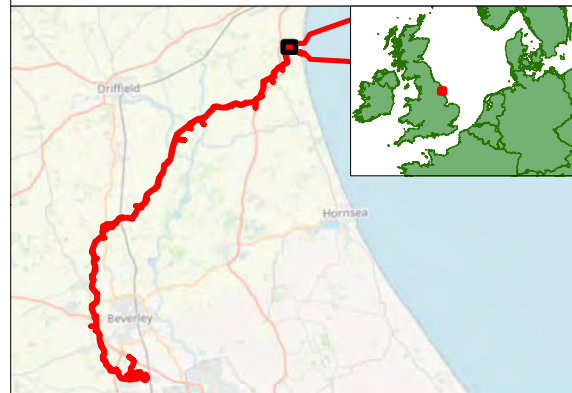




# Hornsea Four

Figure 4  
oEMP Measures Sheet 4 of 4

-  Order Limits
-  Temporary Access
-  Standing Water
-  Intact Hedge - Species-poor
-  Defunct Hedge - Species-poor
-  Barn Owl Nest
-  Barn Owl Nest 100m Buffer



Coordinate system: British National Grid  
Scale@A3: 1:3,000

0 100 Metres

0 100 Yards

REV	REMARK	DATE
	First Issue for DCO	20/07/2021

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Document no: HOW04RH0141  
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Checked by: CC  
Approved by: CS



### 3.3 Protected or otherwise notable species

#### 3.3.1 Breeding birds

- 3.3.1.1 Birds are protected at a European level under the EC Directive on the Conservation of Wild Birds 1979 (79/409/EEC). This provides protection for wild birds against being deliberately killed, being taken from the wild, from their eggs being collected, from nest destruction and from being kept in captivity. Allowances are made for game birds. Specially protected birds are listed in Annex 1 of the Directive.
- 3.3.1.2 All species of wild bird in the UK (other than a few pest species) are protected under Part 1 section 1(1) of the Wildlife and Countryside Act 1981 (WCA 1981) (as amended) against intentional or reckless killing, injuring or taking. Taking, damaging or destroying nests in use or being built, and taking or destroying eggs are also prohibited.
- 3.3.1.3 In addition to general protection for birds, certain species are also afforded special protection and are listed in Schedule 1 of the WCA 1981 (as amended) (WCA 1981). These birds are either rare, endangered, declining or vulnerable.
- 3.3.1.4 The full survey results of the breeding bird survey is provided in [Volume A6, Annex 3.4: Breeding Bird Survey Report](#). During the breeding bird survey undertaken in 2019, a pair of nesting Barn owls *Tyto alba* were observed in a derelict building immediately adjacent to an existing farm track identified for access to the landfall, as shown on [Figure 4](#). A re-survey of this location was undertaken in June 2021 and confirmed the derelict building remains to support a pair of nesting barn owls. After consultation with stakeholders (Natural England at the onshore Ecology Technical Panel Meeting held on the 1 April 2020 and the RSPB at the onshore Ecology Technical Panel Meeting held on the 30 June 2020), it was agreed that space within the Hornsea Four Order Limits would be provided to allow for the landfall access track to be micro-sited a maximum of 100 m from this building (ON-ECO-3.4 and ON-ECO-3.21), if pre-construction surveys identify that the nest is still active. A pre-construction barn owl survey will be undertaken prior to works commencing in this location to confirm presence and further understand the habitual movement of nesting barn owl at this location, in order to inform the appropriately sensitive placement of the landfall access track.
- 3.3.1.5 Prior to the commencement of the breeding bird season (typically between mid-February and August, inclusive) and where practicable, measures will be set in place to help deter ground-nesting birds from nesting in potentially suitable large (i.e. >5 ha) open fields in which construction works are proposed to take place. Measures will only be used sparingly and could include but are not limited to the use of bird scarers or use of trained birds of prey to fly across the area(s). The measures that will be used will be agreed with relevant stakeholders and detailed in the EMP.
- 3.3.1.6 The clearance of any habitat of potential value to nesting birds, including the clearance of semi-mature and mature trees, hedgerows and areas of scrub, will be undertaken outside of the bird-breeding season where reasonably practical to do so (Co33). This is to prevent disturbance or injury to nesting birds or their young.

- 3.3.1.7 Where measures to help deter ground-nesting prior to the commencement of works have not been possible (as identified by the ECoW), any habitat identified as being suitable for nesting birds and which needs to be cleared within the breeding bird season will be visually inspected by the ECoW for active bird nests 24 to 48 hours before the commencement of any vegetation clearance works. Should an active nest or nests be noted, then further ecological advice with regards to required stand-off distances will be sought from the ECoW prior to works commencing. Where no evidence of an active nest has been noted within habitat identified as being suitable for nesting birds, but suitable habitat is present, the ECoW will supervise all vegetation clearance works through the adherence of a watching brief. Should an active nest(s) be encountered during these works and within these areas of suitable habitat for nesting birds, the ECoW will stop the works and provide further ecological advice on how to proceed.
- 3.3.1.8 It may not be possible to carry out a thorough visual inspection of all parts of the habitat, which is to be surveyed, for example, due to the density of the habitat. In these cases, the area will be surveyed for at least two hours between dawn and 09.00 am to identify any bird activity that might indicate the presence of nesting birds, such as birds carrying nesting material or food into the habitat being surveyed.
- 3.3.1.9 Where active nests are identified, works-free buffer zones (distances of which will be species dependent but will be determined by the ECoW) will be established around active nests until the ECoW has confirmed to the Site Manager and site workers that the young have fully fledged and left the nest. Where considered necessary by the ECoW, works-free buffer zones will be marked out on site using high-visibility Netlon fencing or coloured tape. No habitat containing an active bird's nest will be removed or disturbed.
- 3.3.1.10 Regarding the River Hull Headwaters SSSI, the following measures will be undertaken:
- Pre-construction breeding bird surveys will include vantage point locations (a minimum of two locations) of the River Hull Headwaters SSSI HDD crossing point;
  - Findings from the pre-construction breeding bird surveys of the River Hull Headwaters SSSI HDD crossing will be used to inform any further site-specific mitigation measures to those already identified for the HDD works (i.e. mufflers and acoustic barriers, Co123) that will need to be implemented prior to the commencement of the HDD works; and
  - If the implemented mitigation measures at the River Hull Headwaters SSSI is identified by the ECoW as not being insufficient, further ecological advice will be provided to manage the impacts identified.
- 3.3.1.11 The ECoW will maintain a record of all pre-construction bird nest surveys undertaken. The record will be provided to the Hornsea Four Onshore Environmental Manager and a copy will be made available to ERYC on request.

### 3.3.2 Bats

- 3.3.2.1 All species of bats in the UK are fully protected under the WCA (1981) (as amended) (WCA 1981). All species are listed on Schedule 5 of the Act and are therefore subject to the provisions of Section 9. Section 9 makes it an offence to intentionally or recklessly kill, injure or take a bat; possess or control any live or dead specimen or anything derived from a bat; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat; or intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for that purpose.
- 3.3.2.2 Under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), it is an offence to deliberately capture, kill or disturb a bat; damage or destroy a breeding site or resting place of a bat; and keep, transport, sell or exchange, or offer for sale or exchange, a live or dead bat or any part of a bat.
- 3.3.2.3 Soprano pipistrelles *Soprano pipistrelles*, noctules *Nyctalus noctula*, Bechstein's bats *Myotis bechsteinii*, brown long-eared bats *Plecotus auritus* and greater *Rhinolophus ferrumequinum* and lesser horseshoe bats *Rhinolophus hipposideros* are also listed as Priority Species under the UK Biodiversity Action Plan (UK BAP).
- 3.3.2.4 Although pre-application surveys included a suite of bat emergence/re-entry surveys, it should be noted that these surveys were undertaken between June and September 2019 (inclusive) and therefore were not undertaken during the optimal survey window for hibernating and/or transitional bat roosts.
- 3.3.2.5 All suitable trees and/or features within and up to a 50 m buffer of the Hornsea Four Order Limits that have been identified will be subject to a further pre-construction survey effort that, will be undertaken within the appropriate survey window to ascertain the presence or likely absence of transitional /hibernating /roosting bats. The pre-construction survey effort will also include further surveys (including an aerial inspection survey, i.e. a tree climbing survey) of the two trees (TN338 and TN363, as shown on [Figure 1](#)) as a bat was potentially noted as emerging during the 2019 survey effort but this could not be confirmed due to the level of limited light at the time the observation occurred. Consideration will also be given to undertaking a thermal imagery survey for TN338 and TN363. The aerial (tree climbing) survey (or if necessary, the thermal imagery survey) will be undertaken by a suitably qualified bat licenced ecologist (who is also a qualified tree climber) and will use an endoscope to confirm the presence or absence of bats within these two trees. This was discussed and agreed with Natural England in a Hornsea Four ecology Evidence Plan Technical Panel meeting on 1 April 2020 (ON-ECO-3.16). The appropriate survey windows are as follows, in accordance with the BCT guidelines (Collins 2016):
- April surveys may detect transitional roosts;
  - May to August may detect maternity colonies and summer roosts;
  - September and October may detect transitional roosts

- 3.3.2.6 No bat roosts have been identified during the 2019 bat roost survey effort, however the two trees (TN338 and TN363) had a potential bat emergence during the 2019 survey. Both trees are situated over 15 m from the Hornsea Four Order Limits and no works are currently required on them. However, should these two trees require removal, both trees will require a further survey to determine the presence or likely absence of roosting bats. This survey will consist of an internal inspection by a suitably qualified ecologist. Should the presence of roosting bats be confirmed, an EPS licence application will have to be submitted to Natural England and approved. Further details regarding the bat emergence surveys and ensuing results are presented within [Volume A6, Annex 3.12](#) and [Volume A6, Annex 3.13](#).
- 3.3.2.7 Furthermore, as bats use tree roosts intermittently, prior to the commencement of works, mature trees that require felling or pruning will be inspected by a suitably qualified and bat licenced ecologist (this may be the ECoW if they hold the required qualifications) from ground-level. The suitability qualified and bat licenced ecologist will use a high-powered torch to locate potential roost sites and signs that could indicate the presence of roosting bats. These daytime surveys can be undertaken any time of year. However, where reasonably practicable, the surveys will be undertaken during the winter months, when leaves and foliage are less likely to obscure features of potential value to bats.
- 3.3.2.8 Should the ground-level, daytime inspection be inconclusive, then a climbing tree inspection will be undertaken, and an endoscope used to ascertain whether a bat roost is present. This type of survey will be undertaken by a licensed bat surveyor.
- 3.3.2.9 Should the tree climbing daytime inspection surveys also prove inconclusive, trees that are assessed as having moderate or high potential to support roosting bats by a suitably qualified ecologist, will be subject to dusk emergence and/or dawn swarming surveys between May and September in order to confirm the presence of roosting bats, identify the species of bat present and determine the size of any roost. This is in accordance with guidelines produced by the Bat Conservation Trust (2016).
- 3.3.2.10 A report of the survey findings and recommendations (including any licensing requirements) for construction will be produced by the suitability qualified and bat licenced ecologist and provided to the Hornsea Four Onshore Environmental Manager and Site Manager. The report will be made available by the Hornsea Four Onshore Environmental Manager to ERYC and/or Natural England as requested or required, for example, if licenses are required.
- 3.3.2.11 The felling or pruning of a tree containing a bat roost, or significant disturbance or obstruction to bats or their roost will require a Natural England development licence. The suitably qualified ecologist will be responsible for obtaining this licence if it is identified as being required.
- 3.3.2.12 If the pre-construction surveys identify the presence of a bat roost, the suitably qualified and bat licenced ecologist will notify the Hornsea Four Onshore Environmental Manager and Site Manager of the requirement to obtain a Natural England licence prior to the commencement of any works on the tree or feature in question, or within 15 m of the tree or feature. If construction is being undertaken within 15 m of a tree or feature that has been



identified as potentially supporting roosting bats, construction lighting will be designed in accordance with the Institute of Lighting Engineers (ILE) Guidance Note 8 Bats and Artificial Lighting (ILE 2018). For further details on construction lighting measures and mitigations refer to the Outline CoCP ([Volume F2, Chapter 2: Outline Code of Construction Practice](#)).

3.3.2.13 The suitably qualified and bat licenced ecologist will be responsible for ensuring that a Natural England development licence for bats is applied for, prior to the commencement of any works to a tree or feature that has been confirmed as supporting roosting bats. The licence application will be informed by findings of the pre-construction surveys and will include a detailed method statement and mitigation strategy.

3.3.2.14 Works on or within 15 m of a tree or feature containing a bat roost will commence only once a Natural England development licence has been obtained and will be undertaken in accordance with the requirements of the licence. Licenced works will be carried out under the watching brief of a Natural England bat licenced ecologist.

3.3.2.15 A Natural England licence return form and report of the works undertaken will then be completed by the suitably qualified and bat licenced ecologist (i.e. the bat licence holder). A copy of this form and report will be provided to the Hornsea Four Onshore Environmental Manager, Natural England and ERYC as soon as reasonably practicable, and as prescribed by the conditions of the Natural England development licence.

3.3.2.16 The following pre-construction mitigation measures will be advised to the Site Manager by the ECoW with regard to commuting and/or foraging bats within the Hornsea Four Order Limits:

- Where possible, hedgerow removal will be undertaken during the winter, to allow time for bat species to adjust. Furthermore, the length and width of hedgerow requiring removal will be minimised wherever possible;
- Where sections of hedgerow have been removed, moveable features will be employed on a nightly basis to ensure continuation of current commuting routes for commuting and/or foraging bats. These will be in line with standard guidance and requirements and will be of similar shape and size to the existing hedgerow. These will be moved into place at least one hour before dusk each day and removed no earlier than 30 minutes after dawn; and
- Where existing habitats are located immediately outside any construction works areas, these areas will be retained and protected from damage where possible, using fencing.

### 3.3.3 Badgers

3.3.3.1 Badgers *Meles meles*, and their setts, are protected under the Protection of Badgers Act (1992). The protection is primarily for welfare rather than conservation, since badgers are not rare but are subject to cruelty. Actions prohibited under this legislation, include the intentional or reckless damage, obstruction or destruction of a badger sett and the wilful killing, injuring or taking of badgers, unless covered by licence.

- 3.3.3.2 During the 2019 badger survey effort, one main sett was recorded within a 30 m buffer of the Hornsea Four Order Limits, adjacent to the OnSS. At the time of the survey, the sett was noted to be disused and as agreed with Natural England during the Hornsea Four ecology Evidence Plan Technical Panel meeting on 1<sup>st</sup> April 2020, no licence is required for the destruction of this (or additional) disused sett(s) (ON-ECO-3.9).
- 3.3.3.3 Following the receipt of third-party information regarding badger activity being provided to The Applicant, an updated badger survey of targeted locations was undertaken in June 2021. This survey recorded three additional outlier setts plus additional field signs such as pathways and snuffle holes. All of which are located within the Hornsea Four Order Limits and cannot be avoided. It is unknown at this time if the proposed works in this location can be undertaken using a trenchless technique, i.e. Horizontal Directional Drilling (HDD). Therefore, in the absence of this information, it has been assumed that HDD at this location will not be possible, therefore a badger mitigation licence from Natural England may be required, but will be subject to the findings of the pre-construction surveys.
- 3.3.3.4 A suite of pre-construction surveys will be undertaken of all areas within the Hornsea Four Order Limits. These surveys will be undertaken between October and November, for a period of 21 days during the breeding season and by a suitably qualified ecologist (Natural England 2009). These surveys will avoid the use of tightly packed straw due to potential implications of infringement of animal welfare, suitable alternatives to be considered for determining occupancy include the placement of sticks in and around the entrance, use of camera traps, double-side tape and/or damp sand. The methods used to monitor badger sett activity will be determined by the appointed ECoW (in accordance with any required licence) and on a site-by-site basis. This method was agreed with Natural England as the Hornsea Four onshore Ecology Technical Panel Meeting held on the 1<sup>st</sup> April 2020 (ON-ECO-3.14).
- 3.3.3.5 On the assumption that this sett or others that may be subsequently recorded are confirmed as disused by a suitably qualified licenced ecologist, and with agreement from Natural England, this disused sett will be removed under the supervision of a licenced ecologist and without the need of a Natural England badger licence (ON-ECO-3.9).
- 3.3.3.6 Due to the mobile nature of badgers, prior to the commencement of works, a check of all working areas plus a 30 m buffer zone, will be undertaken by qualified ecologists in order to confirm whether or not any new badger setts have been excavated. These surveys will be undertaken sufficiently in advance of the commencement of works to enable a Natural England licence(s) to be obtained, if required. A report of the survey findings and implications for construction will be produced and provided to the Hornsea Four Onshore Environmental Manager. The survey results will be available to ERYC and Natural England on request and if required.
- 3.3.3.7 The ECoW will be responsible for ensuring a Natural England development licence for badgers is applied for, where necessary. The ECoW will ensure that a 30 m buffer is set up around the active sett until a Natural England licence has been obtained. No works will be

undertaken within this 30 m buffer until advised by the ECoW. Once the licence has been obtained, the works will need to be carried out in accordance with the requirements of the licence and supervised by the ECoW.

- 3.3.3.8 Any licence application will be informed by the pre-construction survey and will include a detailed method statement and mitigation strategy. Works covered by the licence will only be undertaken under a watching brief of the named ecologist(s).
- 3.3.3.9 If sett destruction cannot be avoided, a licence application will include the requirement to close the sett outside of the badger breeding season (considered to be between 30 November and 1 July). The conditions of this license will be adhered to.
- 3.3.3.10 A Natural England licence return form and report of the works undertaken will be completed by the ECoW. A copy of this form and report will be provided to the Hornsea Four Onshore Environmental Manager and Natural England as soon as reasonably practicable and as prescribed under the conditions of the licence.

#### **3.3.4 Otters**

- 3.3.4.1 Otters *Lutra lutra* are listed in Annexes II and IV of the Habitats Directive and is protected under the Habitats Regulations 2017. A Species Action Plan has been produced for otters under the UK BAP.
- 3.3.4.2 Due to the mobility of otters and the period of time which will have lapsed between the pre-application surveys and the start of construction, a suite of pre-construction checks for otters will be undertaken at least 12 weeks prior to the start of construction to determine the requirement for any Natural England licences. These surveys will be undertaken of all watercourses that have been assessed as providing optimal habitat to support otters. A Natural England licence would be required for any works that would result in the loss or disturbance of an otter holt or resting place, or if any works are likely to cause significant disturbance or displacement of otters. Therefore, if the pre-construction surveys confirm the presence of a previously unidentified otter holt or resting place within the survey area, and if it is not practicable to micro-site working areas to include a 100 m works-free buffer zones, an Natural England development licence for otters will be obtained by the ECoW prior to the commencement of works at the location for which the licence has been sought for.
- 3.3.4.3 A licence application is likely to include the provision of a pre-construction artificial otter holt in a suitable location and at an appropriate distance from working areas. Where this is stipulated in the license, this will be adhered to, and all licensed works will be overseen by the ECoW.
- 3.3.4.4 A Natural England licence return form and report of the works undertaken will be completed by the licensed ecologist following the completion of works and approved by the ECoW. A copy of this form and report will be provided to Hornsea Four Onshore Environmental Manager, Natural England and ERYC as soon as reasonably practicable and as prescribed under the conditions of the licence.

### 3.3.5 Water voles

- 3.3.5.1 Water voles *Arvicola amphibius* are listed in Schedule 5 of the WCA 1981 (as amended) and protected under Section 9 of the Act.
- 3.3.5.2 During the 2019 survey effort, water vole field signs were recorded in a total of six watercourses within the Hornsea Four Order Limits. Full survey results are provided in [Volume A6, Annex 3.6: Water Vole Survey Report](#). One of these watercourses (Ditch\_B39, as shown on [Figure 3](#)) is currently planned to be crossed using open cut methodologies (see [Volume A4, Annex 4.2: Onshore Crossing Schedule](#) for further details) and therefore a displacement exercise will be required, under licence. A water vole method statement was submitted to Natural England in July 2020 and approved (by Natural England) in August 2020, with a Letter of No Impediment (LONI) issued 18 August 2020. The remaining five watercourses where water vole presence was recorded are all IDB main drains or EA rivers, and in line with Co1, these are planned to be crossed via HDD methodologies (or other trenchless techniques) and therefore no displacement under licence will be required ([Volume A4, Annex 4.2: Onshore Crossing Schedule](#)).
- 3.3.5.3 Due to the mobility of water voles and the period of time which will have lapsed between the pre-application surveys and the start of construction, a suite of pre-construction surveys will take place approximately 12 weeks prior to the commencement of construction works by a suitably qualified ecologist. The surveys will be undertaken on all watercourses within and up to 50 m from the Hornsea Four Order Limits, as presented within [Volume A6, Annex 3.6: Water Vole Survey Report](#), and will confirm the presence or absence of any water voles.
- 3.3.5.4 Habitat displacement works carried out under a class licence must be undertaken between 15 February and 15 April, where daytime temperatures do not drop below 5°C (Dean et al 2016). The displacement works will be carried out and supervised by a suitably qualified ecologist who holds the water vole displacement class licence and will involve the following steps:
1. Before vegetation removal, identify and mark the position of any burrows within the working area to ensure they are not blocked. Confirm the absence of other constraints such as nesting birds and/or reptiles;
  2. Remove the vegetation on the bank face within the working area plus an additional 3 m on the bank top;
  3. Rake off and remove any arisings from the cleared area;
  4. Check that burrow entrances have not become blocked and remove any latrines and feeding remains;
  5. If feasible and environmentally acceptable, this can be combined with de-watering (when open cut methods are to be used) of the affected section of the watercourse (i.e. within the working area);
  6. Leave the strimmed area for five days to allow the animals to relocate;
  7. Following the five day period to allow animals to relocate. No later than 10 days following vegetation clearance, a survey should be undertaken by a suitably qualified ecologist to ensure there is no fresh evidence of water vole presence. If there is no

evidence of water vole presence, a destructive search of the burrows (under supervision of the class licence holder) should be undertaken; and

8. If feasible, undertake construction works within five days of completing the destructive search to ensure water voles do not return prior to development. If undertaking construction works within five days is not feasible, alternative methods of discouraging water voles to return should be undertaken, such as maintaining the working area as bare ground alongside the use of fencing and/or matting.

3.3.5.5 If water vole presence is confirmed within additional watercourses to those identified during pre-application surveys, works to watercourses will be limited to affect a maximum length of 50 m in the first instance, based on current guidance (Dean et al 2016). Based on that assumption, it is envisaged that dissuasion techniques (e.g. strimming of vegetation to encourage water voles to move out from the working area) and exclusion fencing would be used to ensure water voles are not harmed by the proposed works. It is proposed that this mitigation will most likely discount the need for a Natural England licence.

3.3.5.6 However, should a Natural England licence be required it will be obtained before works commence. A suitably qualified ecologist will be responsible for ensuring a Natural England licence application is submitted to Natural England prior to the commencement of works. The Site Manager will ensure that a works-free buffer zone of at least 15 m will be established around watercourses supporting water voles until a Natural England licence has been obtained.

3.3.5.7 A licence application will be informed by any prior surveys and will contain a detailed method statement and mitigation plan. Licenced works will be carried out under a water vole watching brief, supervised by the suitably qualified ecologist who holds the water vole licence.

3.3.5.8 A suitably qualified ecologist will be responsible for producing a licence return form and report of works carried out under licence. A copy of this form and report will be provided to the Hornsea Four Environmental Manager, Natural England and ERYC as soon as reasonably practicable and as prescribed under the conditions of the Natural England licence.

### **3.3.6 Reptiles**

3.3.6.1 All reptile species native to United Kingdom are protected under Section 9(1) and (5) of the WCA 1981 (as amended) (WCA 1981), which makes it an offence to intentionally or recklessly kill or injure, or to sell, barter, exchange, or transport reptiles or any part of them. Native reptiles are also Priority Species of the UK BAP.

3.3.6.2 There are areas (e.g. hedgerow bases and areas of scattered scrub/tall ruderals) of suitable reptile habitat within and along the Hornsea Four Order Limits, although no evidence of reptiles has been recorded to date (see [Volume 6, Annex 3.1: Extended Phase 1 Habitat Report & 2021 Addendum](#) and [Volume 6, Annex 3.2: Extended Phase 1 Target Note Tables & 2021 Addendum](#)).

- 3.3.6.3 Areas supporting these habitat types (as advised by the ECoW) will be managed prior to the commencement of construction to deter or displace any reptiles which might be present within the working areas. Habitat management will involve the clearance of ground cover to create unfavourable conditions. If habitat is cleared during the reptile hibernation period (which is typically between November and February inclusive, dependent on local weather conditions), trees and scrub will be cut to approximately 30 cm above ground-level. This is to minimise the potential for disturbance to root balls where hibernating reptiles may be located. Remaining rough grass cover will be mowed short (approximately 5 cm to 10 cm above ground-level).
- 3.3.6.4 All material that has been cut and/or removed, e.g. grass cuttings, tree branches, tree roots, will be left on site for 24-48 hours prior to it being removed. Material will not be stacked on site as this could later provide a habitat feature of potential value to nesting birds, reptiles or other species. Instead, arisings will be removed from site or chipped and spread on site in agreement with the relevant landowner.
- 3.3.6.5 Habitat clearance during the active reptile season (i.e. between March and October, depending on local weather conditions) will commence in the centre of the identified suitable habitat, progressively moving outwards to enable any reptiles or other animals that may be present to leave the area. Scrub and tall grasses will be cut as above, to between 5 cm and 10 cm in height above ground level. All removed material will be removed from site, and any uprooting of vegetation or clearance of habitat of potential value to hibernating reptiles will be undertaken during the reptile active period.
- 3.3.6.6 Areas will be maintained in a condition not favoured by reptiles (i.e. with minimal ground cover) until the commencement of construction, through regular mowing of ground vegetation.
- 3.3.6.7 If habitat clearance is to be undertaken during the breeding bird season, habitats of potential value to nesting birds will be surveyed as described in [Section 3.3.1](#), allowing any active bird nests to be located.
- 3.3.6.8 A record of works will be maintained by the ECoW and a copy of this record will be made available to ERYC on request.

### **3.3.7 Great Crested Newts and other amphibians**

- 3.3.7.1 Great crested newts (GCN) *Triturus cristatus* are protected under the Habitats Regulations and Section 9 of the WCA 1981 (as amended) (WCA 1981), which make it an offence to intentionally or recklessly capture, kill, or disturb GCN; deliberately take or destroy GCN eggs, and damage or destroy GCN breeding sites. The legislation applies to all life stages of a GCN. GCN are also a UK BAP Priority Species.
- 3.3.7.2 Common frogs are listed in Annex V of the Habitats Directive, and common frogs *Rana temporaria*, common toads *Bufo bufo* and smooth newts *Lissotriton vulgaris* are listed under

Schedule 5 of the WCA 1981 (as amended) and protected under Section 9(5) against the sale of, or intending to buy or sell, any of these animals (WCA 1981).

- 3.3.7.3 Pre-application GCN surveys have been undertaken, within and up to 250 m of the Hornsea Four Order Limits and are detailed in [Volume A6, Annex 3.5: Great Crested Newt Environmental DNA \(eDNA\) Survey Report](#). A draft GCN mitigation licence was submitted to Natural England in June 2021 and subsequently approved (by Natural England), with a LONI issued on the 22<sup>nd</sup> June 2021.
- 3.3.7.4 All of the ponds located within 250 m of the Hornsea Four Order Limits that have not been surveyed or have been surveyed more than two years prior to the commencement of construction, will be re-surveyed prior to the commencement of construction in order to determine the presence or likely absence of GCN. This will likely be done in two stages as follows:
- eDNA re-survey of all ponds within 250 m of the Hornsea Four Order Limits, to determine any changes in GCN distribution since the 2019 surveys; and
  - A full presence/absence survey on all/any ponds with confirmed GCN presence to accurately record population sizes in order to update the draft GCN licence that has been submitted to Natural England (on the 28 July) prior to submitting the DCO application.
- 3.3.7.5 If access to survey any of the identified ponds is not granted by landowners, an assessment will be made by the ECoW (of the pond and its immediate terrestrial habitat) as to the likely suitability of the pond for supporting GCN. A conclusion will then be made by the ECoW as to whether any specific low impact mitigation works, or a Natural England mitigation licence will be required.
- 3.3.7.6 A draft GCN mitigation licence has been approved by Natural England for a total of nine ponds. Should there be any changes to GCN distribution during pre-construction surveys, this licence documentation will be updated, and the ECoW will be responsible for informing the Hornsea Four Environmental Manager and Site Manager as soon as practicable of the need to halt works until the updated development licence for GCN has been obtained.
- 3.3.7.7 The ECoW will be responsible for assessing whether or not a Natural England licence would be required for works to commence considering results from any pre-construction surveys. The assessment will be made in accordance with Natural England standing advice for GCN (Natural England 2015).
- 3.3.7.8 The ECoW will be responsible for completing and submitting a Natural England licence application prior to the commencement of works in areas over which the GCN licence is being sought. The licence application will be informed by pre-construction surveys and will contain a detailed method statement and mitigation plan.

3.3.7.9 Licensed works will be carried out in accordance with licence requirements and under the guidance of the ECoW and the watching brief of a GCN licensed ecologist(s), who would be pre-approved by and work under the instruction of the ECoW.

3.3.7.10 The ECoW will produce a licence return form and report of works carried out under the licence. A copy of this form and report will be provided to the Hornsea Four Onshore Environmental Manager, Natural England and ERYC as soon as reasonably practicable and as prescribed under the conditions of the Natural England licence.

### **3.3.8 Terrestrial invertebrates**

3.3.8.1 Some terrestrial invertebrates are also protected legally, and many species are UK BAP Priority Species. Where practicable, sections of dead or decaying wood in mature trees that are to be felled to enable works, will be soft-felled and carefully transferred to suitable locations as instructed by the ECoW. Suitable locations will be within the Order Limits but at least 10 m from any working areas, and as near to the source tree as practicable, within areas of similar environmental conditions. Particular regard will be given to shade and ground water-levels, and to locations that will not obstruct the reinstatement of previous land management practices (i.e. not within the middle of fields that will return to agricultural practices).

## **4 Construction mitigation measures**

4.1.1.1 This section describes the ecology and nature conservation mitigation measures to be adopted as part of Hornsea Four that will be undertaken during the construction phase to ensure the protection of notable habitats and species.

### **4.2 Site-wide mitigation measures**

4.2.1.1 Construction will be undertaken in accordance with the CoCP. An Outline CoCP has been provided in [Volume F2, Chapter 2: Outline Code of Construction Practice](#). The Outline CoCP includes the following requirements:

- All works will be carried out taking full account of legislative requirements and Environment Agency (EA) guidance;
- Heavy machinery will not be tracked or over stored soils; and
- Vehicle speeds will be restricted within the working corridor to reduce the likelihood of injury to species on site.

4.2.1.2 The Outline CoCP includes consideration for biosecurity (as detailed in the Biosecurity Protocol which forms an appendix to [Volume F2, Chapter 2: Outline Code of Construction Practice](#)) and the management of any invasive non-native species that are found to be present on site and to limit their transference. This will be updated following pre-construction surveys that may identify such areas and instances of invasive non-native species.



4.2.1.3 It will be the responsibility of the Principal Contractor to implement these measures.

4.2.1.4 Night working is not scheduled as part of the normal construction programme and will only be undertaken in exceptional circumstances. Where night working is unavoidable, light fixtures will be directed towards working areas and away from adjacent or nearby habitats of value to protected or otherwise notable species. Any such installations will be inspected by the ECoW for compliance. Co36 ([Volume A4, Annex 5.2](#)) outlines the core working hours for the onshore elements of Hornsea Four, secured via the Outline CoCP.

## 4.3 Habitat mitigation measures

### 4.3.1 Protective buffer zones

4.3.1.1 All protective buffer zones described under described under the Pre-Construction Mitigation Measures ([Section 3](#)) will be maintained throughout the construction phase. The ECoW will monitor adherence to the requirements of the buffer zones a minimum of once every two weeks and will maintain a record of all findings and site checks undertaken.

4.3.1.2 Should any breach of the requirements become evident, the ECoW will inform the Hornsea Four Onshore Environmental Manager. The ECoW will inform the Construction Site Manager of remedial measures required to be undertaken as soon as practicable to resolve the situation and minimise effects on ecology.

4.3.1.3 Additional mitigation measures to be incorporated within a 200 m buffer of the River Hull Headwaters SSSI and Bryan Mills Field SSSI have been identified to reduce air quality impacts on these two protected sites. These mitigation measures are as follows and are to be implemented throughout the onshore construction programme:

- Dust mitigation management measures as detailed within Institute of Air Quality Management (IAQM) guidance (IAQM 2014) will be adopted;
- All Hornsea Four site vehicles will comply with the requirements of the Construction Traffic Management Plan (CTMP) ([Volume F2, Chapter 2: Outline Code of Construction Practice: Appendix A Outline Construction Traffic Management Plan](#));
- Ensuring all vehicles switch off engines when stationary, no idling vehicles; and
- Avoidance of the use of diesel- or petrol-powered generators, where practicable.

4.3.1.4 The Hornsea Four Environmental Manager will be responsible for notifying the relevant Local Planning Authority and/or Natural England of any breaches to the buffer zones if necessary, and as advised by the ECoW. These measures were agreed with Natural England at an evidence plan technical panel meeting on 13 November 2019 (ON-AQ-3.1).

### 4.3.2 Trees

4.3.2.1 Any tree felling works will be carried out in accordance with protected species requirements described in the sections below.

### 4.3.3 Hedgerows

- 4.3.3.1 The length of hedgerow clearance for each hedgerow crossed by open-cut trenching will be limited if required. Any soil storage areas will be located at least 5 m from the hedgerow(s) being retained.
- 4.3.3.2 Hedgerows that require removal and are present within areas used by commuting and foraging bats, as identified from the pre-application surveys, will be removed during the winter where practicable, to allow time for bat species to adjust. Where a hedgerow has been removed within an area that bats are using as a foraging/commuting route, the replacement hedgerow will be of a comparable age to minimise the impact of connectivity for foraging/commuting bats. Further details on hedgerow mitigation for bats is presented in [Section 4.4.2](#).
- 4.3.3.3 Hedgerow clearance, including tree felling works, will be carried out in accordance with species-specific requirements described below. Arisings will either be chipped and spread on site (subject to landowner agreement) or removed from site or, if necessary, temporarily relocated to a suitable site more than 5 m from working areas so as to ensure that any nesting birds (or other species) which might utilise the pile of cuttings are protected against likely impacts of construction. This will include a check to ensure that no invasive species are present (as detailed in the Biosecurity Protocol which forms appendix A of [Volume F2, Chapter 2: Outline Code of Construction Practice](#)).

## 4.4 Protected or otherwise notable species mitigation measures

### 4.4.1 Breeding birds

- 4.4.1.1 If an active bird's nest is identified within the works area, a 5 m buffer zone (as advised by the ECoW) will be implemented during the construction works within this area. The ECoW will inform the Site Manager as soon as practicable.
- 4.4.1.2 If necessary, the ECoW will attend the area of work to assess the most appropriate mitigation measures required to protect the nest. Protective measures may include the creation of a 5 m wide works-free buffer zone around the nest, which will be maintained until a suitably qualified ecologist confirms the young have fully fledged and left the nest.
- 4.4.1.3 A record of findings and measures undertaken will be maintained by the Site Manager and provided to the Hornsea Four Environmental Manager.
- 4.4.1.4 Furthermore, should a Schedule 1 bird nest be encountered during works, then works will cease in that area and the ECoW will be consulted prior to works resuming. If the nest is active (as determined by the ECoW), Natural England will be consulted regarding appropriate mitigation. This is likely to consist of a species-specific buffer zone that will be subject to agreement with Natural England and the ECoW. Works will not resume until after the young have fledged, and under the authorisation of a suitability qualified ecologist.

## 4.4.2 Bats

- 4.4.2.1 Should a bat roost be located during the construction period, works within 15 m of the roost will be halted immediately and site workers will inform the ECoW as soon as practicable, either directly or through the Site Manager. Any potential construction lighting in nearby areas will be directed away from the roost site. Where possible the licensed ecologist will direct the installation of a woodcrete bat box in a suitable location on a mature tree located at least 15 m from the works area, so that any disturbed bat(s) can relocate to this area.
- 4.4.2.2 If the tree requires felling, a Natural England licence will be obtained prior to felling. Licences typically require felling to take place in/around October or April, to minimise the impact on any bats that might be present.
- 4.4.2.3 In the unlikely event of a 'missed' tree roost being accidentally felled or disturbed, the ECoW will ensure that a Natural England bat licensed ecologist attends the site as soon as practicable. The bat licensed ecologist will ensure the section containing the roost is moved to a suitable safe and sheltered location, at least 15 m from the works area and away from any potential obstructions that could prevent the exit of bats which may still be present. If required, the bat licenced ecologist will capture and relocate any disturbed bat(s) to a suitable alternative roost site, such as the pre-installed bat roost box. Alternately, if considered necessary, the bat(s) will be taken to a Natural England licensed handler who can monitor its recovery prior to release.
- 4.4.2.4 A record of findings and measures undertaken to protect any disturbed roosting bats will be maintained by the ECoW and provided to the Hornsea Four Environmental Manager and Site Manager. The ECoW will inform Natural England of the event and measures undertaken as soon as practicable. If a Natural England licence is required to continue the works, the ECoW will complete and submit an application, and works will not recommence until the licence has been obtained. Works would then be carried out in accordance with the licence and as necessary, under the watching brief of a Natural England bat licensed ecologist.
- 4.4.2.5 Within active construction areas, i.e. where removal of sections of hedgerows is required, moveable features will be employed on a nightly basis to ensure continuation of current commuting routes for commuting and/or foraging bats. This approach will only be applied to those hedgerows that have been recorded to provide high and moderate foraging/commuting habitat. These will be in line with standard guidance and requirements and will be a consistent shape and size to the existing hedgerow. These will be moved into place at least one hour before dusk each day and removed no earlier than 30 minutes after dawn.
- 4.4.2.6 Lighting required during construction works at the OnSS will only operate when required and will be directional to avoid unnecessary illumination. All necessary lighting shall be designed to minimise light scatter (kept near or below the horizontal) and in line with Guidance Note 8 – Bats and Artificial Lighting (ILP 2018).

- 4.4.2.7 In order to provide consideration for bats currently utilising the vegetation to the north of the OnSS and temporary construction compound, up to a 10 m wide 'dark corridor' buffer will be implemented within these areas, as well as to the east of the OnSS. Lighting will be directed away from this dark corridor and in line with [paragraphs 4.4.2.5 - 4.4.2.7](#). An indicative representation of the dark corridor buffer is shown on [Figure 1](#).
- 4.4.2.8 In addition to the dark corridor, additional mitigation has been provided where the OnSS temporary works area overlaps with the OnSS permanent access track works area. The permanent access track for the OnSS will be micro-sited with the area delineated by the overlap of works 7f, 9a, 9b and 10, where the permanent access track joins the OnSS temporary works area and the OnSS permanent works area (see Sheet 29 of [Volume D1, Annex 4.2: Works Plan – Onshore](#)). It was agreed with Natural England at the onshore ecology evidence plan technical panel meeting on the 16<sup>th</sup> September 2020 that any land which might remain north of the final position of the permanent access track will be used for mitigation hedgerow planting [ON-ECO-3.17], as a small section of hedgerow will be removed slightly west of this for the permanent access track.

### 4.4.3 Badgers

- 4.4.3.1 Where practicable, works-free buffer zones will be demarcated on site around areas of badger activity to ensure these are kept fully intact and with minimal interference from construction.
- 4.4.3.2 Night working will be avoided unless essential. Where night time working may be required, lighting will be focussed on works areas and directed away from badger setts and areas of high potential value to foraging badgers (e.g. areas of rough grassland and woodland). Co36 ([Volume A4, Annex 5.2: Commitments Register](#)) outlines the core working hours for the onshore elements of Hornsea Four, secured via the Outline CoCP ([Volume F2, Chapter 2: Outline Code of Construction Practice](#)). Lighting will be kept to a minimum, where it is located within 30 m of an active badger sett.
- 4.4.3.3 Excavations more than 0.5 m deep will be fenced or covered overnight where practicable. Alternately, a means of escape, such as wooden planks that could be used as ladders, will be set in place within the excavations.
- 4.4.3.4 If pre-construction surveys confirm the need for a Natural England licence for badgers, construction works will be undertaken in accordance with the requirements of the Natural England licence.
- 4.4.3.5 Site induction and toolbox talks will include emergency procedures in case of a badger or sett being located during construction works. Procedures will include the immediate halting of works within 30 m of an active badger sett. Site workers will notify the ECoW and Site Manager of findings as soon as practicable.

- 4.4.3.6 The ECoW will attend the site as soon as practicable to confirm reports of badger activity and assess the need for further surveys to confirm the presence of badgers and/or the need for a development licence for badgers.
- 4.4.3.7 A report of findings of the site visit and implications for construction will be produced by the suitably qualified ecologist and provided to the Site Manager and Hornsea Four Environmental Manager.
- 4.4.3.8 If the continuance of works should result in further damage or disturbance to an active badger sett, or significant disturbance of any badgers that might be utilising the sett (as identified by the ECoW), the ECoW will submit an application for a development licence for badgers to Natural England. Works will not recommence until a Natural England licence has been obtained and works will subsequently be supervised by the ECoW.
- 4.4.3.9 All licenced works will be carried out under a watching brief of the licence holder or ecologist named on the licence.
- 4.4.3.10 If construction works result in the death or injury of a badger, the appropriately experienced pre-approved ecologist will determine the cause of death where possible (through speaking to site workers, inspecting the body if possible, and investigating site conditions). If the death is considered likely to be a result of construction works the need for further mitigation measures such as the installation of badger exclusion fencing around working areas or the use of additional covering of excavations to prevent access into dangerous areas, will be assessed and determined.
- 4.4.3.11 Findings of the assessment and measures proposed will be reported to the Hornsea Four Environmental Manager and Site Manager as soon as practicable.
- 4.4.3.12 The pre-approved ecologist will monitor the effectiveness of any new mitigation requirements to ensure any necessary amendments or additions to mitigation are set in place as soon as practicable.

#### **4.4.4 Otters**

- 4.4.4.1 If an otter is encountered during the works, then the works should cease, and a suitably qualified ecologist contacted. They will assess the need for further mitigation measures including the requirement for a Natural England licence prior to works re-commencing. Construction works would be carried out in accordance with the requirements of the licence and under the guidance of a suitably qualified ecologist and, where necessary, an ecological watching brief.
- 4.4.4.2 If working at night is undertaken within or adjacent to watercourses, any lighting will be focussed on working areas and directed away from the watercourse and other watercourses of potential value to otters. Lighting will be kept to a minimum, up to approximately 100 m from otter holts or other identified resting places. Co36 ([Volume A4, Annex 5.2: Commitments Register](#)) outlines the core working hours for the onshore elements of

Hornsea Four, secured via the Outline CoCP ([Volume F2, Chapter 2: Outline Code of Construction Practice](#)).

#### **4.4.5 Water voles**

4.4.5.1 If water voles are encountered during the works, then the works will cease, and a suitably qualified ecologist contacted. They will assess the need for further mitigation measures including the requirement for a Natural England licence prior to works re-commencing. Construction works will be carried out in accordance with the requirements of the licence and under the guidance of the suitably qualified ecologist and, where necessary, an ecological watching brief.

#### **4.4.6 Great Crested Newts**

4.4.6.1 GCN mitigation will be in line with the GCN LONI and where required updated following completion of the pre-construction surveys to determine the presence of GCN and their indicative population sizes. If and where GCN exclusion fencing is installed prior to construction, this will be monitored throughout the construction phase to ensure that necessary repairs can be undertaken as soon as practicable. The Site Manager will be responsible for this task daily.

4.4.6.2 If a GCN is located during construction, works in the area will be halted immediately and the ECoW will be informed. To maintain the welfare of the GCN, a Natural England GCN licensed ecologist will attend the site to handle and where necessary, relocate any GCN to outside the exclusion fence line and provide further ecological advice as to the way forward and assess whether a Natural England licence is required or not.

4.4.6.3 On-going clearance of habitat of potential value to GCN (i.e. hedgerows and scrub) within the surrounding 250 m area will be monitored. If any more GCN are located during construction in the area, site works will be halted immediately, and the GCN licensed ecologist and/or ECoW will be informed. The ECoW will inform the Site Manager and Hornsea Four Environmental Manager as soon as practicable of the need to obtain a Natural England licence for GCN before works can recommence in the area.

4.4.6.4 The ECoW will be responsible for applying for a Natural England development licence for GCN.

## **5 Post construction mitigation measures**

5.1.1.1 This section describes the mitigation measures to be adopted as part of Hornsea Four that will be undertaken as soon as practicable following the completion of the works. These measures will be to mitigate the impacts of development on features of ecological and nature conservation interest and to provide biodiversity benefit.

- 5.1.1.2 All post-construction monitoring surveys described in this section will be undertaken by an appropriately experienced and where necessary, licensed ecologist(s), who will be pre-approved by Orsted.
- 5.1.1.3 All surveys will be carried out in accordance with bio-security risk assessments and safe systems of work (i.e. RAMS) which will be agreed prior to the commencement of any survey.

## 5.2 Habitats

- 5.2.1.1 Following the completion of construction in an area, cleared, damaged or disturbed habitats will be reinstated and as described in the sections below.
- 5.2.1.2 New planting will be carried out in accordance with the Hornsea Four Landscape Management Plan (LMP) (an outline of which is provided in [Volume F2, Chapter 8: Outline Landscape Management Plan](#)), and associated bio-security risk assessments (as detailed in the Biosecurity Protocol which forms appendix A of [Volume F2, Chapter 2: Outline Code of Construction Practice](#)) and safe systems of works (i.e. RAMS). The final LMP will include details of planting methodologies and plant species lists. The construction of buildings and planting of trees with deep roots will not be permitted above the permanent working area on the onshore ECC to prevent potential damage to onshore export cables.
- 5.2.1.3 The ECoW will be responsible for producing a report to confirm habitat reinstatement have been carried out in accordance with the requirements of this EMP and the LMP.

## 5.3 Protected or Otherwise Notable Species

- 5.3.1.1 Should any Natural England licences for protected species be required for construction works to be undertaken, the licence applications will include, where possible, habitat restoration and enhancement measures for the benefit of the protected species that the licence applies to. These measures will consider requirements of the LMP. However, should measures be required under a licence that are not included in the LMP, these will be carried out by landscape contractors working under the guidance of a suitably qualified ecologist and/or licence holder.
- 5.3.1.2 The suitably qualified ecologist and/or Natural England licence holder will be responsible for producing any required Natural England licence return forms and report of the works undertaken. A copy of the forms and reports will be provided to the Hornsea Four Onshore Environmental Manager, Natural England and ERYC as soon as reasonably practicable and as prescribed under the conditions of the Natural England licence.

### 5.3.2 Birds

- 5.3.2.1 Hedgerow reinstatement planting will include fruit-bearing species of potential value to birds including hawthorn and blackthorn, alder, field rose, dog rose and lime, where possible.

### 5.3.3 Hedgerows

5.3.3.1 All hedgerows that have been removed will be reinstated with like-for-like hedgerow species on completion of the works (subject to agreement with landowners) within that particular area (see Co26, [Volume A4, Annex 5.2: Commitments Register](#)). This will, in turn, provide reinstated habitat links between the severed sections of the hedgerows, which foraging/commuting bats can use. All of the reinstatement works will be supervised by the ECoW.

### 5.3.4 Water voles

5.3.4.1 Should pre-construction surveys confirm the need for a Natural England licence to open-cut trench across a watercourse used by water voles, the reinstatement of the crossing will be carried out in accordance with the requirements of the Natural England licence. The method statement of any licence application will consider habitat recommendations made in the Water Vole Conservation Handbook (Strachan 2011).

5.3.4.2 The objective of any proposed planting and management scheme will be to create good continuous cover and a rich food source. Planting will be carried out under the guidance of a suitably qualified ecologist.

5.3.4.3 Planting will be monitored and managed during establishment, as described in the LMP to ensure success.

## 6 Long term ecology management

6.1.1.1 This section describes ecology measures to be adopted as part of Hornsea Four that will be undertaken following the completion of post-construction mitigation described above.

### 6.2 Habitats

6.2.1.1 During the establishment phase (three to five years following the planting or spreading of seed) any failed plants will be replaced like-for-like as required to prevent any significant gaps in planting and as agreed with landowners. Once established, new planting will be managed in accordance with the LMP.

6.2.1.2 Should Natural England development licences be required for works to be undertaken, habitat management would be carried out in accordance with the requirements of these licences.

### 6.2.2 Hedgerows

6.2.2.1 Reinstated hedgerows and enhanced hedgerows will remain under the management control of the landowner.



## 6.3 Protected or Otherwise Notable Species

- 6.3.1.1 Should any Natural England licences for protected species be required, the licence holders (e.g. ECoW) will notify Hornsea Four of any additional survey and habitat requirements.
- 6.3.1.2 Hornsea Four will maintain a record of all ecology works completed, which will be provided to Natural England and ERYC as soon as practicable and as prescribed under the conditions of any Natural England licence.

## 7 Monitoring and Reporting

### 7.1 Monitoring

- 7.1.1.1 The ECoW will be responsible for monitoring adherence to the construction requirements of this plan through:
- Weekly site inspections; and/or
  - Weekly meetings with the Site Manager.
- 7.1.1.2 The ECoW will maintain a record of these site inspections and meetings, which will be provided to the Site Manager and Hornsea Four Environment Manager and will be made available to ERYC and Natural England as required or requested.
- 7.1.1.3 The ECoW will regularly monitor adherence to the requirements of the protective buffer zones, at least once every two weeks. Should any breach of these requirements become evident, the ECoW will inform the Hornsea Four Environmental Manager and Site Manager. The ECoW will inform the Site Manager of measures required to be undertaken to rectify any potential impacts. The Hornsea Four Onshore Environment Manager will be responsible for notifying Natural England of any breaches to the buffer zones if necessary and as advised by the ECoW.
- 7.1.1.4 New planting will be monitored during the establishment phase (up to five years post planting) by the Hornsea Four Environmental Manager's landscape contractor, landowner or farm manager, as agreed between all parties. Failed plants will be replaced (subject to agreement with landowners) like for like as required to prevent the development of a significant gap in planting.
- 7.1.1.5 Post-construction monitoring of protected species as required under any potential Natural England licences will be undertaken by the ECoW or appropriately experienced and if necessary, licensed ecologist(s), who will be pre-approved by the ECoW.

## 7.2 Reporting

### 7.2.1 Pre-construction

7.2.1.1 The ECoW will maintain a record of all pre-construction surveys which are undertaken. The ECoW will be responsible for the production of the pre-construction survey reports for the species listed below, although this list is not exhaustive and additional surveys may be required:

- Breeding birds;
- Roosting bats;
- Badgers;
- Otters;
- Water voles; and
- GCN.

7.2.1.2 Survey reports, including advice regarding implications for construction, will be provided to the Hornsea Four Onshore Environment Manager and Site Manager and a copy will be made available to ERYC on request.

7.2.1.3 Should any Natural England development licences be required, the ECoW will be responsible for the production of the Natural England licence applications which will be submitted to Natural England. Reports will support Natural England licence applications where required. Copies of the application will be provided to Hornsea Four.

### 7.2.2 During construction

7.2.2.1 The ECoW will maintain a record of all ecological work which is undertaken during the construction period, including any ecological watching briefs or protected species surveys and findings of any site visits. Reports will be provided to Hornsea Four and where appropriate to Natural England and ERYC.

7.2.2.2 The ECoW will maintain a record of any breaches of the requirements and any measures undertaken to mitigate potential impacts of a breach. Records will be provided to Hornsea Four and if necessary ERYC and Natural England.

7.2.2.3 If any reasonable changes to the measures are considered necessary by the ECoW to achieve the objectives and adhere to the requirements of this OEMP and any relevant legislation, the ECoW will produce a report of these proposed changes, detailing the reasons for them, and this report will be provided to ERYC for approval prior to the measures being carried out on site.

7.2.2.4 Should a Natural England licence be required during the construction period, the ECoW will be responsible for applying for a licence.

7.2.2.5 The ECoW and/or Natural England licence holder will be responsible for producing any required Natural England licence return forms and report of the works undertaken. A copy of the forms and reports will be provided to Hornsea Four, Natural England and ERYC as soon as reasonably practicable and as required under the conditions prescribed by the Natural England licence.

### 7.2.3 Post-Construction

7.2.3.1 Should any Natural England development licences be required, the ECoW and/or Natural England licence holder will be responsible for producing and distributing any required Natural England licence return forms and report of the works undertaken.

7.2.3.2 The ECoW will be responsible for producing a report to confirm habitat reinstatement or enhancement requirements have been carried out in accordance with this plan and the LMP.

## 8 Indicative timetable of suitable works period

8.1.1.1 **Table 4** provides an indicative programme outlining the optimal and optional months during which the works detailed in this document could be undertaken. **Table 3** sets out the key for interpretation of **Table 4**.

**Table 3: Key for Table 4 showing an indicative programme for optimal works relating to Ecology and Nature Conservation.**

	Ecology works period (optimal time).
	Optional ecology works period (sub-optimal time).
	No ecology works

**Table 4: Indicative programme for optimal works relating to Ecology and Nature Conservation.**

Work Description	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<i>Pre-construction</i>												
Survey for breeding birds.												
Survey for transitional and/or hibernating bat roosts												
Survey for bat roosts/roosting bats.												
Survey of trees for roosting bat activity.												
Installation of bat boxes.												
Survey for badger sett locations.												
Badger activity survey.												
Up-rooting of vegetation or clearance of materials (e.g. piles of rubble) of potential value to hibernating reptiles.												
Habitat management to deter reptiles.												
Applications for Natural England licences (should they be required).												
<i>Construction</i>												
Optimal period for clearance of hedgerows, scrub and trees												
Pre-clearance survey for nesting birds (should clearance not commence before nesting bird season)												
Clearance of hedgerows, scrub and trees, where pre-clearance surveys confirm no nests.												
<i>Post-construction</i>												
Reinstatement and enhancement planting in accordance with the Landscape Scheme and Management Plan.												
Installation of bat boxes.												
<i>Long term management</i>												
Installation of bat boxes.												
Replanting of failed plants during establishment period (five years post planting).												

## 9 References

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