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Subject: Hornsea Project Three (UK) Ltd response to Deadline 6 (Part 8)

Dear Kay, K-J

Please find attached the 8th instalment of documents.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager

Environmental Management UK | Wind Power
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Hornsea Project Three Offshore Wind Farm

Appendix 30 to Deadline 6 submission - Outline Onshore Written Scheme of Investigation

Date: 8th February 2019

Document Control			
Document Properties			
Organisation	Ørsted Hornsea Project Three		
Author	RPS		
Checked by	Celestia Godbehere		
Approved by	Andrew Guyton		
Title	Revised Draft Development Consent Order		
PINS Document Number	n/a		
Version History			
Date	Version	Status	Description / Changes
08/02/2019	A	Final	Submitted at Deadline 6 (8 th Feb 2019)

Ørsted

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Acronyms

Acronym	Description
CAT	Cable Avoidance Tool
COCP	Code of Construction Practice
DBA	Desk-Based Assessment
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
HER	Historic Environment Record
HVAC	High Voltage Alternating Current
HVDC	High Voltage Directional Current
MHWS	Mean High Water Springs
NCC	Norfolk County Council
NCCES	Norfolk County Council Environment Service
NMS	Norfolk Museums Service
OD	Ordnance Datum
SM	Scheduled Monuments
SMR	Sites and Monuments Record
WSI	Written Scheme of Investigation

1. Introduction

Background

- 1.1 This Outline Onshore Written Scheme of Investigation (WSI) has been prepared to establish the general strategies, methodologies and principles which be implemented during the post-consent archaeological works. The document conforms with current best practice and has been prepared in line with relevant legislation, policy and guidance. This Outline Onshore WSI has been developed based on consultation with Historic England and Norfolk County Council Environment Service (NCCES).
- 1.2 This Outline Onshore WSI sets out the principles upon which the final Onshore WSI will be developed in consultation with Historic England and NCCES post consent, prior to submission to NCCES for approval. This will discharge Requirement 16 of the draft Development Consent Order (APP-027), which requires that a WSI for onshore archaeology has been submitted to and approved by the relevant planning authority prior to the commencement of consented works.
- 1.3 In addition to this document, each post-consent stage of mitigation work will be subject to a separate survey-specific method statement to be agreed following consultation with NCCES and if appropriate Historic England. This will comprise the relevant method statement(s) appended to the final Onshore WSI document, with further details of site location(s) including site plans, trench and/ or soil stripping location plans, staffing etc.

Aims and objectives

- 1.4 The aim of this Outline Onshore WSI is to summarise the archaeological mitigation measures from Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077) and set out additional measures to be undertaken by Hornsea Three within a strategy to protect the archaeological resource that will be implemented post consent. The Outline Onshore WSI is informed by pre-application consultation undertaken specifically for Hornsea Three (see Volume 3, Chapter 5: Historic Environment (APP-077) for a summary of consultation undertaken to date). The Environmental Statement draws upon the baseline review of the known and potential archaeology within the Hornsea Three Order Limits, which is described in Volume 6, Annex 5.1: Desk Based Assessment of the Environmental Statement (APP-149).
- 1.5 The objectives of the Outline Onshore WSI are as follows:
- To fulfil the requirements of the Archaeological Curator in respect of archaeological monitoring and mitigation of works associated with Hornsea Three;
 - To determine the presence or otherwise of buried remains of significant archaeological interest within the development area, and to further define the extent of those features already identified;
 - To preserve by record any significant archaeological remains within the development area and to attempt a reconstruction of the history and use of the Hornsea Three onshore cable corridor;
 - To propose mitigation measures where archaeological remains are encountered during the construction work associated with Hornsea Three (these are listed in Section 6, below);
 - To establish the reporting and archiving requirements for the archaeological works undertaken during construction of Hornsea Three.

1.6 The initial research questions for the fieldwork and post excavation are given below. It is noted that these may be subject to amendment during or following each stage of work as the available evidence in the form of buried remains etc. becomes clearer:

- Understand further the character, form, function and date of prehistoric, Roman and later activities indicated in this area by the archaeological remains within the Hornsea Three onshore cable corridor; and
- To contribute to an understanding of the environmental history of the area between Weybourne and Swardeston with regard to local and regional research frameworks.

Scope

1.7 The scope of this document focuses on the buried archaeology in areas that may be affected by the onshore (landward of MHWS) elements of Hornsea Three (see paragraph 3.1 for definition). Designated assets and their settings are scoped out of this document.

Standards and Guidance

1.8 Works undertaken during Hornsea Three will conform to the relevant legislation and guidance, including:

- Overarching National Policy Statement for Energy [EN-1] (DECC July 2011);
- Code of Conduct (Chartered Institute for Archaeologists 2014a);
- Standard and Guidance for Archaeological Excavation (Chartered Institute for Archaeologists, 2014b);
- Standard and Guidance for Archaeological Field Evaluation (Chartered Institute for Archaeologists, 2014c);
- Standard and Guidance for an Archaeological Watching Brief (Chartered Institute for Archaeologists, 2014d);
- Standard and guidance for the collection, documentation, conservation and research of archaeological materials (Chartered Institute for Archaeologists, 2014e);
- Understanding Historic Buildings: A Guide to Good Recording Practice (English Heritage, 2016);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015); and
- Standards for Development-Led Archaeological Projects in Norfolk (Robertson *et al.*, 2018).

Responsibilities and Communications

Retained Archaeologist

1.9 Following the agreement of the Outline Onshore WSI, Hornsea Three shall employ the services of a suitably qualified and experienced archaeological consultant ('the Retained Archaeologist') to ensure the effective implementation of the Onshore WSI and other relevant commitments in relation to archaeology.

1.10 In relation to the implementation of the Onshore WSI, the Retained Archaeologist will report to the Hornsea Three's appointed project manager.

1.11 The responsibilities of the Retained Archaeologist will include:

- Maintaining, reviewing and updating the Onshore WSI;
- Advising the Hornsea Three construction team with regard to which scheme elements warrant archaeological involvement;
- Advising the Hornsea Three construction team (through the project manager) during the evaluation of scope of work specifications on their capacity to meet archaeological requirements;
- Advising Hornsea Three on the necessary interaction with third party stakeholders, including the Norfolk County Council Environment Services (the Archaeological Curator);
- Advising Hornsea Three on the implementation of generic archaeological requirements applicable to all construction, operation and maintenance, and decommissioning activities;
- Advising, preparing and issuing Method Statements to the Archaeological Curator for approval;
- Implementing and monitoring the Protocol for Unexpected Archaeological Remains (see Appendix F);
- Monitoring the work of and liaising with the Archaeological Contractor(s) where this is not the Retained Archaeologist;
- Monitoring the preparation and submission of Archaeological Reports as appropriate and making them available to the Archaeological Curator;
- Preparing provisions for the management of the project archives in consultation with an appropriate Museum; and
- Advising Hornsea Three on final arrangements for analysis, archive deposition, publication and popular dissemination of the results of Hornsea Three.

Archaeological contractors

1.12 Archaeological contractors may be employed on an *ad hoc* to provide a range of services relating to specialist archaeological provision (e.g. fieldwork, geotechnical survey, analysis etc).

Construction contractors

1.13 All construction contractors engaged in the construction of Hornsea Three (secured through contractual documents as appropriate) shall:

- Familiarise themselves with the generic requirements of the onshore WSI, and make them available to their staff;
- Assist and afford access to archaeologists employed by Hornsea Three;
- Inform the Retained Archaeologist of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologists' activities; and
- Implement the Protocol for Unexpected Archaeological Remains.

Archaeological Curator

1.14 Norfolk County Council Environment Services is the Archaeological Curator responsible for heritage matters onshore. Contact with the Archaeological Curator will be administered by Hornsea Three under advice from the Retained Archaeologist.

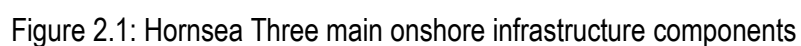
- 1.15 Historic England may provide specialist advice to NCCES. In addition, advice (typically on scientific matters including dating and/or geoarchaeology) may be provided directly to Hornsea Three.
- 1.16 Where Method Statements, reports or other deliverables are submitted by Hornsea Three to the Archaeological Curator, their agreement/acceptance will be assumed if no contrary response is received within 30 working days of submission.

Contacts

- 1.17 The relevant contacts at Norfolk County Council Environment Services and Historic England are:
- James Albone, Acting Historic Environment Team Leader (Strategy & Advice), Community and Environmental Services, Norfolk County Council Environment Service, Union House, Gressenhall, Dereham, Norfolk NR20 4DR;
 - Julie Shoemark, Finds Liaison Officer (FLO), Norfolk Historic Environment Service, Unison House, Gressenhall, Dereham, Norfolk NR20 4DR; and
 - Dr Will Fletcher, Inspector of Ancient Monuments, Historic England, Brooklands, 24 Brooklands Avenue, Cambridge CB28BU
- 1.18 The contact details for the role of the Retained Archaeologist will be confirmed in the final Onshore WSI, to be agreed with NCCES post consent, prior to commencement of the consented works (Requirement 16 of the draft Development Consent Order).

2. Hornsea Three

- 2.1 The locations of the main components of the onshore infrastructure (i.e. the Hornsea Three landfall, onshore cable corridor, onshore HVAC booster station and HVDC converter/HVAC substation, and grid connection at the existing Norwich Main Substation) are shown at Figure 2.1.
- 2.2 The Hornsea Three onshore cable corridor will run from landfall at Weybourne on the north Norfolk Coast to an onshore High Voltage Directional Current (HVDC) converter/High Voltage Alternating Current (HVAC) substation to the south of Norwich, before making grid connection at the existing Norwich Main Substation.
- 2.3 If a HVAC electrical transmission system is developed, it may be necessary to construct an onshore HVAC booster station (instead of, or in addition to, an offshore HVAC booster station(s)). This would provide reactive compensation to the cable and enable long distance HVAC transmission. If an onshore HVAC booster station is required, it would be constructed in the area of Little Barningham, which lies in the northern section of the Hornsea Three onshore cable corridor (Figure 2.1). If a HVDC transmission system is developed, an onshore HVAC booster station would not be required.
- 2.4 The onshore export cables will be buried underground along their entire length. The onshore cable corridor is approximately 80 m wide (this includes both the permanent installation area (60 m) and temporary working area (20 m)) and installed predominantly in agricultural land. In some instances, where the onshore cable corridor crosses roads, watercourses and environmentally sensitive locations, the width of the onshore cable corridor may be increased to facilitate the crossing.
- 2.5 The Hornsea Three onshore cable corridor passes through the districts of North Norfolk, Broadland and terminates in South Norfolk.
- 2.6 During the construction phase, temporary construction compounds and storage areas of various sizes will also be required along the Hornsea Three onshore cable corridor, for laydown and storage of materials, plant and staff, as well as space for small temporary offices, welfare facilities, security and parking. Construction compounds will also be required at crossings of other infrastructure where horizontal direction drilling (HDD) is proposed. The construction compounds will be removed, and the land reinstated on completion of construction work associated with that phase unless otherwise approved by the Local Planning Authority.
- 2.7 A main construction compound is proposed at the former Oulton airfield, approximately midway along the onshore cable corridor, which would operate as a central base for the onshore construction works and would house the central offices, welfare facilities, and stores, as well as acting as a staging post and secure storage for equipment and component deliveries. Establishment and use of the main construction compound would involve the use of existing concrete hardstanding and access roads. Impacts in connection with Hornsea Three would be temporary and reversible. On this basis, no significant effects to the former Oulton airfield are anticipated and no further mitigation by way of archaeological fieldwork is proposed.



3. Baseline Environment

Overview

- 3.1 A baseline review of the known and potential archaeology within the area to be occupied by the onshore elements of Hornsea Three (namely the Hornsea Three landfall, onshore cable corridor, onshore HVAC booster station, onshore HVDC converter/HVAC substation and the interconnection with the existing Norwich Main Substation) as well as temporary storage areas and compounds is set out in Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077).
- 3.2 Volume 6, Annex 5.1: Desk Based Assessment (APP-149) identifies heritage assets within 250 m of the onshore elements of Hornsea Three, and is referred to as the Hornsea Three core historic environment study area. This captures information from the Norfolk Historic Environment Record and primarily relates to undesignated heritage assets (it may also capture designated assets within 250 m, however these will be reported within the historic environment study area (i.e. within 1 km from the onshore elements of Hornsea Three as well as temporary storage areas and compounds, plus a wider buffer around the onshore HVAC booster station and HVDC converter/HVAC substation)). Where appropriate, the description of the undesignated assets may extend beyond 250 m to provide the context of key features. This is based on professional judgement.
- 3.3 The archaeological background below is necessarily condensed and further information is provided in Volume 6, Annex 5.1: Desk Based Assessment of the Environmental Statement (APP-149).

Archaeological background

- 3.4 The early landscape within the Hornsea Three historic environment study areas is likely to have been significantly different to the modern version. At the north of the Hornsea Three onshore cable corridor there has been significant coastal erosion and therefore the early coastline was further north. The rivers are likely to have been wider and more navigable. The landscape has been gradually modified through human activity, particularly during the medieval and post medieval periods. Undesignated assets within the core historic environment study area are summarised below and described in detail in Volume 6, Annex 5.1: Desk Based Assessment of the Environmental Statement (APP-149).
- 3.5 The following sections discuss the potential for undesignated assets within the core historic environment study area.

Prehistoric

Palaeolithic and Mesolithic

- 3.6 Very few finds of Palaeolithic and Mesolithic material have been made in the core historic environment study area. In 1974, a Palaeolithic flint hand axe was recovered during subsoiling in Plumstead parish. The find-spot is immediately adjacent to the onshore cable corridor. In addition, finds of Palaeolithic material have been made in Keswick and Intwood parish, near the southern end of the onshore cable corridor. It has been recognised that the Pleistocene deposits of the north Norfolk coast have a high potential for archaeological and environmental information (Austin, 2000).

Neolithic/Bronze Age

- 3.7 Evidence for Neolithic activity in the area is mainly in the form of finds. Comparatively large numbers of finds of Neolithic material have been made along the Hornsea Three onshore cable corridor, with numerous Historic Environment Records (HER) representing finds from this period located within 100 m of each side of the cable corridor.
- 3.8 There are a number of records of Bronze Age activity in the area, mostly either representing funerary activity or find-spots. While there is a general scatter of these sites and finds along the Hornsea Three onshore cable corridor there is more of a concentration at its northern and southern ends.
- 3.9 Aerial photographs show the cropmarks of two adjacent ring ditches located northwest of Salle Park and immediately adjacent to the onshore cable corridor. A group of five ring ditches visible on aerial photographs to the north east of Morton village in Morton on the Hill parish may indicate the location of a Bronze Age round barrow cemetery. This site is crossed by the onshore cable corridor.

Iron Age

- 3.10 There is little evidence of Iron Age activity except where associated with later Roman activity.

Roman

- 3.11 The wider area was heavily Romanised, probably mostly cleared and farmed. Evidence for Roman roads is recorded along the Hornsea Three onshore cable corridor, with several settlements nearby. These include:
- A Roman road from Bawburgh to Bishop Bridge;
 - The Romano-British town of Venta Icenorum;
 - The line of a Roman road between Caistor St Edmund and Crownthorpe, the site of a Roman temple;
 - A possible Roman enclosure and field system located to the east of Weybourne and crossed by the Hornsea Three onshore cable corridor; and
 - A further Roman settlement site has been recorded at the Harford Park and Ride site, located on the south side of Norwich at the junction of the A140 Ipswich road and the A47 road.
- 3.12 There is a general scatter of Roman material along the length of the core historic environment study area with concentrations of material around Weybourne in the north and Caistor St Edmund in the south. Large quantities of Roman metal work have been recorded through metal detecting.

Medieval

- 3.13 There is considerable evidence for medieval activity in the wider area. Many of the local place-names, including Attlebridge, Baconsthorpe, Cawston, Corpusty, Easton, Hempstead, Little Melton, Marlingford, Mulbarton, Reepham, Saxthorpe, Swainsthorpe, Swardeston, Weston Longville and Weybourne are first recorded in documents in the Domesday Book of 1086 and represent pre-existing occupation (Williams and Martin, 1992).
- 3.14 In terms of material evidence, Anglo Saxon cemeteries are recorded around Caistor St Edmund. Few recorded stray finds of Early Anglo Saxon date have been made, although evidence for Late Saxon activity has been recorded around Bawburgh and Corpusty.

- 3.15 There is some considerable evidence for desertion and shrinkage of medieval villages. There is evidence of medieval settlement desertion in Salle Park and at Cantley, mentioned in the Domesday Book, in Ketteringham parish.
- 3.16 In addition, a deserted medieval village is recorded at Kenningham. A further deserted medieval village and church are recorded at Caistor St Edmund.
- 3.17 There is a background scatter of medieval finds over much of the core historic environment study area and very large numbers of medieval finds have been recovered through metal detecting.

Post Medieval and Modern

- 3.18 There are large numbers of post medieval buildings which survive within the core historic environment study area. The evidence indicates that farms began to be constructed within fields and adjacent to roads, away from villages.
- 3.19 There are numerous remains dating from the two World Wars. Many are small scale and many of these are located on the coast as coastal defences.
- 3.20 A Second World War Airfield is recorded at Oulton, some 3.3 km east of the Hornsea Three onshore cable corridor. The airfield was opened in 1940 and used by both Royal Air Force and US Army Air Force bomber squadrons.

Onshore geophysical survey results

- 3.21 The onshore geophysical survey was undertaken in the form of a detailed magnetometer survey over approximately 145 ha of mixed arable and pastoral farmland. The survey targeted 20 areas between Weybourne (TG 1181 4319) in the north to Swainsthorpe (TG 2186 0194) in the south. These areas were selected following a walkover survey and consultation with the Norfolk County Council Archaeologist (see Volume 6, Annex 5.2: Fieldwalking Report (APP-150)).
- 3.22 Archaeological anomalies were identified across 12 of the 20 areas surveyed, many of which correspond to cropmarks previously recorded from aerial photography and documented in the Norfolk Historic Environment Record. The location of the areas surveyed and the results of the survey are shown in Volume 6, Annex 5.6: Onshore Geophysical Survey (APP-154).

4. Potential Impacts from Hornsea Three

- 4.1 There are a number of archaeological assets which have been identified through desk assessment and fieldwork; those which are significant and substantial are outlined in Volume 6, Annex 5.2: Fieldwalking Report of the Environmental Statement (APP-150).
- 4.2 Impacts on archaeological (undesigned) remains may occur during the construction of the onshore elements of Hornsea Three by direct damage or loss as a result of stripping and excavating of the soil along the onshore cable corridor, the onshore HVAC booster station and HVDC converter/HVAC substation areas, together with compounds, storage areas and accesses. An assessment of the impacts and mitigation measures is provided within Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077) and summarised in Table 5.17. The overall effect of Hornsea Three on buried archaeological remains from these activities would be minor adverse. Mitigation is considered in Section 5 of this document.

5. Measures Adopted as Part of Hornsea Three

- 5.1 A number of designed-in measures have been incorporated to reduce the potential for significant effects on buried archaeology (see Table 5.1 below, which includes those commitments given within Volume 3, Chapter 5: Historic Environment (APP-077)).
- 5.2 These measures are considered standard industry practice for this type of infrastructure development. The commitment to implement these measures is set out in the Outline Code of Construction Practice (Outline CoCP) (REP1-142).
- 5.3 Given the nature of buried archaeological remains, there is a degree of uncertainty about the archaeological potential along the onshore cable corridor and in the location of the onshore HVAC booster station, HVDC converter/HVAC substation and at landfall. In consultation with NCCES and Historic England further field surveys will be undertaken, details of which are included in Table 5.1 below and are set out in section 6.

Table 5.1: Designed-in measures adopted as part of Hornsea Three.

Measures adopted as part of Hornsea Three	Justification
Construction Phase	
Cables will be buried rather than above ground.	This reduces or nullifies any long-term effect on the settings of heritage assets.

Measures adopted as part of Hornsea Three	Justification
A programme of advance archaeological investigation following consent will include identified sites that will be adversely affected by Hornsea Three (as reported in Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077)) Following consultation with NCCES, the advance archaeological investigation will also include: • Geophysical survey, the scope of which will be agreed post-consent and after a decision is made on the choice of transmission system. This would be limited to the land take required for the permanent easement, with provision to extend the survey to cover the temporary easement, should archaeological remains be revealed and if it is considered appropriate to establish their extent for the purposes of preservation in situ of those remains; • Selective trial trenching, the scope of which will be agreed post-consent based on the results of the geophysical survey, existing HER and commitment to have an archaeological watching brief; • Site-specific mitigation where appropriate. This programme will be agreed with the relevant authorities prior to commencement of the work.	To offset any loss of, or damage to, buried archaeological assets.
Investigation of unexpected archaeological sites encountered during construction will be undertaken in line with procedures (e.g. a chance find procedure) agreed in advance with the relevant authorities (see Outline CoCP (REP1-142)).	To offset any loss of, or damage to, buried archaeological assets

Measures adopted as part of Hornsea Three	Justification
Restoration of hedges and hedge banks (for more detail see section 4 of the Outline Landscape Management Plan (REP1-145). Landscape planting scheme around onshore HVAC booster station and HVDC converter/HVAC substation (see Outline Landscape Management Plan (REP1-145)). NCCES has also requested that the hedgerows are recorded. It is noted that a proportion of hedgerows along the onshore cable corridor are to be retained, using Horizontal Directional Drilling (HDD) technology to drill below the features and preserve them in situ. There are, however, areas where hedgerow removal will be necessary. Hedgerows important for historic criteria have been identified in the Historic Hedge plan [REP1-152]. All hedgerows which have not been surveyed as part of pre-application works will be surveyed pre-construction according to the Hedgerow Regulations 1997 criteria (including below ground finds) and recorded. Recording at all sites where hedgerows are removed would involve a photographic survey of the hedgerow pre-removal and recording of any associated earthworks (i.e. hedgebanks etc).	This reduces any long-term effects on the settings of heritage assets and the historic landscape and is not considered further here.
Operation and Maintenance Phase	
Restoration of hedges and hedge banks. Landscape planting scheme around onshore HVAC booster station and onshore HVDC converter/HVAC substation (see Outline Landscape Management Plan (REP1-145)).	To potentially ameliorate impacts on settings of heritage assets caused by the onshore HVAC booster station and onshore HVDC converter/HVAC substation and is not considered further here.
Decommissioning Phase	
None.	Effects during the decommissioning phase would be limited to those resulting from changes to the settings of heritage assets, which is outside the scope of this document. Such effects will be short-term and fully reversible.

- 5.4 A number of assets have been examined during the EIA process. Based on this, detailed mitigation measures for specific sites are described in Table 5.2. For the locations of the sites, see Volume 6, Annex 5.2: Fieldwalking Report of the Environmental Statement (APP-150). It is noted that these are the key known sites and that further currently unknown sites may be present along the Hornsea Three onshore cable corridor.

Table 5.2: Detailed measures adopted as part of Hornsea Three with respect to the recording of undesignated heritage assets.

Mitigation measures adopted as part of Hornsea Three	Justification
Construction Phase	
Site GS2 - Baconsthorpe: Trenching and or soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	The Hornsea Three onshore cable corridor passes between the two recorded heritage assets west of Baconsthorpe Castle. There is the potential that previously unrecorded archaeological remains are present through this area.
Site GS5 - Barningham Green, site of the onshore HVAC booster station: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	No recorded or known archaeology, including from the geophysical survey (see Volume 6, Annex 5.6: Onshore Geophysical Survey Report of the Environmental Statement (APP-154)). However, given the impact of the proposed permanent structures a programme of mitigation works is judged to be appropriate if the onshore HVAC booster station is required.
Site GS6 - Corpusty: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	A small number of discrete and linear responses of uncertain origin have been identified through the geophysical survey (see Volume 6, Annex 5.6: Onshore Geophysical Survey Report of the Environmental Statement). Metal detecting within these fields has produced significant quantities of Roman and early Anglo-Saxon artefacts indicating a high potential for associated buried archaeological remains.
Site GS7 – Saxthorpe: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	Significant quantities of medieval finds suggest medieval settlement.
Site GS10 - Booton: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	St Michael and All Angels' Church, medieval coin finds and Roman road.
Site GS 11 – Alderford: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	Cropmarks of ditches of possible Iron Age to Roman date and finds including tesserae.
Site GS12 - Attlebridge/Morton on the Hill: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	Cropmarks of Bronze Age round barrow cemetery.

Mitigation measures adopted as part of Hornsea Three	Justification
Site GS13 – Ringland: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	Site of probable Bronze Age barrow.
Site GS14 – Easton: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	High potential for significant buried archaeological deposits relating to Anglo-Saxon to medieval settlement.
Site GS15 - Broom Farm: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	The cropmarks of an area of enclosures and fields of probable Roman date.
Site GS16 - Little Melton: Area subject to geophysical survey now outside Hornsea Three project boundary. However, trenching/soil stripping would be undertaken as appropriate within a nearby part of the onshore cable corridor in advance of construction and/or monitoring of soil stripping during construction (and see Site GS23).	High potential for significant buried archaeological deposits relating to Anglo-Saxon to medieval settlement.
Site GS17 – Ketteringham: Area subject to geophysical survey now outside Hornsea Three project boundary. However, trenching/ soil stripping would be undertaken as appropriate within a nearby part of onshore cable corridor in advance of construction and/or monitoring of soil stripping during construction.	Cropmark of Bronze Age ring ditch.
Site GS18 - Mangreen South: Trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction.	HER records cropmarks of an undated rectangular enclosure at the proposed onshore HVDC converter/HVAC substation. Permanent structures and relatively large area of high impact.
Site GS19 – Mangreen Hall – geophysical survey as appropriate of areas within the Hornsea Three project boundary in advance of construction. Based on consultation with NCCES, this may be followed by trenching and/or other measures as appropriate.	High potential for significant buried archaeological deposits relating to Anglo-Saxon to medieval settlement.
Site GS24 – Edgefield – geophysical survey as appropriate of areas within the Hornsea Three project boundary in advance of construction. Based on consultation with NCCES, this may be followed by trenching and/or other measures as appropriate.	Cropmarks of a ring ditch and linear features (possible enclosures).

Mitigation measures adopted as part of Hornsea Three	Justification
Reroute Online Map 2 - Bodham (TF 113 395 area): Geophysical survey and/or trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction. Based on consultation with NCCES, further mitigation measures may be required as appropriate	Presence of an enclosure cropmark of possible Iron Age to Roman date within 50 m of the Hornsea Three onshore cable corridor. Consequently, there is a high potential for associated buried archaeological remains.
Reroute Online Map 2 - Bodham (TF 115 391 area) Geophysical survey and/or trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction. Based on consultation with NCCES, further mitigation measures may be required as appropriate	Previously unrecorded cropmarks, including boundary/enclosure ditches and a possible ring ditch, are visible in this field on Google Earth imagery from 1999.
Site GS23 Reroute Online Map 7 - Great Melton/Little Melton (TG 147 070 area): Further geophysical survey and/or trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction (and see Site GS16). Based on consultation with NCCES, further mitigation measures may be required as appropriate.	A small number of discrete and linear responses of uncertain origin have been identified through the geophysical survey (see Volume 6, Annex 5.6: Onshore Geophysical Survey Report of the Environmental Statement (APP-154)). The Hornsea Three onshore cable corridor runs along the line of a parish boundary that is also recorded as a cropmark feature. The presence of a parish boundary may increase the potential for an early Anglo-Saxon cemetery to be present and this needs to be considered in the future mitigation works.
Reroute Online Map 8 - Hethersett (TG 167 058 area): Geophysical survey and/or trenching/soil stripping as appropriate in advance of construction and/or monitoring of soil stripping during construction. Based on consultation with NCCES, further mitigation measures may be required as appropriate.	The onshore cable corridor passes through an area of Roman finds and consequently there is potential for buried archaeological remains to be present.
Operation and Maintenance Phase	
None.	All mitigation will be completed prior to/during the construction phase.
Decommissioning Phase	
None.	All mitigation will be completed prior to/during the construction phase.

6. Archaeological Field Surveys

Introduction

- 6.1 A number of non-intrusive desk-based and geophysical surveys have been undertaken for Hornsea Three. Further information can be found in Volume 6, Annex 5.1: Desk Based Assessment (APP-149), Annex 5.2: Fieldwalking Report (APP-150) and Annex 5.6: Onshore Geophysical Survey Report (APP-154) of the Environmental Statement.
- 6.2 This section provides a summary of the work undertaken, as well as further fieldwork proposed.

Fieldwork

- 6.3 To mitigate the impacts of Hornsea Three on buried archaeology, a programme of archaeological fieldwork will be undertaken to ensure preservation by record of archaeological remains affected by Hornsea Three.
- 6.4 The mitigation strategy is based on knowledge gained from archaeological work, both desk and field based, carried out to date (as documented in Volume 3, Chapter 5: Historic Environment (APP-077)). This work identified 19 areas of known archaeological interest, although given the nature of archaeological features there is the potential that other currently unknown areas of interest may also be present along the onshore cable corridor. Archaeologically sensitive areas are those subject to the detailed mitigation measures laid out in Table 5.22, Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077) and noted in Table 5.1 and Table 5.2 of this document. In addition, it is noted that areas where unexpected archaeological remains are revealed before or during stripping on the remainder of the onshore cable corridor would also be classified as archaeologically sensitive.
- 6.5 The mitigation strategy comprises eight main elements, as follows:

Further geophysical survey

- 6.6 Geophysical survey has been undertaken in targeted locations and reported in Annex 5.6: Onshore Geophysical Survey Report (APP-154) of the Environmental Statement. It is intended that further geophysical survey will be undertaken as outlined in Table 5.1 and Table 5.2, which will provide geophysical survey information for an agreed portion of the Hornsea Three Order Limits post consent/ pre-commencement of consented works. The specific area surveyed will be agreed with NCCES based on the detailed design, including the choice of transmission system and therefore the width of the onshore cable corridor. The objective of this survey will be to predict the archaeological potential of previously un-surveyed areas and inform the need and scope of mitigation measures prior to consented works.
- 6.7 The geophysical survey will be used to inform the level, if any, of further archaeological intervention through the mitigation measures described below within the onshore elements of Hornsea Three.

Trial trenching

- 6.8 Where appropriate, it is intended to undertake a programme of trial trenching described in the Method Statement for Trial Trenching at Appendix B. Results of the geophysical surveys combined with existing HER data will be used to identify where trial trenching would be appropriate. Table 5.2 sets out those known assets (i.e. recorded on the HER) where trial trenching will be undertaken. Subject to the results of the geophysical survey, and the works proposed in a given area, trial trenching may also be required in areas of unknown archaeological potential (as described in paragraph 6.6).
- 6.9 The results of the trial trenching will be used to formulate and implement site or section specific mitigation measures (i.e. whether further work is required and whether this should take the form of a watching brief or strip, map and assess). It is assumed that areas will be subject to the latter unless otherwise agreed.

Mitigation measures

Watching brief

- 6.10 It is intended to carry out a non-intensive watching brief in those areas not identified as being archaeologically sensitive but where intrusive works are proposed.
- 6.11 The archaeological watching brief will comprise a series of visits to observe soil stripping within the areas not identified as being archaeologically sensitive. The soil will be stripped by others.

Micro-siting

- 6.12 When the final design is developed and clarity can be provided as to the land take required through each parcel of land for each phase of the projects, where technically feasible, and subject to consideration of a range of other factors that influence the detailed design and installation of the export cables, it may be possible to micro-site the trenches associated with the onshore export cables to avoid localised areas identified as being archaeologically sensitive within the Order Limits.

Strip map and assess

- 6.13 It is intended to carry out strip, map and assess in those areas identified as being archaeologically sensitive, including both those identified in Volume 6, Annex 5.1: Desk Based Assessment of the Environmental Statement (APP-149) and those identified through the initial post-consent investigative phases (geophysical survey and where appropriate, trial trenching).
- 6.14 Where areas within the Order Limits have been identified for stripping, this will be carried out under archaeological direction. Features and deposits will be mapped immediately following stripping, and the plans generated will be provided to the NCCES Archaeologist within one week to inform a review. Preservation by record will, however, commence (assuming the consent of the NCCES Archaeologist) immediately following stripping. This is in order to prevent damage to the archaeology from exposure to the elements.

6.15 The review of the plans by the NCCES Archaeologist will be undertaken as soon as possible and will include the nature of the archaeological resource and strategy for its preservation by record. Excavation will be carried out according to the agreed strategy and within an agreed timeframe and samples will be excavated in accordance with the methodology outlined in Appendix D and Appendix E.

6.16 A separate method statement has been produced for this element of work (Appendix D).

Preservation by Record

6.17 A programme of detailed excavation and recording will be undertaken to ensure preservation by record. The plans generated through strip, map and assess will be used to agree (between the Hornsea Three, the Retained Archaeologist and the NCCES Archaeologist) an appropriate detailed excavation strategy.

6.18 A separate method statement has been produced for this element of work (Appendix E). This will be used unless and until an agreement to vary it is reached with the NCCES Archaeologist. Final approval to any change will be provided by the NCCES Archaeologist.

Post-excavation assessment

6.19 On completion of all fieldwork a post-excavation assessment will be prepared presenting a summary of the results, a consideration of their significance, potential for further analysis and proposals for their publication in an appropriate format(s). Further detail is provided in the Method Statement for Preservation by Record (Appendix E).

Analysis and publication

6.20 On production of an assessment report, to be approved by the NCCES Archaeologist, an appropriate programme of analysis and publication will be undertaken in order to provide dissemination of the results. Further detail is provided in the Method Statement for Preservation by Record (Appendix E).

Publicity

6.21 Enquiries or releases through the media on archaeological finds and material found during the survey will, in the first instance, be directed through Hornsea Three. Whilst Hornsea Three supports media coverage on archaeological finds and will be happy to co-ordinate such coverage, it is recommended that relevant information is released after completion of all stages of archaeological fieldwork in order to ensure that the integrity of the resource is maintained.

Archive

6.22 On completion of finds processing, the Archaeological Contractor will write to all landowners with a list of all material recovered from their land and a request for ownership to be transferred to Norfolk Museums Service (NMS).

6.23 A completed and consolidated project archive will be prepared in accordance with established national guidelines set out in:

- Chartered Institute for Archaeologists (2014e) Standard and guidance for the collection, documentation, conservation and research of archaeological materials; and
- Chartered Institute for Archaeologists (2014f) Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives.

Management Arrangements

Access

- 6.24 Access for fieldwork will be arranged as appropriate by land agents appointed by Hornsea Three. The Archaeological Contractor will liaise directly with the land agent for all land access issues.
- 6.25 The Archaeological Contractor will provide the land agent with a suggested programme of fieldwork activity including locations.

Insurance

The Archaeological Contractor will have an appropriate level of Public Liability Insurance and Professional Indemnity Insurance Health, Safety and Environment

- 6.26 Health, safety and environment considerations are fundamental to the project at all stages. Safe working practices will override archaeological considerations at all times. All work will be carried out in accordance with the Health and Safety at Work Act 1974, the Management of Health and Safety Regulations 1992, and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time. All trenching and other works relating to the handling of soil will be carried out in accordance with the Code of Construction Practice (Requirement 17 of the draft Development Consent Order), which includes provisions for biosecurity and soil management.
- 6.27 The Archaeological Contractor will produce a site and task specific health and safety focused risk assessment and method statement for all works and provide copies to all relevant parties, including Hornsea Three. These must be approved by Hornsea Three prior to the commencement of the works described in the relevant method statement, and all individuals involved in the works must be aware of and understand the content prior to the commencement of any archaeological works.
- 6.28 The appropriate landowner agreements (see paragraph 6.24 of this document) will be in place and environmental constraints will be highlighted, considered and managed both prior to any archaeological works commencing and during those works. Archaeological staff and visitors will respect health, safety and environment provisions and site-specific safety regulations.

Service location

- 6.29 Before any fieldwork begins, statutory authorities will be consulted by the Archaeological Contractor, where this has not already been done by others, for information regarding the presence of any below/above ground services. The site will be walked over and visually inspected to identify, where possible, the location of above and below ground services.
- 6.30 All excavation area locations will be scanned before and during excavation with a Cable Avoidance Tool (CAT) to verify the absence of any live underground services.

Programme and Monitoring

- 6.31 A detailed programme will be established post consent / pre-commencement of consented works that will set out the timeframes for undertaking archaeological fieldwork such as geophysical investigations, and if required trial trenching, stripping etc. Adequate time will be provided to undertake the fieldwork and mitigation measures described in paragraphs 6.3 to 6.23 prior to the commencement of consented works. A programme for post excavation and reporting is given at paragraphs E.42 and E.43 below.
- 6.32 The NCCES Archaeologist will be notified a minimum of 15 working days in advance of the commencement of fieldwork and will be informed at this time of the Archaeological Contractor's key staff and any subcontractors.
- 6.33 An outline of the programme of monitoring visits by the NCCES Archaeologist and Hornsea Three will be agreed in advance of the commencement of fieldwork. The Historic England Regional Science advisor will be invited to attend meetings as appropriate and will, in consultation with the NCCES Archaeologist as appropriate, monitor the archaeological science component of the project.
- 6.34 The Archaeological Contractor will provide the NCCES Archaeologist with verbal and written reports as appropriate and as agreed with NCCES. Initially these may be on a weekly basis during the course of fieldwork. Following the completion of fieldwork, the NCCES Archaeologist will be kept apprised of progress with regard to post excavation analysis and reporting.

Use of Machinery in Archaeologically Sensitive Areas

- 6.35 Archaeologically sensitive areas are those subject to the detailed mitigation measures set out in Table 5.22, Volume 3, Chapter 5: Historic Environment of the Environmental Statement (APP-077) and noted in Table 5.1 and Table 5.2 above in this document. In addition, areas where unexpected archaeological remains are revealed during stripping on the remainder of the cable corridor would be classified as archaeologically sensitive.
- 6.36 In order to preserve the integrity of archaeological remains prior to a decision on their treatment, all parts of those areas considered to be archaeologically sensitive will be treated as such in the first instance.
- 6.37 It should be noted by all parties that 360° tracked excavators fitted with toothless buckets, and dumpers, will carry out stripping and soil removal.
- 6.38 All machining in archaeologically sensitive areas will be carried out carefully to ensure close control of depth and will be under the direction of the Archaeological Contractor.
- 6.39 During the stripping operation, all earthmoving and other vehicles will avoid travelling on the freshly stripped subsoil and any identified areas of archaeological investigation until cleared to do so by the Archaeological Contractor. Particular care will be taken to not damage buried surfaces by manoeuvring on the stripped site.

6.40 Once an area has been stripped, the areas for development will not be released until the NCCES Archaeologist has been informed and has consented to sign the area off, even if the area is apparently negative (free from any archaeological remains). If an area contains archaeology, that area will be clearly demarcated and fenced off using bunting and grid irons to ensure no machines track over the surface, thereby maintaining the integrity of the archaeology.

6.41 Any changes to the above strategy will be reviewed by the NCCES Archaeologist and will not be implemented without their approval.

Variations

6.42 Any variation or modification to the survey methodology (including the reporting) will be discussed in advance and agreed by the Archaeological Contractor, Hornsea Three and the NCCES Archaeologist.

Stakeholder Engagement

6.43 A considered Stakeholder Relations Strategy will be developed following the principles of the Communication Plan in the Outline CoCP (REP1-142) and in consultation with relevant parties. This is to ensure provision of information on archaeological sites and potential finds to interested parties, which may include local and/ or national archaeological groups and societies, local residents, schools and other educational institutions.

6.44 Provision of information may include site open days (where appropriate and where not precluded by health and safety considerations and/or by landowner agreements) or promotion of opportunities for the Archaeological Contractor to attend and speak at conferences and other similar events on the results of archaeological fieldwork.

6.45 The Archaeological Contractor will provide progress updates on fieldwork to Hornsea Three for inclusion on their website and other forms of communication with the public as appropriate.

7. References

Association of Environmental Archaeology (1995) Environmental archaeology and archaeological evaluations. Recommendations concerning the environmental archaeology component of archaeological evaluations in England. York, Association for Environmental Archaeology.

Austin, L (2000) Palaeolithic and Mesolithic. In: Brown, N. and Glazebrook, J. (2000) Research and Archaeology: a Framework for the Eastern Counties, 2. Research Agenda and Strategy East Anglian Archaeology Occasional Paper No.8. Norwich, The Scole Archaeological Committee for East Anglia. p. 5-9.

Bowden, W., White, S. (2011) The Caistor Excavation 2011. Available online:
http://www.norfarchtrust.org.uk/sites/default/files/reports/NAT_caistor_12_web.pdf [Accessed on 12 July 2018].

British Geological Society (n.d.) Geology of Britain viewer. Available online:
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed on 12 July 2018].

Brown, N. and Glazebrook, J. (2000) Research and Archaeology: a Framework for the Eastern Counties, 2. Research Agenda and Strategy East Anglian Archaeology Occasional Paper No.8. Norwich, The Scole Archaeological Committee for East Anglia.

Chartered Institute for Archaeologists (1997) Technical Paper 13 Excavation and post-excavation treatment of cremated and inhumed remains

Chartered Institute for Archaeologists (2014b) Standard and guidance for archaeological excavation. Available online: https://www.archaeologists.net/sites/default/files/CIfAS&GExcavation_1.pdf [Accessed on 12 July 2018].

Chartered Institute for Archaeologists (2014c) Standard and guidance for archaeological field evaluation. Available online: https://www.archaeologists.net/sites/default/files/CIfAS&GFieldevaluation_1.pdf [Accessed on 12 July 2018].

Chartered Institute for Archaeologists (2014d) Standard and guidance for an archaeological watching brief. Available online: https://www.archaeologists.net/sites/default/files/CIfAS&GWatchingbrief_2.pdf [Accessed on 12 July 2018].

Chartered Institute for Archaeologists (2014e) Standard and guidance for the collection, documentation, conservation and research of archaeological materials. Available online:
http://www.archaeologists.net/sites/default/files/CIfAS&G Finds_1.pdf [Accessed on 12 July 2018].

Chartered Institute for Archaeologists (2014f) Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives. Available online:
https://www.archaeologists.net/sites/default/files/CIFAS&GArchives_2.pdf [Accessed on 12 July 2018].

Chartered Institute for Archaeologists (2014g) Standard and Guidance for an Archaeological Geophysical Survey. Available online: https://www.archaeologists.net/sites/default/files/CIfAS&GGeophysics_1.pdf [Accessed on 30 October 2018].

Chartered Institute for Archaeologists (2014a) Code of Conduct. Available online:
<http://www.archaeologists.net/sites/default/files/CodesofConduct.pdf> [Accessed on 12 July 2018].

English Heritage (2006) Understanding Historic Buildings A guide to good recording practice. Available online: <https://content.historicengland.org.uk/images-books/publications/understanding-historic-buildings/heag099-understanding-historic-buildings.pdf> [Accessed on 12 July 2018].

Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1). London, The Stationery Office.

English Heritage (2004) Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports. Available online: <https://content.historicengland.org.uk/images-books/publications/human-bones-from-archaeological-sites/humanbones2004.pdf> [Accessed on 13 July 2018].

English Heritage (2011) Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation (second edition). Available online: <https://content.historicengland.org.uk/images-books/publications/environmental-archaeology-2nd/environmental-archaeology-2nd.pdf> [Accessed on 12 July 2018].

Haskins, A. (2016) Little Melton to Hethersett pipeline: Strip, Map and Sample excavation and watching brief across Prehistoric Roman and Medieval Norfolk Strip, Map and Sample Excavation and Watching Brief, Post Excavation Assessment. Oxford Archaeology East unpublished client report No: 1737. Available online: https://library.thehumanjourney.net/3364/1/XNFHLM14%20PXA%20REPORTedit_LR.pdf [Accessed on 12 July 2018].

Historic England (2015) Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide. Available online: <https://content.historicengland.org.uk/images-books/publications/morphe-project-managers-guide/HEAG024-MoRPHE-Managers-Guide.pdf> [Accessed on 12 July 2018].

Historic England, Advisory Panel on the Archaeology of Burials in England and The Church of England (2017) Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England Second Edition. Available online: http://www.archaeologyuk.org/apabe/pdf/APABE_ToHREfCBG_FINAL_WEB.pdf [Accessed on 12 July 2018].

Norfolk Museums and Archaeology Service (2010) Requirements for Deposition of Fieldwork and Excavation Archives with Norfolk Museums and Archaeology Service, version 3.2, Norfolk Museums Service

Robertson, D. et al (2018) Standards for Development-Led Archaeological Projects in Norfolk. Available online: <https://www.norfolk.gov.uk/libraries-local-history-and-archives/archaeology-and-historic-environment/planning-and-the-historic-environment> [Accessed on 12 July 2018].

Walker, K. (1990) Guidelines for the preparation of excavation archives for long-term storage. London, United Kingdom Institute for Conservation Archaeology Section.

Watkinson, D. and Neal, V. (1998) First Aid for Finds, Third Edition. London, United Kingdom Institute for Conservation Archaeology Section.

Williams, A. and Martin, G.H. (eds) (1992) Domesday Book. London, Penguin.

Appendix A Method statement for geophysical survey

Introduction

- A.1 This document forms the method statement for the geophysical survey component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- A.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- A.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- A.4 The Hornsea Three onshore cable corridor will typically have a 60 m permanent strip where the cables will be buried and a 20 m temporary working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species).

Structure and Use of Documents

- A.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work has been produced for clarity and ease of use on site. The Appendices are designed to be removed from the main document and used on site depending on the process being undertaken.
- A.6 The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey (this document);
 - Method statement for trial trenching;
 - Method statement for watching brief;
 - Method Statement for Strip, map and assess;
 - Method statement for preservation by record; and
 - Unexpected Archaeological Remains.
- A.7 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist and the Archaeological Contractor.

Fieldwork

- A.8 All work will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Geophysical Survey* (2014g), European Archaeological Council (2015) *Guidelines for the use of Geophysics in Archaeology* and Robertson, D et al (2018) *Standards for Development-Led Archaeological Projects* in Norfolk, excepting where they are superseded by statements made below.
- A.9 While the option of using, with the agreement of NCCES, a possible further suite of geophysical techniques is retained, the archaeological geophysical survey to date has successfully comprised detailed magnetometry and it is intended to continue this technique over the proposed survey areas and the methodology below refers to detailed magnetometry. The archaeological geophysical survey area will be georeferenced relative to the Ordnance Survey National Grid.
- A.10 The survey will use a cart system wherever possible, with handheld survey undertaken in those areas (if any) unsuitable or unavailable for cart-based survey.
- A.11 The traverse interval will not exceed 1 m and the sample interval will not exceed 0.25 m, with a sample interval of 0.125 m preferred.
- A.12 Data collected during the survey will be processed as appropriate. Processing is likely to include edge matching, despiking and possibly destriping and/ or destaggering.
- A.13 Geophysical survey may take place over a period of several weeks and on a number of different sites, and on this basis interim reports will be issued providing details on progress and results to date. All fieldwork will be followed by a report. The report text will be supported by tables, figures, appendices and references as necessary.
- A.14 A digital archive of the survey will be retained. This archive will comprise
- (i) The raw and processed data in their original format;
 - (ii) A version of the raw data in a format that can be maintained easily and read by most software;
 - (iii) Image files representing these data;
 - (iv) The report;
 - (v) A brief description of all files in the archive; and
 - (vi) Metadata that lists the survey techniques and methodologies (e.g. sampling intervals), project and site information and georeferencing.

Appendix B Method statement for trial trenching

Introduction

- B.1 This document forms the method statement for the trial trenching component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- B.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and,
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- B.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- B.4 The Hornsea Three onshore cable corridor will have a 60 m permanent strip where the cables will be buried and an 80 m temporary and permanent working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species).

Structure and Use of Documents

- B.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work have been produced for clarity and ease of use on site.
- B.6 The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey;
 - Method statement for trial trenching (this document);
 - Method statement for watching brief;
 - Method Statement for Strip, map and assess;
 - Method statement for preservation by record; and
 - Unexpected Archaeological Remains.
- B.7 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist and the Archaeological Contractor.

Fieldwork

- B.8 All work will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologists' Standard and Guidance for an Archaeological Field Evaluation and Robertson, D et al (2018) *Standards for Development Led Archaeological Projects in Norfolk*, excepting where they are superseded by statements made below.
- B.9 Prior to the commencement of fieldwork, arrangements will be made with the Norfolk Museums Service for deposition of the archive and finds, subject to agreement with the landowner. A museum Accession Number will also be sought at this time. Deposition of the archive and finds will be in accordance with current Norfolk Museums Service Guidelines (Norfolk Museums and Archaeology Service, 2010). An event number will also be obtained for each specific phase or area of fieldwork as laid out in Robertson et al (2018).
- B.10 It is noted that open stripped trenches and areas either awaiting excavation or under excavation are a significant heritage crime risk and target for illegal metal detecting. On this basis security will be provided as appropriate. Where employed, this may be static (i.e. fencing) and/ or active (i.e. security patrols).
- B.11 Trenches will be located in areas of known or suspected archaeology identified through previous stages of work. Potentially blank areas (i.e. those of unknown potential) may also need to be tested.
- B.12 Topsoil and overburden will be removed by mechanical excavator fitted with a toothless ditching bucket. The spoil generated during the evaluation will be mounded at a safe distance from the edges of each trench. Topsoil and subsoil will be stored separately, with topsoil one side and subsoil on the other side of each trench, with the mounds forming rows along the lengths of each trench. There will be no compression of topsoil and subsoil mounds. The management of topsoil and subsoil handling and storage will be undertaken in accordance with the measures set out in the final CoCP.
- B.13 Mechanical excavation will cease at either undisturbed natural deposits or when archaeological features are identified. Trenches will not normally be excavated to a depth beyond that in which it is safe for personnel to work at the base and would not normally exceed a maximum depth of 1.2 m. This depth is intended as a general guide only and an assessment of the maximum safe depth of each trench, considering the local ground conditions, will be made at the time of their excavation, with trenches being shallower if appropriate.
- B.14 Sondaging (a deeper investigation of a small part of a larger trench) may be undertaken with a machine to a greater depth for the purposes of testing, for example, depth of made ground. This will only be undertaken if safe to do so and with the agreement of NCCES. Such sondages will be backfilled as soon as possible after excavation and in any event by the end of that day's work.
- B.15 Hand excavation of archaeological features revealed during machine stripping will be undertaken as far as is required to determine their date, sequence, density and nature. There is a presumption that 100% of archaeological features within a trial trench will be sampled, however where extensive numbers of features, or clusters of apparently identical features (pit or post hole group) occur, then a representative sample of these shall be excavated. Where it is proposed not to sample all features in a trench, this will be agreed with the NCCES Archaeologist.

- B.16 Discrete archaeological features identified for excavation will normally be assessed by half-sectioning. Where linear features are found, sufficient will be excavated to determine their nature, profile and, where possible, their date and function. Slots through linear features will wherever possible be a minimum of 1 m in length.
- B.17 Particular attention will be paid to the understanding of the amount of truncation to buried deposits, the presence or absence of a palaeosol or 'B' horizon, the preservation of deposits within negative features, and general site formation processes.
- B.18 The material excavated from the trenches will be used to backfill them, in the order it was removed, following the completion of work in accordance with the measures set out in the final CoCP.

Recording

- B.19 All exposed archaeological deposits will be recorded using the Archaeological Contractor's pro forma recording system. Copies of the pro forma will be provided to the NCCES Archaeologist.
- B.20 A complete drawn record of excavated archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (1:20 for plans, 1:10 for sections) and with reference to a site grid tied to the Ordnance Survey National Grid. The Ordnance Datum (OD) height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights.
- B.21 A full photographic record will be maintained using both colour transparencies and black and white negatives (on 35 mm film). Digital photography will be employed as appropriate (see Robertson et al 2018 for further details of standards in Norfolk). The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the site as a whole.
- B.22 Details of the appropriate treatment of finds and palaeo-environmental samples, with scientific dating are contained in the sections on 'Finds Strategy' and 'Environmental Sampling Strategy' in Appendix E below.

Appendix C Method statement for watching brief

Introduction

- C.1 This document forms the method statement for the watching brief component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- C.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and,
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- C.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- C.4 The Hornsea Three onshore cable corridor will have a 60 m permanent strip where the cables will be buried and an 80 m temporary and permanent working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species).

Structure and Use of Documents

- C.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work have been produced for clarity and ease of use on site. The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey;
 - Method statement for trial trenching;
 - Method statement for watching brief (this document);
 - Method Statement for strip, map and assess;
 - Method statement for preservation by record; and
 - Unexpected Archaeological Remains.
- C.6 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist, and the Archaeological Contractor.

Fieldwork

- C.7 All work will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Watching Brief* (2014d) and Robertson, D et al (2018) *Standards for Development-Led Archaeological Projects in Norfolk*.

- C.8 Prior to the commencement of fieldwork, arrangements will be made as far as practical with the Norfolk Museums Service for deposition of the archive and finds, subject to agreement with the landowner. A museum Accession Number will also be sought at this time. Deposition of the archive and finds will be in accordance with current Norfolk Museums Service Guidelines (Norfolk Museums and Archaeology Service, 2010). An event number will also be obtained for each specific phase or area of fieldwork, as laid out in Robertson et al (2018).
- C.9 The watching brief is intended to identify and assess all features of archaeological interest discovered during below ground works. It is intended to carry out a watching brief during soil stripping in those areas identified within the Project Design to be undertaken at detailed design stage
- C.10 Where archaeological remains (which may include inter alia structures, finds, soil features and layers of archaeological interest) are exposed or disturbed by soil stripping or other construction works, the Archaeological Contractor will be provided with the opportunity to observe, clean, assess, excavate by hand, and where appropriate, sample and record these features and finds. If the principal contractor, their staff or agents notice archaeological remains, they will immediately notify the Archaeological Contractor, who will examine the area and notify the Retained Archaeologist, who will in turn inform the NCCES Archaeologist as appropriate.
- C.11 Heavy plant will not be permitted to run over areas containing archaeological remains until areas have been archaeologically 'signed off' by the NCCES Archaeologist.
- C.12 If necessary a sample of exposed archaeological features/deposits will be sample excavated, sufficient only to provide a broad characterisation and date of the deposits. All recording will be undertaken in accordance with the relevant section below.
- C.13 Should archaeological remains be revealed a site plan would be produced and the NCCES Archaeologist notified. If appropriate, a site meeting would be held within two complete working days of machine stripping. It would be preferable for the site plan to cover as large an area as possible in order to limit the number of site meetings required. An overriding aim will be to look at the wider landscape rather than the details of individual features.

Recording

- C.14 All exposed archaeological deposits will be recorded using the Archaeological Contractor's pro forma recording system. Copies of the pro forma will be provided to the NCCES Archaeologist.
- C.15 A complete drawn record of excavated archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (1:20 for plans, 1:10 for sections) and with reference to a site grid tied to the Ordnance Survey National Grid. The OD height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights.
- C.16 A full photographic record will be maintained using both colour transparencies and black and white negatives (on 35 mm film). Digital photography will be employed as appropriate (see Robertson et al 2018 for further details of standards in Norfolk). The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the site as a whole.
- C.17 Details of the appropriate treatment of finds and palaeo-environmental samples, with scientific dating are contained in the sections on 'Finds Strategy' and 'Environmental Sampling Strategy' in Appendix E below.

Appendix D Method statement for strip, map and assess

Introduction

- D.1 This document forms the method statement for the strip, map and assess component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- D.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- D.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- D.4 The Hornsea Three onshore cable corridor will have a 60 m permanent strip where the cables will be buried and an 80 m temporary and permanent working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species).

Structure and Use of Documents

- D.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work have been produced for clarity and ease of use on site.
- D.6 The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey;
 - Method statement for trial trenching;
 - Method statement for watching brief;
 - Method Statement for Strip, map and assess (this document);
 - Method statement for preservation by record; and
 - Unexpected Archaeological Remains.
- D.7 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist and the Archaeological Contractor.

Fieldwork

- D.8 All work will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Excavations* (2014b) and Robertson, D et al (2018) *Standards for Development-Led Archaeological Projects in Norfolk*.
- D.9 Prior to the commencement of fieldwork, arrangements will be made as far as practical with the Norfolk Museums Service for deposition of the archive and finds, subject to agreement with the landowner. A museum Accession Number will also be sought at this time. Deposition of the archive and finds will be in accordance with current Norfolk Museums Service Guidelines (Norfolk Museums and Archaeology Service, 2010). An event number will also be obtained for each specific phase or area of fieldwork, as laid out in Robertson et al (2018).
- D.10 The strip, map and assess process is intended to identify and assess all features of archaeological interest discovered during below ground works. It is intended to carry out a strip, map and assess during soil stripping in those areas identified within the Project Design to be undertaken at detailed design stage.
- D.11 In order to preserve the integrity of the archaeology prior to a decision on its treatment, areas will be stripped by 360° tracked mechanical excavators using toothless buckets and under constant archaeological supervision. Machine excavation will proceed, in spits of appropriate depth (normally of 100 mm within subsoil deposits), to the top of archaeological levels, or the top of natural deposits, whichever is the higher. The possibility of colluviation will be considered and dealt with as appropriate. At this stage, there is no evidence for significant colluviation. Should this change on site the advice of a Geoarchaeologist may be sought to ascertain whether, for example, the deposit needs to be sampled.
- D.12 Heavy plant will not be permitted to run over stripped areas until areas have been archaeologically 'signed off' by the NCCES Archaeologist.
- D.13 On completion of the machine excavation the exposed surface will be cleaned by hand as appropriate. All archaeological features will be planned using a Total Station or GPS system. A sample of apparently blank areas will be hand cleaned to confirm this interpretation.
- D.14 If necessary a sample of exposed archaeological features/deposits will be sample excavated, sufficient only to provide a broad characterisation and date of the deposits. All recording will be undertaken in accordance with the section on recording in this appendix.
- D.15 On completion of stripping, mapping and characterisation of appropriate sized areas, no less than 0.5 ha in extent, a plan will be generated which will form the basis for agreement between the Archaeological Contractor, the Retained Archaeologist and the NCCES Archaeologist as to the nature and scope of any further mitigation which may be required (e.g. no further work, or preservation by record).
- D.16 The site plan will be produced and a site meeting held within 2 complete working days of machine stripping. The overriding aim of these site meetings will be to look at the wider landscape rather than the details of individual features.

Recording

- D.17 All exposed archaeological deposits will be recorded using the Archaeological Contractor's pro forma recording system. Copies of the pro forma will be provided to the NCCES Archaeologist.
- D.18 A complete drawn record of excavated archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (1:20 for plans, 1:10 for sections) and with reference to a site grid tied to the Ordnance Survey National Grid. The OD height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights.
- D.19 A full photographic record will be maintained using both colour transparencies and black and white negatives (on 35 mm film). Digital photography will be employed as appropriate (see Robertson et al 2018 for further details of standards in Norfolk). The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the site as a whole.
- D.20 Details of the appropriate treatment of finds and palaeo-environmental samples, with scientific dating are contained in the sections on 'Finds Strategy' and 'Environmental Sampling Strategy' in Appendix E.

Appendix E Method statement for preservation by record

Introduction

- E.1 This document forms the method statement for the preservation by record component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- E.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- E.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- E.4 The Hornsea Three onshore cable corridor will have a 60 m permanent strip where the cables will be buried and an 80 m temporary and permanent working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species).

Structure and Use of Documents

- E.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work have been produced for clarity and ease of use on site.
- E.6 The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey;
 - Method statement for trial trenching;
 - Method statement for watching brief;
 - Method Statement for Strip, map and assess;
 - Method statement for preservation by record (this document); and
 - Unexpected Archaeological Remains.
- E.7 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist, and the Archaeological Contractor.

Fieldwork

- E.8 All work will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Excavations* (2014b) and Robertson, D et al (2018) *Standards for Development-Led Archaeological Projects in Norfolk*.
- E.9 The plan generated by the Strip, Map and Assess process (Appendix D) will be used to agree the excavation sampling level. The sampling level/strategy may be amended in consultation with the Retained Archaeologist and the NCCES Archaeologist as excavation progresses in order to take account of changing circumstances and optimise the retrieval of data to aid interpretation and understanding of the site and meet the excavation aims and objectives. Any change would be subject to the approval of the NCCES Archaeologist. The broad sampling levels listed below will be adhered to in order to provide an average sampling level for the site as a whole.
- E.10 All archaeological features will then be sampled sufficiently to characterise and date them. However, the following strategy will be employed as a minimum sample level:
- E.11 Structural remains and other areas of significant and specific activity (domestic, industrial, religious, hearths, etc.) will be fully excavated and recorded. Where appropriate, for instance where the stratigraphy is complex, single context planning will be used. The NCCES Archaeologist will be notified if single context planning is intended to be used.
- E.12 Non-structural linear cut features will be sample excavated and recorded with a sufficient number of sections to establish the feature's character, date and morphology. All significant relationships will be defined and investigated. Sufficient of the linear features will be excavated to determine the character of each individual linear feature over its entire course with consideration given to possible re-cutting of ditches which may not have taken place over the entire length. A minimum of 25% of each linear feature associated with settlement will be sampled unless otherwise agreed. In addition, all intersections will be excavated and recorded to establish relative chronologies. Other minor linear features will also be sample excavated if appropriate to the understanding the site's character, date and morphology.
- E.13 Non-structural pits will be half-sectioned unless the character, number or size of the pits makes this impractical. For instance, if a pit contains several intersections and re-cuts, it would not always be appropriate to half-section it. In this situation, the Archaeological Contractor will consider 'quadranting' or single context planning. The strategy will need to be agreed with the NCCES Archaeologist.
- E.14 Non-structural post and stake-holes will be half-sectioned sufficiently to clarify character, relationships and chronology.
- E.15 In order to establish clearly dated stratigraphic sequences, all intersections will be excavated, while finds will be recovered from other interventions to provide dating. Where artefact assemblages are concentrated, the percentage of sampling will be increased to ensure optimum retrieval and recording of this material.
- E.16 Hand-recovery of artefacts will be supplemented by appropriate environmental sampling strategy. This sampling will not normally be from intersections.

- E.17 The sampling excavation strategy set out above will be reviewed continuously and, if necessary, amended in order to take account of changing circumstances. Any changes or amendments will be agreed with the NCCES Archaeologist. Environmental samples from key deposits will be processed while the excavations are on-going to help guide and inform the excavation strategy for the site
- E.18 Human Remains - In the event of discovery of any human remains, they will initially be left in situ. Following discussions with the Coroner and the NCCES Archaeologist, the need for and appropriateness of their excavation/removal will be determined. Where deemed appropriate they will be fully recorded, excavated and removed from the site. Should human remains be encountered, all excavation and post-excavation will be in accordance with the standards set out in ClfA (1997) Technical Paper 13 Excavation and post-excavation treatment of cremated and inhumed remains, Historic England (2018) The Role of the Human Osteoarchaeologist in an Archaeological Fieldwork Project, and Historic England et al (2017) Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England.
- E.19 Appropriate specialist guidance/site visits will be undertaken by a suitable specialist.
- E.20 The above strategy represents a minimum level of intervention, with more extensive excavation (e.g. excavation of the remaining parts of pits to obtain dating evidence) to be undertaken where appropriate following agreement with the Retained Archaeologist, Archaeological Contractor and the NCCES Archaeologist.

Recording

- E.21 All exposed archaeological deposits will be recorded using the Archaeological Contractor's pro forma recording system. Single Context planning will be incorporated into the system as appropriate, for instance where the stratigraphy is complex, single context planning will be used. The NCCES Archaeologist will be notified if single context planning is intended to be used.
- E.22 A complete drawn record of excavated archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (normally 1:20 for plans, 1:10 for sections) and with reference to a site grid tied to the Ordnance Survey National Grid. The OD height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights.
- E.23 A full photographic record will be maintained using both colour transparencies and black and white negatives (on 35 mm film). Digital photography will be employed as appropriate. The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the site as a whole.

Finds Strategy

- E.24 Finds will be treated in accordance with the relevant guidance given in the Chartered Institute for Archaeologists' Standard and Guidance for Archaeological Excavations (2014b), ClfA *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (2014e), and Watkinson & Neal (1998) *First Aid for Finds*.
- E.25 The principal aim of finds assessment will be the collection of data to meet the excavation objectives. The strategy used will be to optimise data to aid interpretation and characterisation of site during post excavation assessment.

- E.26 Expected finds types include flint, prehistoric and Roman pottery, ceramic building material, antler, copper alloy, other metal-alloy and iron. No specialist treatments, other than those laid out in the above guidance at paragraph E.24, are expected to be required.
- E.27 All artefacts will be retained from excavated contexts, except features or deposits of undoubtedly modern date. In these circumstances sufficient artefacts will only be retained to elucidate the date and function of the feature or deposit.
- E.28 The excavated spoil will be examined for artefacts and these will be retained and recorded. Material of undoubtedly modern date from the spoil heaps will be noted but not retained.
- E.29 Contingency provision will be made for visits by the relevant specialists in the event of exceptional or large quantities of artefacts where advice on in-situ excavation techniques, recovery, conservation, and sampling strategies etc may be necessary, and to aid the understanding of the burial environment of the material. Allowance will also be made for the preliminary conservation and stabilisation of all objects.
- E.30 All artefacts will, as a minimum, be washed (following appropriate advice from specialists and Historic England Science Advisor, where necessary and there is a risk of damage through washing), marked, counted, weighed and identified. The metalwork will be X-rayed and stored in a stable condition along with other fragile and delicate material.
- E.31 A suitable metal detector will be used to enhance artefact recovery during all stages/ phases of work.

Treasure

- E.32 In the event of discovery of artefacts covered or potentially covered by The Treasure Act, their excavation and removal will be undertaken following notification of the Coroner, the Treasure Team at the British Museum (treasure@britishmuseum.org), the Norfolk Finds Liaison Officer, and the NCCES Archaeologist.
- E.33 Stand-alone reports will be prepared on Treasure finds and submitted to the British Museum. Any such reporting would be included in project grey literature reports.

Environmental Sampling Strategy

- E.34 The strategy for sampling archaeological and environmental deposits and structures will be developed in consultation with the Archaeological Contractor's Environmental Specialists and Historic England's Regional Scientific Adviser. The basis of agreed strategies will be the Working Papers of the Association of Environmental Archaeology (1995) Environmental archaeology and archaeological evaluations, English Heritage (2011) Centre for Archaeology Guidelines, Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation, and Historic England (2014) Animal Bones and Archaeology.
- E.35 Any alterations to the environmental sampling strategy will be made in consultation with the environmental specialist and the NCCES Archaeologist.

- E.36 Bulk environmental soil samples would normally be taken from sealed archaeological features or deposits for plant macro fossils, small animal bones and small artefacts. The volume of such samples will be context and sediment specific and will be 40 litres or 100% of feature fills unless otherwise agreed with the NCCES Archaeologist and the Archaeological Consultant. Where appropriate, column samples for molluscan remains would also be taken.
- E.37 Any bulk environmental soil samples which are taken will be processed by flotation and scanned to assess the environmental potential of deposits. Samples will be processed preferably while excavation is ongoing to allow information gained from the samples to be used to inform the excavation strategy and the understanding of the site, and in any event within an appropriate timeframe to ensure that the remains do not start to degrade while held within the sample bags/containers. The residues and sieved fractions will be recorded and retained with the project archive.
- E.38 Where appropriate, a specialist geoarchaeologist will visit the site to comment on and record significant deposit sequences, to inform an understanding of site formation processes. The geoarchaeologist will be consulted on any significant colluviation from the earliest stage.
- E.39 An environmental specialist will visit the site as appropriate to provide advice on specific issues.
- E.40 Provision will be made for the collection of samples for scientific dating if/when appropriate. Discussion with specialists and/or the Historic England Science Advisor will be held at the site specific method statement stage to ensure that opportunities are not missed and that features/remains/sections are excavated to maximise their potential for dating.

Reinstatement

- E.41 Backfilling etc. of areas will take place only after the agreement of the NCCES Archaeologist is received and only if required by Hornsea Three. On receipt of the necessary approval the Retained Archaeologist will inform Hornsea Three that reinstatement can be carried out and Hornsea Three will arrange for this with a suitable contractor if appropriate. Backfilling of areas will be undertaken with the measures set out in the final CoCP.

Post-Excavation and Reporting

- E.42 Within eight weeks of completion of all fieldwork, the Archaeological Contractor will have undertaken initial assessment of the results of the excavation and will produce an Interim Report giving a basic description of the archaeology (including a plan(s) at 1:100 scale) and its potential. Copies will be provided each to Hornsea Three and the NCCES Archaeologist.
- E.43 Within nine months of completion of all fieldwork the Archaeological Contractor will carry out an assessment of the results and produce a post-excavation assessment report, copies of which will be provided to the Retained Archaeologist and Hornsea Three for approval and the NCCES Archaeologist. This report will consider the implications of the published excavation, including the appropriateness of revisiting the archive of that work (believed to be held in NMS) and set out a post-excavation programme of works through to publication of the findings.
- E.44 The assessment report will present detailed proposals for further analysis, report production, publication and archiving, along with the strategies, estimated resources, and programme necessary to carry out such work.

- E.45 A statement of potential for each material category and for the data set as a whole will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national investigation priorities.
- E.46 The post excavation assessment report should include as a minimum:
- An abstract summarising the scope and results of the archaeological excavation, the palaeo-environmental investigations and a review of any preservation in situ areas.
- E.47 An introduction including:
- The location of the site including a National Grid Reference to 8 figures for the centre of each archaeological area;
 - An account of the background and circumstances of the work;
 - A description of the development proposals, planning history and planning reference together with the archaeological condition (where appropriate); and
 - The scope and date of the fieldwork, the personnel involved and who commissioned it.
- E.48 An account of the archaeological background of the development site including:
- Geology, soils and topography;
 - Any known existing disturbances on the site;
 - Background archaeological potential of the site. This should include a summary of the known Historic Environment Record (HER) entries within a 500 m radius of the boundaries of the site. The HER entries should be quoted with their full HER identifier;
 - Summary of any previous phases of archaeological investigation at the development site; and
 - Any constraints on the fieldwork.
- E.49 The methodology employed during the excavation must be detailed in the report. Any aims and objectives specified in the specification should be included as should any further objectives identified during the course of the excavation. Constraints on the excavation should also be described.
- E.50 The report should include a quantification of the archive contents, their state and future location.

- E.51 The results of the excavation field work should be described. This description must include for each area:
- The dimensions of the area;
 - The nature and depth of overburden soils encountered;
 - Description of all archaeological features and finds encountered in each area, their dimensions, states of preservation and interpretation;
 - A description of the geological subsoil encountered in each area;
 - The heights related to Ordnance Datum should be provided for each feature and deposit. Where the area results are complex a table showing the dimensions and heights of features and deposits should be included for each area; and
 - For complex remains a Harris Matrix diagram should be provided.
- E.52 The finds recovered during the course of the excavation should be described, quantified and assessed by artefact type within the evaluation report. The report should also provide an indication of the potential of each category of artefact for further analysis and research. For each category of artefact, the report should describe the method of processing, any sub-sampling, conservation and assessment undertaken. Where appropriate, local reference collections will be referred to for descriptive and analytical consistency. Any implications for future archive, conservation or discard of the artefacts should also be detailed.
- E.53 The report should include a table showing, per area, the contexts, classes and quantity of artefacts recovered, together with their date and interpretation.
- E.54 The report must include an assessment of the environmental potential of the site. Details should be provided of any environmental sampling undertaken in connection with the fieldwork and the results of any processing and assessment of the samples. The report should describe the method of processing, any sub-sampling and assessment. Any potential for future analysis of the samples or environmental remains recovered from the excavation should be described. Implications for future archive, conservation or discard of environmental samples or remains should be detailed.
- E.55 The report should include, as appropriate, tables summarising environmental samples taken together with the results of processing and assessment.
- E.56 Any results from the application of archaeological scientific techniques (e.g. specialist dating) should be included in the excavation report.
- E.57 An interpretation of the archaeology of the site, including its location, extent, date, condition, significance and importance. This should be a synthesis of the stratigraphic, finds and environmental results of the investigation and should include description of areas of disturbance, non-archaeological deposits and changes in geological subsoil where appropriate.
- E.58 A conclusion which considers the potential effects of the development on the archaeological remains. This should summarise the archaeological results, describe how any archaeological potential identified relates to the development. The report should highlight any areas of increased sensitivity within the development site. Particular note should be made of any variations in the depth of overburden covering any archaeological deposits revealed.

- E.59 The report should include comments on the effectiveness of the methodology employed and the confidence of the results and interpretation.
- E.60 An assessment of the potential of the archive (including the evaluation archive) for further analysis will be undertaken. The assessment phase may include the following elements:
- The conservation of appropriate materials, including the X-raying of metalwork.
 - The spot-dating of all pottery from excavated contexts. This will be corroborated by scanning of other categories of material.
 - The preparation of site matrices with supporting lists of contexts by type (ditch fill, pit fill etc.) by spot-dated phase (saxon, medieval, post-medieval etc.) and by structural grouping (e.g. contexts by structure, by ditch etc.) supported by appropriate scaled plans.
- E.61 An assessment statement will be prepared for each category of material, including reference to quantity, provenance, range and variety, condition and existence of other primary sources.
- E.62 The bulk soil samples will be taken for artefactual, economic, environmental and dating purposes. The samples will be assessed and a statement made on charred food and plant remains, waterlogged remains and mollusca, including references as for the categories of finds material. An assessment of monoliths for pollen and foraminifera will be undertaken if appropriate.
- E.63 A statement of potential for each material category and for the data set as a whole will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national investigation priorities.
- E.64 Figures/illustrations: The report should include sufficient illustrations to support descriptions and interpretations within the report text. Figures are to be fully cross-referenced within the document text. As a minimum the evaluation report should include the following figures:
- A site location plan tied into the Ordnance Survey at 1:2500. The plan should also include at least two National Grid points and show the site boundary;
 - Area location plans at an appropriate scale showing the layout of archaeological features, coloured by phases or period as related to the development site. The plan should show the location of all stripped areas, whether investigated or not. Where possible, projection of archaeological features outside of the site areas should be included on the plan. This plan should also include two National Grid points;
 - Plans of the features revealed in each area at a larger scale e.g. 1:20 or 1:50; such plans are to also illustrate areas of disturbance, change in subsoil and location of sections. The location of significant finds and samples taken should also be indicated;
 - Relevant section drawings and soil profiles as appropriate; and
 - Illustrations and/or photographs of significant finds should be included where appropriate.
- E.65 All report illustrations must be fully captioned and scale drawings must include a bar scale. Standard archaeological drawing conventions must be used. Plan and section illustrations must include the numbers of all contexts illustrated. North must be included on all plans and should be consistent. Sections must indicate the orientation of the section and the Ordnance Datum height of the section datum.

- E.66 Black & white or colour photographs should be included where appropriate. All photographs should be appropriately captioned.
- E.67 The Archaeological Contractor will provide the NCCES Archaeologist with weekly verbal and written (a short email note is sufficient) reports.
- E.68 Following review and any required amendment of the draft report, two bound copies of the revised final Post Excavation Assessment report should be provided to the NCCES Archaeologist and the English Heritage Scientific Adviser together with an unbound copy and a copy in digital format.
- E.69 The report will be submitted to the NCCES Archaeologist as a single bound hard-copy and in digital format, as a PDF. Other formats for plans etc. will be confirmed by the Archaeological Contractor with the HER and Norfolk Museums Service.

Post-excavation Analysis

- E.70 Following the production of the post excavation assessment reports analysis recommended therein will be undertaken.

Publication of Results

- E.71 Following the production of the post excavation assessment reports and any further analysis recommended the results of the fieldwork will be published within 18 months of completion of fieldwork in an appropriate form. While this may be a local or national journal, it may, if the results are as anticipated, be appropriate to produce a monograph describing the results of the current phase of work along with those of the previously published excavations. Other forms of publication (e.g. 'popular publication', electronic media/Internet) may be employed where appropriate. Publication media and all publication matters will be discussed and agreed in advance with the NCCES Archaeologist.
- E.72 The potential for the publication of a monograph will be considered.

Archive

- E.73 The completed and consolidated project archive will be prepared in accordance with *Guidelines for the preparation of excavation archives for long-term storage* (Walker, 1990) with all site drawings, records and finds collated and ordered as a permanent record. On completion of construction Hornsea Three/the landowner will discuss arrangements for the archive to be deposited in a suitable museum or similar repository to be agreed with the NCCES Archaeologist. The archive is expected to be deposited with Norfolk Museums Service and will be deposited in accordance with their current guidelines. The archive gathered from any watching brief and/ or strip, map and assess would be combined with that of the evaluation stages.

Project Management and Staffing

- E.74 The fieldwork will be directed and supervised by a Project Officer from the Archaeological Contractor's core staff, who will be on site at all times. It is noted that to comply with the Norfolk Standards the Archaeological Contractor must be a CIFA RO.

- E.75 The overall responsibility for the conduct and management of the project will be held by the Project Manager, who will visit the site as appropriate to monitor progress and to ensure that the scope of works is adhered to. The appointed Project Manager and Project Officer will be involved in all phases of the investigation (evaluation, sampling, preservation in situ and preservation by record) through to its completion.
- E.76 The analysis of the finds and environmental data will be undertaken by the Archaeological Contractor's core staff or external specialists, using the Archaeological Contractor's standard pro forma. CVs of staff and subcontractors and specialists will be made available to the NCCES Archaeologist prior to the commencement of the project.

Appendix F Unexpected Archaeological Remains

Introduction

- F.1 This document forms the method statement for unexpected archaeological remains component of the onshore archaeological mitigation strategy for Hornsea Three.

Site Location and Description

- F.2 The principal onshore elements of Hornsea Three comprise:
- A landfall site with associated jointing between the offshore and onshore export cables;
 - Onshore underground cable corridor;
 - Onshore HVAC booster station located at Little Barningham (if required); and,
 - Onshore HVDC converter/HVAC substation at Swardeston and connection to the National Grid.
- F.3 Details of the onshore elements of Hornsea Three are provided in the Hornsea Project Three Offshore Wind Farm Project Description (available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-000528-HOW03_6.1.3_Volume%201%20-%20Ch%203%20-%20Project%20Description.pdf).
- F.4 The Hornsea Three onshore cable corridor will have a 60 m permanent strip where the cables will be buried, and an 80 m temporary and permanent working width. Land use over the Hornsea Three onshore cable corridor would be reinstated after cable laying and hedgerows would be replanted (minus tree species) where possible.

Structure and Use of Documents

- F.5 A cascading series of documents, comprising an overall Project Design document containing all site details, with separate WSIs for each stage or phase of work have been produced for clarity and ease of use on site.
- F.6 The outline documents comprise:
- Project Design;
 - Method Statement for geophysical survey;
 - Method statement for trial trenching;
 - Method statement for watching brief;
 - Method Statement for Strip, map and assess;
 - Method statement for preservation by record; and
 - Unexpected Archaeological Remains (this document).
- F.7 It is intended that the relevant documents be issued to all relevant parties and in particular Hornsea Three, the Retained Archaeologist, the NCCES Archaeologist, and the Archaeological Contractor

Unexpected Archaeological Remains

- F.8 Unexpected archaeological remains may be revealed either during work undertaken for the purpose of archaeological mitigation or during construction works. The archaeological mitigation strategy outlined within this Onshore WSI is intended to reduce to a minimum the likelihood of the discovery of Unexpected Archaeological Remains.
- F.9 The archaeological evaluation/assessment provided is intended to identify as many remains likely to be impacted upon by Hornsea Three works as practicable in order that appropriate mitigation can be designed in detail and incorporated into the overall development programme.
- F.10 Field evaluation (as laid out in Table 5.2) will be undertaken at an early stage (prior to the commencement of the main construction contract, see in particular paragraphs 3.7.2.12 to 3.7.2.15 of Volume 1, Chapter 3: Project Description of the Environmental Statement (APP-058)) in order to gain greater certainty over potential impacts and to manage programme risk.
- F.11 Notwithstanding this approach, there is always an inherent risk of unexpected archaeological discoveries (including sites, artefacts, monuments and features) occurring during the construction works. As described in paragraph 6.10 et seq and Appendix C, a watching brief will be implemented where appropriate, as the contingency arrangement for managing occasional unexpected discoveries.
- F.12 Should unexpected archaeological remains, including potential human remains and/or treasure, be revealed during construction, excavation work will cease, the area will be protected through the rerouting of machinery, hauls roads etc. and the use of fencing if necessary. The Retained Archaeologist will be informed and decisions on the management/mitigation of the remains will be made in consultation with the NCCES Archaeologist and other stakeholders as appropriate, from the suite of fieldwork techniques provided in the appendices.