Outer Dowsing Offshore Wind

Outline Onshore Written Scheme of Investigation for Archaeological Evaluation

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OUTER DOWSING OFFSHORE WIND

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Abbreviations

Acronym	Expanded name
AOP	Areas of Potential
CAT	Cable Avoidance Tool
CIFA	Conservation and Research of Archaeological Materials
COSHH	Control of Substances Hazardous to Health
DCO	Development Consent Order
DGPS	Differential GPS
ECC	Export Cable Corridor
EIP	Environmental Improvement Plan
HER	Historic Environment Records
LN	Lincolnshire Node
NHLE	National Heritage List for England
OASIS	Online AccesS to the Index of archaeological investigationS
OnSS	Onshore Substation
OSL	Optically Stimulated Luminescence
PEIR	Preliminary Environmental Information Report
PPE	Personal Protective Equipment
RSA	Remote Sensing Archaeology
SI	Site Investigation
WM	Weston Marsh
WSI	Written Scheme of Investigation

Terminology

Term	Definition
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP) from the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ).
Landfall	The location at the land-sea interface where the offshore export cable will come ashore.
Mitigation	Mitigation measures, or commitments, are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which the export cable running from the landfall to the onshore substation will be situated.
Onshore substation (OnSS)	The Project's onshore substation, containing electrical equipment to enable connection to the National Grid
Preliminary Environmental	The PEIR is written in the style of a draft Environmental Statement (ES) and provides information to support and inform the statutory

Term	Definition
Information Report (PEIR)	consultation process in the pre-application phase. Following that consultation, the PEIR documentation will be updated to produce the Project's ES that will accompany the application for the Development Consent Order (DCO).
PEIR Boundary	The PEIR Boundary is outlined in Figure 3.1 of Volume 1, Chapter 3: Project Description and comprises the extent of the land and/or seabed for which the PEIR assessments are based upon.

1 Introduction

1.1.1 In September 2022, SLR Consulting was commissioned by GT R4 Ltd (the Applicant) to undertake archaeological investigations for the proposed Outer Dowsing Offshore Wind (the Project). The Project will be located approximately 54km from the Lincolnshire coastline in the southern North Sea. The Project will include both offshore and onshore infrastructure including an Offshore Substation (OSS), Offshore Export Cable Corridor (ECC) to landfall, Onshore ECC and connection to the electricity transmission network at the Onshore substation (OnSS) (see Volume 1, Chapter 3: Project Description for full details). This outline WSI should be read in conjunction with the following documents that have also been submitted as part of this phase of consultation;

- Volume 1, Chapter 20: Onshore Archaeology and Cultural Heritage;
- Volume 2, Appendix 20.1: Onshore Archaeology and Cultural Heritage Desk-Based Assessment; and
- Volume 2, Appendix 20.2: Onshore Archaeology and Cultural Heritage - Heritage Statement.

1.1.2 This document represents a broad outline strategy for archaeological fieldwork undertaken to support the findings of the Onshore Archaeology and Cultural Heritage Chapter of the Outer Dowsing Offshore Wind Environmental Statement. The outline strategy presented here has been prepared in the findings of Archaeological Desk Based Assessment, see Volume 2, Appendix 20.1 and discussed at Expert Technical Groups attended by the Lincolnshire Historic Environment Officer and Historic England. It provides a basis for detailed methodologies to be set out within Written Schemes of Investigation (WSI) agreed with the Lincolnshire Historic Environment Officer and Historic England.

1.1.3 The evaluation strategies outlined in this broad method statement are as follows.

- Geophysical Survey;
- Geoarchaeological monitoring of geotechnical investigations;
- Trial trenching; and
- Earthwork Survey if necessary following walkover surveys – to be confirmed.

1.1.4 For a broad understanding of the anticipated programme of archaeological fieldwork, see Figure 1.

1.1.5 This document is not intended to reference any evaluation or mitigation measures to be undertaken post consent (Figure 1 – D-G). However, any broad methodologies set out here could be extrapolated as a basis for further post consent evaluation where appropriate.

1.1.6 With regard to a mitigation strategy to be submitted with the Development Consent Order (DCO) application, the results of fieldwork undertaken in reference to this broad outline strategy for evaluation works will inform an Outline WSI for mitigation work. Until the work set out within this WSI for evaluation has been completed, an outline WSI for mitigation works cannot be finalised. It is proposed that the Outline Written Scheme for mitigation works may be submitted post submission within the determination period if evaluation works are not completed prior to submission. This will benefit from the results of fieldwork

undertaken within the determination period and provide an outline for conditioned fieldwork.

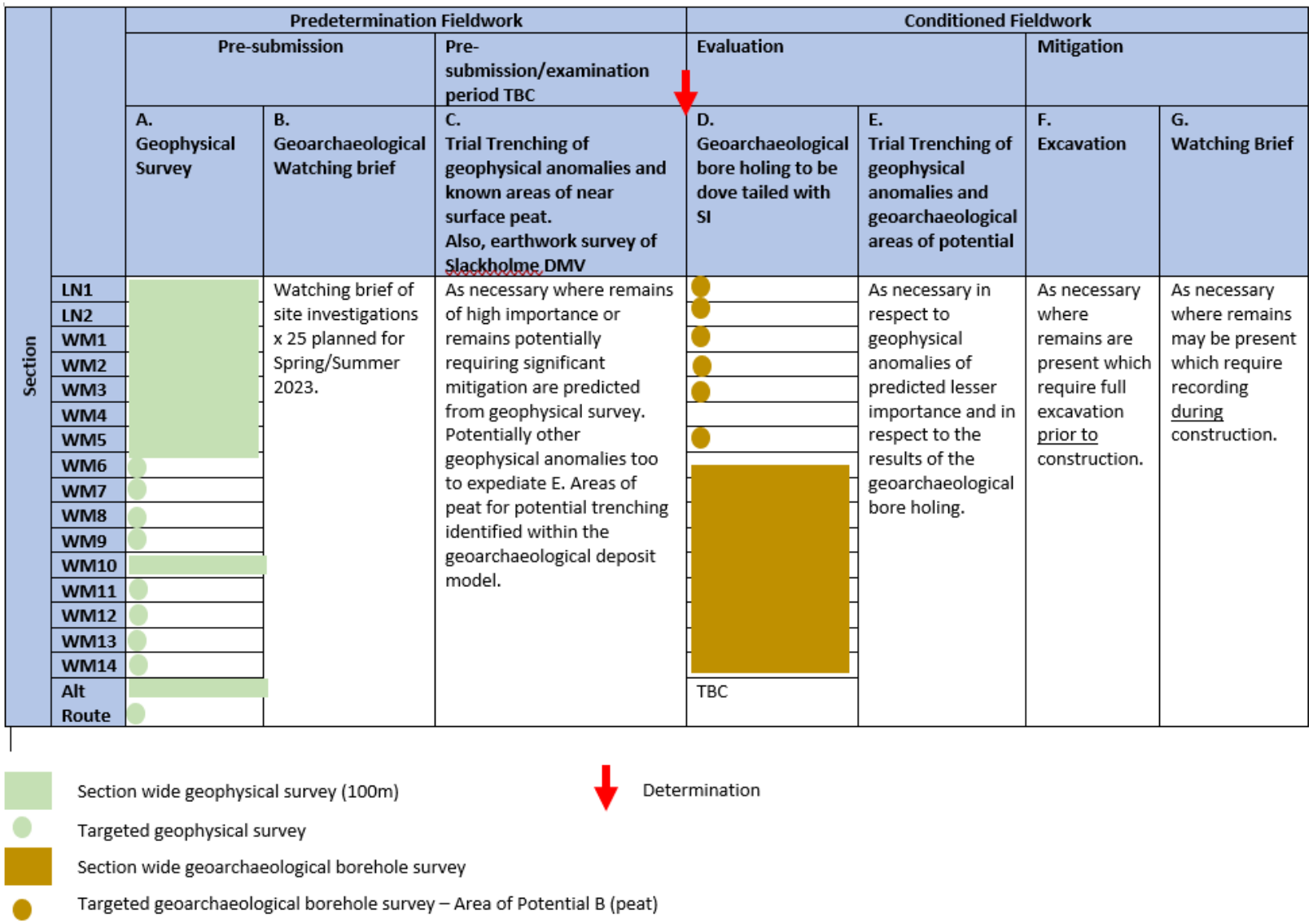

Figure 1: Broad Archaeological Strategy

2 Project Administration

2.1.1 Details of Archaeological Contractors would be provided to the Lincolnshire Historic Environment Officer and Historic England by SLR Consulting prior to the commencement of fieldwork.

2.1.2 The Archaeological Consultant

2.1.3 The archaeological consultant is –

[redacted]

Principal Archaeologist

SLR Consulting

15 Middle Pavement

Nottingham

NG1 7DX

Email: [redacted]

2.1.4 The Historic Environment Officer is -

[redacted]

Historic Environment Officer

Historic Places Team

Lincolnshire County Council

County Offices

Newland

Lincoln

LN1 1YL

Email: [redacted]

2.1.5 The Historic England contact is –

[redacted]

Historic England

The Foundry

82 Granville Street

Birmingham

B1 2LH

Email: [redacted]

2.1.6 The relevant Coroner is -

[redacted]

HM Coroner's Service

The Myle Cross Centre

92 Macaulay Drive

Lincoln

LN2 4E

Email: [redacted]

2.1.7 The relevant Historic England Regional Science Advisor is -

[redacted]

Historic England (Midlands)

The Foundry

82 Granville Street

Birmingham

B1 2LH

Email: [redacted]

2.1.8 The relevant Finds Liaison Officer is -

[redacted]

Lancaster House

Orchard Street

Lincoln

Lincolnshire

LN1 1XX

Work T: [redacted]
Email: [redacted]

3 Site Context

3.1 Overview

3.1.1 The Preliminary Environmental Information Report (PEIR) references a 'PEIR boundary'. This comprises the extent of the land for which the PEIR assessments are based upon. It reflects an approximate 300m corridor around a centre line c.91km in length in reference to the potential footprint of the Onshore Export Cable Corridor (ECC) and three potential locations for the Onshore substation (OnSS). It should be noted that the construction easement within the 300m corridor of the ECC would be 80m and that the final easement would be designed to minimise ground disturbance where necessary.

3.1.2 The PEIR boundary has been split into segments as follows.

- Lincolnshire Node (LN) ECC (Figure 2):
  - LN1 - Landfall to A52 – Mumby; and
  - LN2 - A52 – Mumby to Lincolnshire Node.
- Weston Marsh (WM) ECC South of the A52 (Figure 3):
  - WM1 - Landfall to A52 – Hogsthorpe;
  - WM2 - A52 – Hogsthorpe to Marsh Lane;
  - WM3 - Marsh Lane to A158 - Skegness Road;
  - WM4 - A158 Skegness Road – Low Road;
  - WM5 – Low Road to Steeping River;
  - WM6 - Steeping River to Ivy House Farm/Marsh Yard;
  - WM7 - Ivy House Farm/Marsh Yard to Staples Farm;
  - WM8 - Staples Farm to Crowhall Lane;
  - WM9 - Crowhall Lane to Church End Lane;
  - WM10 - Church End Lane to The Haven;
  - WM11 - The Haven to Marsh Road;
  - WM12 - Marsh Road to Fosdyke Bridge;
  - WM13 - Fosdyke to Weston Marsh Substation Search North; and
  - WM14 - Fosdyke to Weston Marsh Substation Search Area South.
- Weston Marsh ECC North of the A52 (Figure 4):
  - A1 – Low Road to Steeping River;
  - A2 – Steeping River to Fodder Dike Bank/Fen Bank;
  - A3 – Fodder Dyke Bank to Broadgate;
  - A4 - Broadgate to Ings Drove; and
  - A5 – Ings Drove to Church End Lane.

545000 550000 555000

380000

375000

370000

Lincolnshire Node OnSS Search Area

LN1

LN2

N

Legend

- Onshore PEIR Boundary
- Onshore Segment Break
- Lincolnshire Node OnSS Search Area

Sources:

Coordinate System: British National Grid

0 1 2 km

Scale: 1:50,000

Landfall to Lincolnshire Node ECC Sections

Figure 2

OUTER DOWSING OFFSHORE WIND

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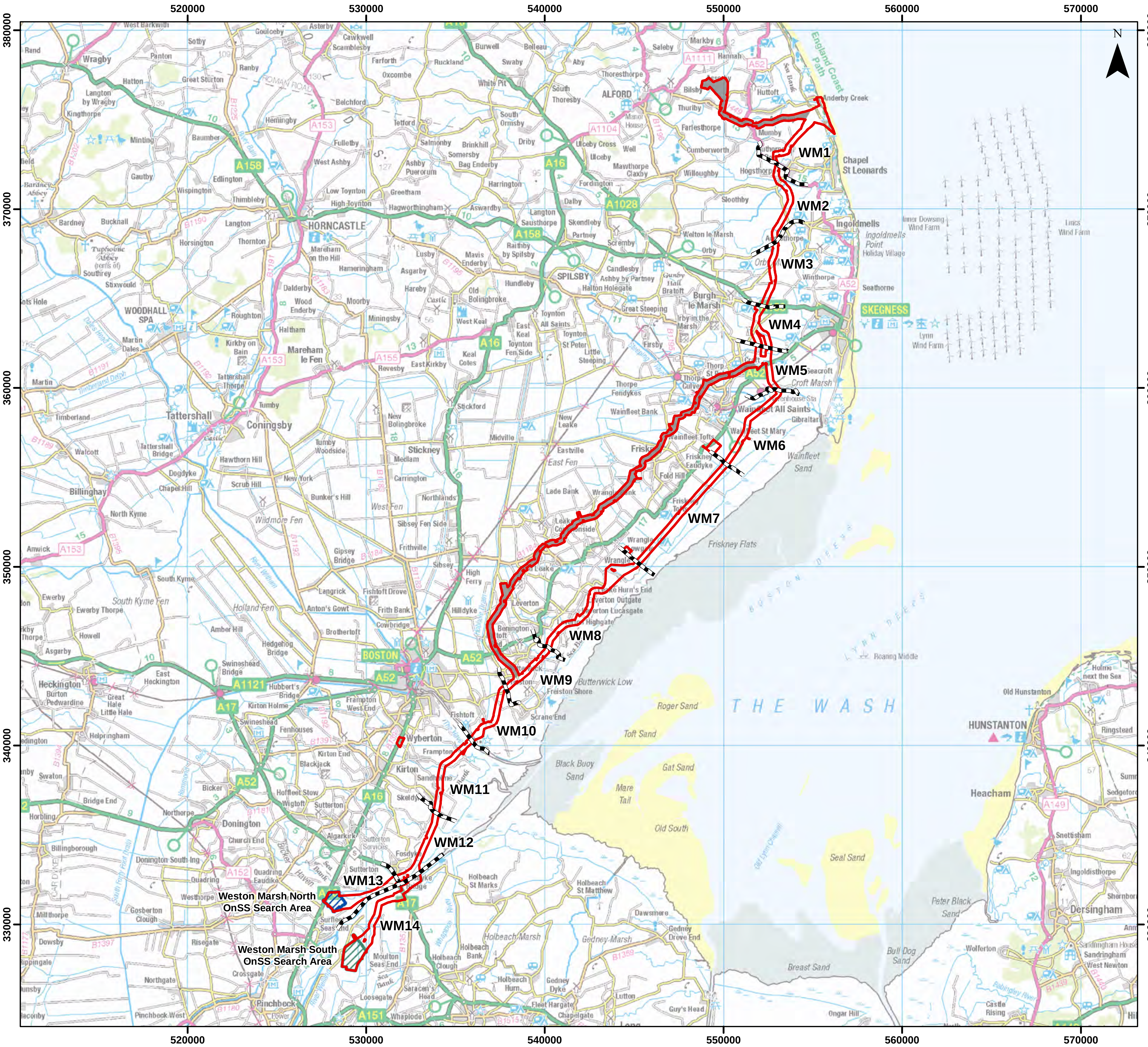

Legend

- Onshore PEIR Boundary
- Onshore Segment Break
- Weston Marsh North OnSS Search Area
- Weston Marsh South OnSS Search Area

Sources:

Coordinate System: British National Grid

0 5 10 km

Scale: 1:200,000

Landfall to Weston Marsh ECC Sections

Figure 3

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540000

550000

360000

350000

A1

A2

A3

A4

A5

N

Legend

- Onshore PEIR Boundary
- Onshore Segment Break

Sources:

Coordinate System: British National Grid

0 2 4 km

Scale: 1:80,000

Landfall to Weston Marsh
Alternative ECC Route Sections

Figure 4

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3.1.3 Compounds in close proximity to the proposed ECC footprint are included within the nearest segment referenced above. An additional compound, located off the A16 south of Boston will be referenced separately as 'A16 compound' (Figure 5).

3.2 Archaeological Potential

3.2.1 The preliminary Archaeological Desk Based Assessment (Volume 1, Appendix 20.1) sets out the archaeological background in order to understand the archaeological sensitivity within the PEIR boundary. This has been prepared in order to understand the archaeological potential of the land within the PEIR boundary and has utilised resources including the Lincolnshire Historic Environment Record and the Portable Antiquities scheme. The preliminary Archaeological Desk Based Assessment also references a LiDAR assessment and a geoarchaeological deposit model (Volume 1, Appendix 20.1, Annexes 22 & 23).

3.2.2 For ease of reference the overall potential for each period is provided below with reference to Areas of Potential (AOP)set out within the geoarchaeological deposit model:

Prehistoric (Permanent/Persistent)

- AOP B (Annex 23a Figures 46-48, Annex 23b Figure 47b) = Possible remains of seasonal/marginal structures within peat (organic) deposits. These deposits are recorded in the transects as being deposited between two tidal mudflat phases. This would provide an earliest date of the Late Mesolithic period. Early surviving organic remains could be associated with the prehistoric hunter gatherer exploitation of the area – such as jetties, trackways and fish traps. Current baseline present in segments LN1, LN2 (potentially at less than 2m bgl but relatively thin), WM1, WM2, WM3, WM4, WM5, WM7, WM13 & WM14, A2 and A3. The recorded peat is present at depths of between <2m - 6m bgl within the PEIR boundary. Annex 23a Figures 22, 31 & 42 show a potential for widespread deposits at these depths but at various thicknesses. Apart from segments LN1, LN2 & WM1 where minimal deposits at thicknesses of (0-0.5m) may be present, deposits are generally anticipated to be at least 0.5-1m thick. The isolated thicker deposits are shown on Figures 46-48 and 47b;
- AOP D & E (Annex 23a Figures 46-48) = Possible remains of occupation sites such as hearths and pits cut into the near surface glaciofluvial and glacial till deposits. Current baseline shows near surface deposits present predominantly in LN2 (<2m bgl Annex 23A Figure 10). These extend into the western part of segment LN1. Other likely deeper, but relatively near surface deposits in comparison to the rest of the PEIR footprint are also possible within segment WM1 (5m bgl Annex 23A Figure 11), WM2 (5m bgl Annex 23a Figure 11), WM5, WM6, WM12, WM14 & A4; and
- AOP A2 (Annex 23a Figures 46-48 and Annex 23b Figure 47b) = Potential remains of occupation sites covered by tidal mudflats. Figures 24, 35, 44 & 35b illustrate the varying thickness of the mudflats. Remains would likely be eroded and potentially not in situ. Current baseline shows these types of deposits in segments LN1, LN2, WM1, WM2, WM3, WM4 & WM5 and the alternative ECC.

Prehistoric (Transient/Short Lived)

- AOP A2 (Annex 23a Figures 46-48, Annex 23b Figure 47b) = Possible cut features beneath the second phase of tidal mudflats but likely eroded and not in situ. Present in segments LN1, LN2, WM1, WM2, WM3, WM4 & 5 and the alternative ECC. Up to 4.5m thick in the north of the PEIR boundary and 1.2-6.5m thick elsewhere on the WM segments but base of mudflats present at <2m bgl in segments LN2 and WM2 (Figures 10 and 12). In the alternative ECC generally 1m thick with thicker deposits in A5;
- AOP D (Annex 23a Figures 46-48 and Annex 23b Figure 47b) = Possible Palaeolithic and Mesolithic flint assemblages ex situ within the glaciofluvial deposits. Currently baseline present in segments LN1, LN2, WM1, WM5, WM6, WM12, WM14 and A4. The depth bgl is uncertain, Figure 11 indicates a depth >5m in WM1;
- AOP D & E (Annex 23a Figures 46-48 and 23b Figure 47b) = Possible Mesolithic and later flint assemblages in situ on the surface of the glaciofluvial deposits and the surface of glacial till. Current baseline present in segments LN1, LN2, WM1, WM2, WM5, WM6, WM12, WM14 and A4. Current baseline shows near surface deposits present predominantly in LN2 (<2m bgl Annex 23A Figure 10). These extend into the western part of segment LN1. Other likely deeper, but relatively near surface deposits in comparison to the rest of the PEIR footprint are also possible within segment WM1 (5m bgl Annex 23A Figure 11), WM2 (5m bgl Annex 23A Figure 11), WM5, WM6, WM12 & WM14; and
- AOP A1 (Annex 23a Figures 46-48) = Possible Mesolithic and Neolithic flint assemblages beneath the tidal mudflats. Current baseline present in segments WM6, WM7, WM8, WM9, WM10, WM11, WM12, WM13 & WM14. The thickness of these deposits is atleast 6.5m with the depth bgl greater than this including overlying later mudflats and peat.

Palaeo/Geo Environmental

- AOP A1 (Annex 23a Figures 46-48) = Very deep waterlogged deposits may hold remains of the submerged Mesolithic Forest beneath the tidal mudflat – see Annex 23A Figures 46-48. Possible in all areas except Segment LN2;
- AOP A1 & A2 (Annex 23a Figures 46-48 & Annex23b Figure 47b) = Deposits including relict watercourses/features and palaeochannels within the tidal mudflats may hold other deposits of palaeoenvironmental and geoarchaeological potential. Deposits in general would inform on periods of marine ingression and transgression. Waterlogged remains similar to those in AOP B (see below) are also possible. Possible in all areas except perhaps segment LN2; and

- AOP B (Annex 23a Figures 46-48 & Annex 23b Figure 47b) = Areas of peat hold high potential for the preservation of plant and animal material which would inform on past environmental conditions and anthropogenic activities in the vicinity - see Annex 23a Figures 46-48. Current baseline present in segments LN1, LN2 (potentially at less than 2m bgl but relatively thin), WM1, WM2, WM3, WM4, WM5, WM7, WM13, WM14 & A1, and A3. The recorded peat is present at depths of between <2m - 6m bgl within the PEIR boundary. Annex 23a Figures 22, 31 & 42 and Annex 23b Figure 31b show a potential for widespread deposits at these depths but at various thicknesses. Apart from segments LN1, LN2 & WM1 where minimal deposits at thicknesses of (0-0.5m) may be present, deposits are generally anticipated to be at least 0.5-1m thick. The isolated thicker deposits are shown on Figures 46-48 and 47b.

Roman

- Remains associated with agriculture and settlement likely restricted to Segments L1, L2 and WM1 - WM3 and the alternative ECC (apart from five) which were on the landward side of the coastline, although Area WM10 may be an anomaly elsewhere; and
- Remains associated with salterns possible in segments LN1 and WM2, WM4, WM5, A3-5 and in the top of the tidal mudflat sequence and within AOP A1 (WM9-WM14).

Anglo-Saxon

- Any settlement or agricultural remains are likely to be restricted to segments LN1 & LN2. Other areas likely inundated during this period or marginal to other areas of higher ground where activity would have been focused.

Medieval

- Sea walls with specific evidence in segments LN1, WM1, WM5, WM6, WM7, WM10, WM11, WM12, WM13, WM14;
- Moated sites are possible with specific evidence in segment WM11 (associated with Multon Hall Scheduled Monument);
- Remains of salterns (clay lined pits/pools, middens, temporary wooden structures) are possible with specific evidence in segments WM7, WM8, WM9, WM11, WM13 and WM14;
- Field systems are possible with specific evidence in segments LN1, LN2, WM1, WM2, WM3, WM4, WM5, WM6, WM10, A1;
- Nucleated settlement is possible with specific evidence in segments LN1, WM2, WM3, A2, A3; and
- Medieval roads (Segment A5).

Post-Medieval

- Farmsteads/post medieval buildings – all segments;
- Field systems – all segments;

- Drainage ditches – all segments;
- Other - a tramline in segment WM14; and
- Other – a railway cottage in A16.

Summary

3.2.3 In broad terms segment LN2 holds a particular potential for permanent prehistoric activity dating from the Neolithic and Bronze Age periods. This is due to its relatively elevated topography and the presence of near surface presence of glaciofluvial deposits and till (AOP D & E). Other isolated areas of potential permanent activity of Neolithic/Bronze Age on this geology are also possible in areas LN1, WM1, WM2, WM3, WM5, WM6, WM12, WM14 and A4. These specific higher and dryer areas would also have been likely to be attractive for earlier activity of a more transient nature during the Mesolithic period.

3.2.4 Excluding the alternative ECC, it is anticipated that coastal inundation by the end of the Mesolithic period would have made the parts of the land within the PEIR boundary south of segment WM2 tidal at least. In segments WM6-9 and WM11-14 tidal conditions or complete inundation are anticipated to have persisted from the end of the Mesolithic period until post medieval reclamation such that dry land was not present for the Neolithic, Bronze Age, Roman, Anglo Saxon or Medieval periods (Annex 23A Figure 3). The deposition of alluvium over this substantial timespan would have buried any pre tidal/inundation deposits of Mesolithic date beneath a significant depth of 'overburden' (AOP A1). Some peaty deposits (AOP B) within AOP A1 could reveal evidence of localised wetland exploitation and other deposits of palaeoenvironmental potential.

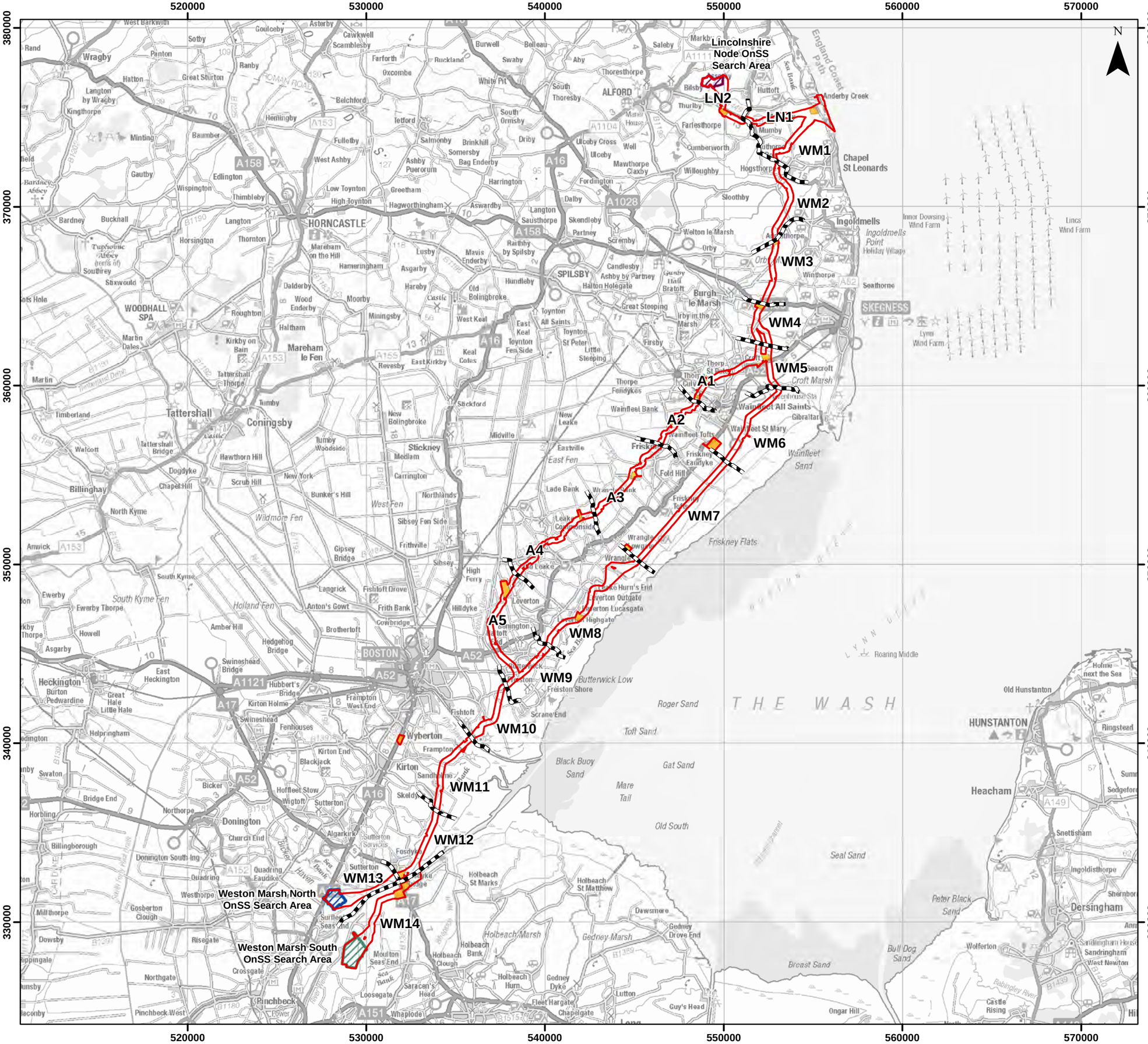
3.2.5 In respect to the alternative ECC, the proximity of the flooding coastline is anticipated to have created salt marsh conditions which persisted into the Iron Age/Roman periods. In respect to earlier prehistoric activity, only transient wetland zone activity of Neolithic or Bronze Age date can be realistically anticipated here albeit the area of glaciofluvial deposits in A4 may have provided for a foci of dryland for some semi-permanent activity.

3.2.6 The retreat of the sea into the Roman period may have brought WM10 and the A16 compound into dryer conditions alongside segments L1-L2, WM1-3 and the alternative ECC. Therefore, potential terrestrial activity of Roman date on dry land is possible within segments LN1, LN2, WM1-3, A1-4), the A16 compound and WM10 (AOP D, E and A2). A potential for Roman salterns also extends for segments LN1, WM1, WM4 and WM5 and A1 – A5 and into the rest of the ECC which appears to have remained at least tidal during this period (AOP A1 particularly segments WM9-WM14).

3.2.7 Sea level rise appears to have caused the destruction of coastal zone Roman sites and evidence for Anglo Saxon activity at a time of inundation is extremely limited with potential likely to be isolated to segments LN1 and LN2 which were probably the only parts of the land within the PEIR boundary to be dry or at least not marginal during this period. A potential may also exist for the A16 compound.

3.2.8 Medieval activity was made possible through the construction of sea walls with settlement or agricultural activity known in segments LN1, LN2, WM1, WM2, WM3, WM4, WM5, WM6 and the alternative ECC. Settlement of this period may be well preserved and of relatively high importance in certain segments of the ECC. For example, segment WM2 where remains of Slackholme deserted medieval village are present. At this time, other segments are anticipated to have been more marginal with activity perhaps limited to salterns in AOP A1; with Historic Environment Records (HER) references to salterns in segment WM8 and LiDAR anomalies of an uncertain nature which may reference salterns in segments WM7, WM8, WM9, WM11, WM13 and WM14. Tidal conditions also present in segments WM4, WM5 and WM6 highlight the potential for medieval salterns.

3.2.9 Post medieval activity references land reclamation and agricultural activity across all land within the PEIR boundary. This includes the remains of former farmhouses which are present in all segments.



Legend

- Onshore PEIR Boundary
- Onshore Segment Break
- Lincolnshire Node OnSS Search Area
- Weston Marsh North OnSS Search Area
- Weston Marsh South OnSS Search Area
- Indicative Temporary Construction Compound

Sources:

Coordinate System: British National Grid

0 5 10 km

Scale: 1:200,000

Temporary Construction Compounds

Figure 5

OUTER DOWSING OFFSHORE WIND

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4 Aims & Objectives

4.1 Overview

4.1.1 The East Midlands Historic Environment Research Framework[1] sets out a framework for research aims and objectives to be considered for the various fieldwork techniques set out within this document.

4.1.2 Relevant overarching themes to consider are as follows.

4.2 Environment

- Pleistocene and Holocene climatic change (as evidenced, for example, by paleochannel deposits) - All periods;
- Changes in sea level, the configuration of sea and land, the drainage network and the spatial extent of wetlands - All periods;
- The impact of human activity upon woodland clearance and other changes in the regional vegetation - All periods except Palaeolithic;
- The impact of human activity upon soil development and geomorphic processes (notably alluviation, colluviation and aeolian deposition – All periods but Palaeolithic and Mesolithic; and
- Exploitation and settlement of diverse ecological zones - All periods.

Settlement

- Distribution, density and character of hunter-gatherer open sites - Palaeolithic, Mesolithic, and Neolithic-Middle Bronze Age; and
- Development of agriculturally- based settlement patterns - Neolithic to Modern.

Food Procurement Strategies

- Hunter-gatherer subsistence strategies and mobility patterns - Palaeolithic to Middle Bronze Age;
- Transition from hunter-gatherer to agricultural subsistence strategies - Mesolithic to Middle Bronze Age;
- Developments in crop and animal husbandry and changes in diet and health - Neolithic to Modern; and
- The Agricultural Revolution and the industrialisation of agriculture - Post Medieval to Modern.

The Rural Landscape

- The development of fields and field systems - Late Bronze Age to Modern;

[1] https://researchframeworks.org/emherf/

- The development of parks, gardens, and estates - Post Medieval to Modern; and
- Development of monastic estates and post-Dissolution developments - Romano-British to Post-Medieval.

Communications

- The role of rivers as movement corridors, sources of power and socio-political boundaries - All periods;
- The role of coastwise routeways - All periods but Palaeolithic;
- Constructed routeways; wooden or brushwood trackways, roads, canals, tramways and railways - Neolithic to Modern; and
- Riverine and maritime waterborne transport - Neolithic to Modern

Social, Religious, And Political Structures

- Development of prehistoric monument complexes - Neolithic to Iron Age; and
- Development of funerary monuments and changing burial and memorial practices - Neolithic to Modern

4.2.1 Period specific research objectives which may be relevant are set out further below.

4.3 Palaeolithic (c.950/850kya-c.9500 cal BC)

Strategic Objective 1A Refine knowledge of the earliest hominin activity in the region (Pre-Anglian: Cromerian complex of period 1)

> *'The East Midlands is located astride the former Bytham River, which prior to obliteration of the established drainage networks by Anglian glaciation around 425,000 years ago would have flowed eastwards to East Anglia and hence is critically situated to provide information relating to the earliest (pre-Anglian) hominid activity in Britain. It is recommended that wherever possible resources be focused on during developer- funded work upon the identification and characterisation of cultural remains contained within deposits associated with the Bytham River…'.*

4.3.1 This may be relevant to the very southern segments south of Boston given the approximate route of the pre-Anglian Bytham which lies to the southwest near Castle Bytham.

> *This should enhance studies of the distribution of character of early hominin activity, including migration routes, and might identify distinctions within artefact assemblages that could elucidate spatial and chronological variability'.*
>
> *'Fieldwork should focus upon the retrieval of associated organic remains with the aim of elucidating the variety of ecological zones exploited by early hunter-gatherers (see Objective 1G).*

Strategic Objective 1B Test the hypothesis that hominines may have been absent from the East Midlands during Period 2 (Pre-Levallois Lower Palaeolithic)

> *'Despite abundant data from southern England, convincing evidence for hunter-gatherer activity in the East Midlands following retreat of the Anglian ice remains elusive'.*
>
> *'It is recommended, therefore, that priority be accorded to the identification of deposits attributable to temperate stages of this period, followed by prospection for associated cultural material…The strategy should aim to confirm the presence or absence of Period 2 deposits, and, if these are found to be present, evaluate the potential for evidence of hominin activity.'*

Strategic Objective 1C Confirm the extent and nature of early hominin activity during Period 4 (Mousterian)

> *The East Midlands is one of few areas of Britain to have yielded a dataset for this period, albeit acquired principally by antiquarian explorations of limestone caves to the north and west of the region and has significant potential for elucidating this poorly known period of prehistory.*
>
> *'…targeted excavations of sites likely to preserve significant stratified deposits with associated artefacts and environmental remains' is recommended. 'Faunal or botanical data would sharpen our picture of the regional environment'. The lowland potential of deposits including sand and gravels along with palaeochannels should be considered and 'appropriate deposits should be identified and investigated prior to quarrying or other developments that might impact upon remains of Mousterian activity'.*

Strategic Objective 1D Further investigate Upper Palaeolithic open-air sites

> *'Recent archaeological investigation in the region have located several nationally important open-air sites dating from the Early and Late Upper Palaeolithic…These sites represent the open-air equivalents of the Derbyshire and Nottinghamshire cave sites (Objective 1E), and analyses of lithic artefacts from the ploughzone and buried contexts may shed important light upon hunter-gatherer movements (Objective 1F) and in particular the relationship between open-air and cave locations. Trace element analysis of flints from Farndon Fields, for example indicates that at least some of the material may have derived from a source over 200km to the south, which has profound implications for the reconstruction of mobility patterns'.*

Strategic Objective 1F Investigate annual patterns of movement of Late Upper Palaeolithic hunter-gatherers

> *The wide variety of evidence from the East Midlands for Late Upper Palaeolithic activity , including open-air sites, caves and rock shelters raises the possibility of exploring settlement patterns, mobility and hunting strategies in ways that are possible in few other regions of the country…Trace element analysis may well be useful as a technique for unravelling the annual patterns of movement of hunter-gatherers within and beyond the East Midlands, and could potentially be extended to sites of the Early Upper Palaeolithic and other periods where*

we can be confident that the observed pattern of finds reflects the original distribution of activity foci. This technique might be augmented by isotopic studies of human bone to elucidate the movement of people and their diets, and of animal bone to shed light upon their migration routes.

Strategic Objective 1G Elucidate from terrestrial sources the changing Pleistocene environment of the East Midlands

Further mapping and visualisation of the Pleistocene landscape is recommended in order to elucidate further the relationship between human populations and changes in climate, vegetation and landscape...There is significant scope in the East Midlands for further investigation of the changing environment, especially from the evidence of palaeochannels…Organic deposits associated with the Bytham drainage system also provide a critical resource for reconstructing the environment of the earliest hominin colonisers, as demonstrated by…discoveries of organic deposits and associated cultural remains from sites distributed widely across the Midlands and eastern England.

4.4 Mesolithic (c.9500-c.4000 cal BC)

Strategic Objective 2A Enhance understanding of the environmental background to Mesolithic activity

'By comparison with some other areas of the country, the Mesolithic environment of the East Midlands is little known. In particular there is little evidence to indicate the extent to which tree cover may have been manipulated to encourage the development of vegetation suites for hunting and foraging'.

'There is a need to obtain more closely dated pollen sequences from upland, riverine and coastal peat deposits and to extend the investigation of ancient environments to include isotope studies of the organic fractions of coastal and riverine sediments'.

'Coversand deposits…also merit special mention. Recent work suggests reworking of some late Devensian coversands in the Early Holocene as a result possibly of Mesolithic clearance and/or climatic change. Additionally, optically stimulated luminescence (OSL) dating of coversands and pollen analysis may be recommended to elucidate further the chronology of coversand reworking and the history of vegetation change'.

Strategic Objective 2B Characterise the regional and local evidence for Mesolithic activity

'The East Midlands is notable for the broad range of environments from which Mesolithic lithic artefacts have been recovered, yet this information has generally not informed national syntheses and has yet to be fully exploited in regional research. Early investigations of limestone caves and rock shelters in Derbyshire and Nottinghamshire yielded Mesolithic stone artefacts, while later work has revealed surface finds and sometimes deeply stratified collections of lithic artefacts across a wide variety of landscapes. These extend from the Pennine spine to the eroding coastal peats of Lincolnshire'.

'Further investigation by excavation has been very limited, however, while the detail of the surface scatters is often not known. It is important to identify the extent, size and shape of artefact distributions and investigate possible associations with sub-surface features in order

to characterise these, and field methodologies should be adapted appropriately. Curatorial briefs should highlight areas where there has been little or no surface collection and should recognise the potential for wet sieving to recover artefacts and the role of geophysical prospection. The nature and chronology of the lithic material from the region merits separate consideration (Objectives 2C, 2D and 2E), but it is clear that further review of the surface evidence, together with associated excavation, has much to contribute to our understanding of Mesolithic activity in the region'.

Strategic Objective 2C Investigate further the earlier Mesolithic lithic resource

'The East Midlands region is notable for the range and extent of distribution of lithic material, but much of this remains little studied… The lithic artefact resource of the East Midlands thus offers significant scope for investigating the potential size of earlier Mesolithic hunting territories and key issues such as the relationship of upland lithic scatters to those of the lowlands or of cave to open-air sites'.

Strategic Objective 2D Identify changing patterns of lithic artefact use in the later Mesolithic

'The opportunity exists, therefore, to refine knowledge of East Midlands later Mesolithic assemblages and to attempt definition of chronological, functional and cultural traits'.

Strategic Objective 2G Investigate the topographic locations of activity foci

'More attention should be paid to the topographical attributes of Mesolithic activity foci, which have been recorded in a wide variety of locations. Prominent or elevated sites seem often to have been favoured for open-air sites, including hilltops and, in regions of subdued topography, subtle ridges and sand islands. Proximity to wetland resources may have been important, to judge by sites such as Misterton Carr and the many lithic scatters spread across river terraces, and many more sites may lie buried beneath alluvium, colluvium, coversands or peat. Fieldwalking and test-pitting surveys have also retrieved material from a wide range of other topographic zones across the region, and there is much to be learnt about locational strategies during this period. There are significant opportunities to identify associations between specific activities and distinctive topographies, although many questions remain regarding the prevailing vegetation cover. Consideration should also be given to the nature of Mesolithic activity in locations attracting Neolithic settlement or burial. There may be differences between the two periods: Mesolithic finds at Lismore Fields, for example, spread across a low plateau that was later a focus of Neolithic settlement, while the chambered cairn at Whitwell occupied a site that, in common with other cairn locations, yielded no trace of Mesolithic activity'.

Strategic Objective 2H Investigate the transition from the Mesolithic to Neolithic

'Once it seemed easy: whatever the precise mechanics of the conversion, the Mesolithic was characterised by hunter-gatherers, while the Neolithic was populated by settled farmers. Hard and fast distinctions between the Mesolithic and Neolithic are now increasingly difficult to maintain, although the question of the extent to which societies were 'Mesolithic' or 'Neolithic' still seems valid. Key issues of concern include the continuity of essentially Mesolithic lifeways beyond the fifth millennium BC and the degree to which Early Neolithic

populations engaged in agriculture. With notable exceptions such as Lismore Fields, evidence for arable farming in the form of querns or cereal grains of undoubted Early Neolithic date remains rare in the East Midlands. Nevertheless, discoveries of early faunal remains indicate a new interest in domesticating animals and the processing of animal products in different ways. In addition, the building of funerary and other ritual or ceremonial monuments, alongside the development of pottery and changes in lithic industries to encompass flake core artefacts and shaped arrowheads at the expense of bladelet types, suggests that becoming Neolithic may have been a spiritual conversion as well as a socio-economic or technological one. The issue of changing subsistence strategies and the relationship between Mesolithic and Neolithic lifeways can be addressed in part by consistent sampling of organic material preserved in palaeochannels and other waterlogged or wetland contexts spanning the transition period. Close examination of the occasional features found associated with Mesolithic and Early Neolithic lithic scatters should also be a priority, and should be combined wherever possible with radiocarbon dating and environmental sampling of associated deposits'.

4.5 Neolithic and Early to Middle Bronze Age(c.4000-c.1150 cal BC)

Strategic Objective 3C Develop fieldwalking strategies and guidelines for landscape zones

Synthesis of the results of fieldwalking should enable the development of more refined strategies for locating and interpreting the lithic scatters that provide crucial evidence for early prehistoric activity. There is a pressing need to investigate further the lithic signatures of monument types, as this may assist the interpretation of finds scatters. In addition, building upon projects in areas such as the Fens, the Nene and Ouse catchments around Raunds and the Peak District, and upon smaller-scale surveys such as Elmton in Derbyshire, it would be useful if further surveys could be conducted across a wide spectrum of landscape zones. This would permit a more informed assessment of variations in the density and character of settlement and comparison of the lithic evidence with earthwork, cropmark and other remote sensing data across a wide range of geological and topographic zones. It should also provide a secure foundation for the development of guidelines specific to particular landscape zones and aid identification of methodologies capable of detecting sites that are not easily located. A review of the excavation record may also illuminate the nature of lithic assemblages recovered by fieldwalking.

Strategic Objective 3E Target sites with Late Mesolithic and Early Neolithic organic remains

'Environmental remains attributable to the Late Mesolithic or Early Neolithic have been retrieved from a variety of contexts across the region, including rare examples of settlements spanning this transition period, upland peat bogs and organic palaeochannel deposits, notably along the Trent Valley at Bole Ings, Girton and Staythorpe in Nottinghamshire and in the Nene Valley at the Northamptonshire sites of Wellingborough, Wollaston and Stanwick. However, significantly more organically rich contexts of this period need to be targeted for environmental analysis and radiocarbon dating to elucidate patterns of landscape change during this key transitional period. Particular attention should be focused upon sites preserving organic remains that may be threatened by de-watering, while the

information gained from sites under threat from development should be maximised…more sites of this period with the potential for preserved organic remains need to be sampled and carried through to publication if we are to unravel the transition from nomadic to semi-sedentary and sedentary communities and the impact of these changes upon the landscape'.

Strategic Objective 3F Identify monument complexes and prioritise for curatorial action

'Neolithic and Bronze Age monument complexes are poorly known by comparison with areas such as Wessex, but there is compelling evidence nonetheless for landscapes of equal complexity. Impressive earthwork complexes survive on the Derbyshire uplands, notably around the henge at Arbor Low and on Stanton Moor, but lowland complexes must be deduced principally from cropmarks. It is important to identify surviving examples, establish the variety of monuments and ensure that appropriate curatorial decisions can be made concerning their preservation. This is particularly urgent in lowland areas such as the Nene Valley and Tame-Trent confluence, where quarrying and other pressures pose major challenges for the management of landscapes that in terms of their complexity rival the great Wessex monument complexes. Much remains to be done on establishing the chronology and components of monument complexes, locational preferences and intra-regional variability in monument associations. Spatial variability is particularly difficult to demonstrate, but is indicated, for example, by the tight focus of cursus-based complexes in the Middle Trent and Soar Valleys and a propensity in the Lincolnshire Wolds for long funerary enclosures to be associated with mounds of various shapes'.

Strategic Objective 3H Recover and analyse human remains

'Rare discoveries of human bone in Mesolithic contexts and more frequent discoveries on Neolithic to Middle Bronze Age sites highlight both their potential for analysis and the inadequacies of the current data set. Mesolithic material is especially sparse, and is best represented in the region by the discovery of a female femur associated with animal bone preserving evidence of butchery in the fill of a palaeochannel at Staythorpe in Nottinghamshire. This remarkable find was dated by radiocarbon to 5740-5620 cal BC (Beta-14401; 95% probability) and was shown by stable isotope analysis to derive from an individual heavily reliant on animal protein, with a surprising dearth of plant foods and no influence of coastal food resources. Neolithic and Bronze Age remains have been retrieved more frequently, particularly from funerary and watery contexts, but interpretation is seriously restricted by the limited scope of most analyses. It is recommended that more emphasis be placed upon appropriate sampling strategies and analyses, with the development of further ground-breaking programmes such as the isotopic analysis of Beaker skeletal remains that is currently being undertaken at the University of Sheffield, alongside detailed studies of burial contexts, dentition and skeletal remains. Radiocarbon dating of human remains should be conducted as a matter of routine, with appropriate application of Bayesian modelling (Objective 3A)'.

Strategic Objective 3I Investigate the development and intensification of agriculture

'Although traditionally seen as a period of agricultural innovation, evidence for a transition from a hunter-gatherer to an agricultural economy has proved stubbornly absent…To clarify

further the development of farming communities, additional targeted sampling of palaeochannels, peat bogs and other locations likely to preserve environmental remains of these periods is recommended. It is suggested that this be combined with studies of soil micromorphology and geochemistry, which may provide valuable information on the extension of cultivation and agricultural intensification. Special emphasis should be placed on the recovery of large assemblages of animal bone from excavations'.

Strategic Objective 3J Foster relevant artefact studies

'Considerable advances in artefact studies have been made in recent years, but further research would be particularly welcome on the dating of ceramic and lithic artefacts, the production and distribution of pottery, stone tools and metalwork, and residue analyses of pottery. Resources could usefully be focused upon radiocarbon dating of carbonised accretions on pottery and of stratified lithic assemblages associated with pots preserving accretions datable by radiocarbon or short-life carbonised material. Petrographic analyses of lithic artefacts and pottery have demonstrated complex exchange networks…Further scientific analyses are recommended to refine our understanding of the production and distribution of these materials…Particular attention should also be paid to analyses of the surface and absorbed organic residues preserved in pottery, as these may provide important insights into vessel functions, the materials processed in pottery vessels, and the wider economy. This potential is illustrated by analyses of Neolithic pottery from Willington in Derbyshire, where lipid analysis revealed traces of ruminant dairy and porcine fats'.

4.6 Late Bronze Age and Iron Age (c.1150calBC-AD43)

Strategic Objective 4B Refine first millennium BC ceramic chronology by additional radiocarbon dating and typological analyses

'There is also considerable scope for refining the regional ceramic typology and developing an East Midlands ceramic type series as guidance for ceramic specialists, excavators and other researchers. This should be accompanied by a systematic programme of radiocarbon dating, with particular emphasis upon the carbonised residues that occur commonly on the inner and outer faces of first millennium BC domestic pottery. It is recommended that major published assemblages, with well-ordered archives including details of vessels preserving carbonised residues appropriate for radiocarbon dating, should be targeted initially. It is proposed that dating programmes focus upon typologically diagnostic vessels such as Scored Ware and pottery embellished with curvilinear and rectilinear designs inspired by the La Tène ornamental style. In addition, sites with well-stratified ceramic assemblages should be accorded a high priority in future excavation programmes'.

Strategic Objective 4E Assess the evidence for the evolution of settlement hierarchies

It is recommended that the character of Late Bronze Age and Iron Age settlement be assessed to identify sites that on the basis of landscape situation, structural remains or finds may represent sites of higher socio-economic status, and to investigate sub-regional variability. Potential higher status settlements include the Late Iron Age 'nucleated settlements' of Lincolnshire, many of which have yielded large quantities of metalwork,

coins, mint debris and high quality pottery…Cropmark studies, combined with analyses of surface scatters of metalwork, coins and other artefacts recorded during fieldwalking and metal detecting may highlight high status settlement foci. This may guide further targeted investigation by detailed geophysical survey and excavation…'.

Strategic Objective 4F Investigate intra-regional variations in the development of fields and linear boundary systems

'Extensive Bronze Age field systems are known in some upland and lowland areas of the region, including…the Lincolnshire Fen Edge, but these are very unevenly distributed… Further information on the spatial extent of these boundary systems should be recovered from air photography, lidar and other remote sensing techniques, but only targeted excavation can hope to unravel the development of field systems and their relationship to other linear boundaries'.

Strategic Objective 4H Characterise placed deposits and sites of shrines or temples

'A wide range of ritual activities may be implied by discoveries of metalwork and other artefacts that appear to have been deliberately deposited in riverside and other watery locations…Further evidence for ritual activity may be provided by the discovery in pits and other occupation features of human and animal remains and artefacts such as pots or querns that appear to have been deliberately placed. Further work is required to characterise the variety of placed deposits, analyse their spatial and chronological distribution and review their relationship to settlements and other sites. The relatively common discoveries of metalwork in watery contexts contrast with the apparent paucity of deliberately placed human and animal remains and may suggest specific regional characteristics'.

Strategic Objective 4J Investigate the settlement and environmental resource of the Witham Valley

'The Witham Valley is well-known as a focus of activity from Mesolithic and Neolithic times, but has yielded an especially impressive battery of evidence for the exploitation of this wetland zone during the Late Bronze Age and Iron Age periods An exceptional collection of riverine metalwork is rivalled in quantity only by finds from the Thames. The region has also yielded logboats later Bronze Age ritual and ceremonial sites such as Washingborough and, most remarkable of all, the Iron Age timber causeway with associated votive finds at Fiskerton. A valley-wide palaeoenvironmental research design has been published by the Witham Valley Archaeology Research Committee and provides a valuable springboard for studies of landscape change during the first millennium BC and beyond. Other key themes include the development of later Bronze Age and Iron Age rural settlement, the changing agricultural economy, the role of the river as a focus for ritual activity, trade and transport and, in view particularly of the proximity of Roman Lincoln, the impact of the Roman Conquest upon the rural landscape'.

4.6.1 The mouth of the River Witham lies at Boston and is mapped by Green in segments WM8 and WM9 (2022).

4.7 Romano-British (AD43-c.410)

Strategic Objective 5B Support the dissemination and synthesis of information on Roman finds

> *'Opportunities should be taken to encourage appropriate recording and typological and scientific analyses of pottery, metalwork, coinage, querns and other finds derived from fieldwalking and metal-detecting, including finds deposited in museums, and the wider dissemination of this information. This has particular potential for enhancing our understanding of regional exchange networks and wider social issues such as eating and drinking and the development of social identities'.*

Strategic Objective 5C Promote the systematic application of scientific dating techniques to sites of the Roman period

> *'The chronology of the Roman period is fairly well established, although complicated for the non-specialist by inconsistencies in dating terminology and hindered by an over-reliance upon pottery, imprecise dating of much metalwork and a continuing reluctance to embrace scientific dating methods…Radiocarbon dating has particular potential for refining chronologies, especially through the application of Bayesian analysis, and despite calibration difficulties in the late Roman period, systematic programmes of dating should be encouraged. Resources should also be targeted upon dendrochronology, which has significant potential for dating the waterlogged wood recovered from deeply stratified urban contexts and rural sites with favourable conditions of preservation. These and other scientific techniques such as archaeomagnetic or rehydroxylation dating are especially relevant for the late Roman period, which, with the cessation of Roman coin supply from around AD402, loses an important dating tool and have particular potential for elucidating the tradition of late and post-Roman inhumations lacking associated grave-goods'.*

Strategic Objective 5D Support the application of scientific analysis to human remains

> *'Despite the excavation of a number of moderately extensive Roman cemeteries in the region and of isolated burials on and around settlements, sometimes in boundary features, there has been little analysis of skeletal remains of this period…It is recommended, in view of the potential research value of such remains, that adequate provision for appropriate scientific analysis be included as a standard requirement in archaeological schemes of treatment relating to sites likely to yield evidence of Roman activity'.*

Strategic Objective 5E Promote the integration of specialist studies of material relating to subsistence, diet and health

> *Excavations have generated a substantial body of data that may be applied to studies of intra-regional and temporal variations in subsistence and diet, and hence to assessment of the impact of Roman cultural traditions upon the dietary preferences of native communities. The full potential of this information may only be realised by ensuring adequate dialogue between specialists and by promoting the integration of disparate specialist data in site reports and regional syntheses…Scientific analyses with significant potential for the reconstruction of ancient diet and health, exemplified by residue analyses of ancient pottery*

and stable isotope analyses of human remains, need to be encouraged as routine practice. There is also considerable scope for enhancing the palaeoenvironmental record – notably by encouraging regular sieving for fish bones and by ensuring that bulk samples are large enough to yield sufficient floral and faunal data to permit meaningful analysis'.

Strategic Objective 5H Investigate the landscape context of rural settlements

'Fieldwalking, metal detecting, cropmark plotting, geophysical survey, lidar and targeted excavation all have important parts to play in mapping and interpreting these landscapes. Appropriate survey programmes, building upon and enhancing earlier investigations in areas such as the Lincolnshire Fens…In addition, appropriate environmental sampling strategies need to be encouraged to accumulate botanical and faunal data that will provide a secure foundation for studies of changing landscape context and site location strategies (5E)'.

4.8 Early Medieval (c.AD410-1066)

Strategic Objective 6B Assess the landscape settings of Anglo-Saxon burial sites

'Recent palaeochannel surveys of the Lincolnshire Fens…provide useful frameworks for analyses of the relationship of cemeteries to contemporary watercourses, and the collection and analysis of appropriate palaeoenvironmental data from these and other wetland environments should be encouraged'.

Strategic Objective 6G Elucidate the development of the parochial system

The origin of this most basic building block of the medieval landscape remains poorly understood, yet there is significant potential for further multi-disciplinary enquiry into the landscape, archaeological, sculptural and documentary evidence for these units….This should be accompanied by further field investigations of landscape features associated with parish boundaries, which may identify relationships with datable archaeological features such as former Roman roads and prehistoric linear earthworks and highlight opportunities for targeted excavations to investigate stratigraphic relationships between features and retrieve material suitable for dating'.

4.9 High Medieval (1066-1485)

Strategic Objective 7D Investigate further the role of markets, fairs and ports and trading routes

'Coastal and inland ports and fairs performed broadly similar functions to markets and provided foci for communal economic and social activity on a regular basis. There is a need to focus inquiry on fairs and ports, which have generally been accorded little attention, and in particular upon such regionally important sites as…the inland port at Boston in Lincolnshire. There needs to be more targeting of deposits yielding environmental remains (particularly fish bones, which are especially poorly represented in the archaeological record). Excavations and landscape assessments could usefully be carried out alongside metal-detecting programmes, since port and fair sites in particular have traditionally served as foci for metal-detecting. In addition, further scientific analyses of pottery and other traded

commodities such as building stone from quarries…may shed further important light upon trading networks in Britain and beyond and assist in the identification of exchange foci'.

Strategic Objective 7E Investigate the morphology of rural settlements

'The East Midlands preserves evidence of a complex landscape, including zones dominated by a hierarchy of nucleated villages, hamlets and farmsteads, mainly in Northamptonshire, Lincolnshire, eastern Derbyshire and southern and eastern parts of Leicestershire and Nottinghamshire. Away from these zones, landscapes are characterised by dispersed farmsteads and hamlets, notably…the coastal marshes and fenlands of Lincolnshire. This spatial complexity has yet to be fully characterised or explained, and priorities for further work include assessment of the date of establishment of nucleated settlement, the date of origin of the region's many planned villages, and the factors underlying observed variations in settlement morphology. Nucleated settlement appears to have developed, in some areas at least, no later than the ninth century, but the date of establishment of the more obviously planned villages remains unclear…They particularly merit further detailed investigation by techniques such as test-pitting in gardens and open spaces in village cores…'.

Strategic Objective 7F Investigate the development, structure and landholdings of manorial estate centres

Regional manorial centres, whether secular or lay, remain poorly investigated and merit further systematic study. The East Midlands preserves a rich resource of manorial sites, ranging in status from castles and granges to more modest establishments that, relative to neighbouring regions, are comparatively rarely moated. Moated sites have received the greatest attention from researchers, and where excavated may preserve elaborate structural remains…The silted ditches of moated enclosures may also preserve waterlogged artefactual and environmental remains with significant potential for the reconstruction of past environments. Non-moated sites have proved less attractive to archaeologists, with occasional exceptions…The landholdings associated with these establishments have seldom been examined by excavation, although earthworks often survive well and in many cases have been the subject of field survey. It is recommended that the results of survey should in selected instances be tested by excavation. It is hoped that this will confirm the identity of features and clarify the chronology of manorial development, which in some instances may have roots in the pre-Conquest period'.

Strategic Objective 7I Investigate the development of the open-field system and medieval woodland management

'The origins of the open-field system have long attracted discussion, and are nowhere better addressed than in the East Midlands. Large areas of the lowland zone were dominated in this period by unhedged open fields rotating between arable and pasture… Fieldwalking, targeted excavation, and earthwork, geophysical, air photographic and lidar surveys can elucidate the origins and development of field systems and their relationship to earlier systems of land allotment, and should be encouraged. There is also much potential for further investigations of woodland, including hunting parks, by documentary research, earthwork surveys and remote sensing. Studies have been undertaken of… Lincolnshire

woodlands. Building upon these, further work should aim to integrate documentary and landscape evidence, with emphasis upon the evidence for former management and exploitation, access and changing boundaries. There is also a need to compare and contrast the information on woodland management and exploitation in the Champion lands with that in less favoured upland areas. Woodlands offer particular opportunities for a wide range of local fieldwork…'.

Research Objective 7J Research the regional communications infrastructure

The medieval period is important for the study of communication routes, which may well have varied in importance from one time to another and intra-regionally. The physical infrastructure, comprising roads, rivers and related appurtenances such as bridges and wharfs, and associations of these with landscape features, are under-investigated. In addition, the evidence that pottery and other artefacts can provide for the use of inland and coastal waterways such as the Trent and Nene has also not been maximised… Landscape features, such as hollow-ways, fords and bypassed stretches of major and minor highways, also remain little researched, while roads are seldom accorded archaeological excavation'.

4.10 Post Medieval (1485-1750)

Strategic Objective 8E Identify agricultural improvements of the sixteenth to eighteenth centuries

Enclosure of the open fields, waste and commons took place increasingly from the sixteenth century, along with reclamation of the Lincolnshire Fens and other marshy areas and the development of water meadows, although physical evidence of these changes is not always clearly visible until the late eighteenth and early nineteenth centuries. Additional investigations are required to shed further light upon the development of early enclosures, water meadows, fenland drainage schemes and other landscape evidence of the agricultural improvements that characterised this period – and the extent of intra-regional variability. Environmental analyses of palaeobotanical and faunal assemblages should be encouraged as means of enhancing our knowledge of changes in crop and animal husbandry, including identification of the famously large sheep of the region that have so far eluded detection in archaeological excavations. A variety of other direct and indirect evidence for agricultural improvement may also be expected, and should be sought for'.

4.11 Modern (1750 to present)

Strategic Objective 9B Before the grid: examine the early development of utilities

'The industrialisation of town and country and advances in public health and quality of life were accelerated by the provision from the nineteenth century of piped water, gas, electricity and sewerage facilities... However, the massive scale of later provision has obliterated much early evidence, which it is suggested should be located and recorded to elucidate the earliest phases of development. Water was provided in the eighteenth century from wells, pumps, streams and ponds, sometimes via semi-culverted courses that may have served both people and animals, and piped water supplies and associated structures only developed from the mid-nineteenth century, together with sewerage facilities. Local gasworks, which provided

power principally for domestic and street lighting, emerged in towns from the 1820s, often close to the railway that brought the coal supplies. The major rivers of the East Midlands enabled large-scale production of electricity from the 1890s, augmented by electricity from gasworks; this provided power to urban areas, but many rural areas did not have electricity until the National Grid was established in 1947. It is recommended that surviving physical evidence for the earlier phases of utility provision be identified and recorded in order to clarify the early history of utilities and to permit assessment of variations between town and country and across the region'.

5 Geophysical survey

5.1.1 Geophysical survey is planned for Spring/Summer 2023. This is likely to continue into Autumn 2023 after a hiatus caused by crop constraints. The use of geophysical survey has been determined by the archaeological deposit model and the findings of an Archaeological Desk Based Assessment, see Volume 2, Appendix 20.1.

5.1.2 Geophysical survey is planned for areas of the highest potential for the presence of remains which could either require design modifications and/or significant archaeological mitigation. These areas are shown in Figure 6 and detailed below.

520000 530000 540000 550000 560000 570000

380000 370000 360000 350000 340000 330000

N

LincoInshire Node OnSS Search Area
LN2
LN1
WM1
WM2
WM3
WM4
WM5
A1
A2
WM6
A3
WM7
A4
A5
WM8
WM9
WM10
WM11
WM12
WM13
WM14
Weston Marsh North OnSS Search Area
Weston Marsh South OnSS Search Area

Legend

- Onshore PEIR Boundary
- Onshore Segment Break
- Lincolnshire Node OnSS Search Area
- Weston Marsh North OnSS Search Area
- Weston Marsh South OnSS Search Area
- Geophysical Survey - Area Subject to Targeting

Sources:

Coordinate System: British National Grid

0 5 10 km

Scale: 1:200,000

Preliminary Environmental Information Report

Geophysical Survey
Areas Subject to Targeting

Figure 6

OUTER DOWSING OFFSHORE WIND

Date: 01/06/2023
Produced By: JRS
Revision: 0.1

SLR

5.1.3 These comprise the following areas:

- Segment LN1 to the northern part of segment WM6 and the alternative ECC - due to the overall higher potential for the presence of remains based on the location of the coastline during the Holocene and the AOP identified through geoarchaeological deposit modelling and numerous HER references falling within the PEIR boundary;
- AOP D in segments WM12 and WM14;
- Segment WM10 – an anomalous area which the HER indicates may have not been inundated and may have 'dryland' potential for medieval and Roman periods;
- Targeted locations within the remainder of the PEIR boundary:
  - A16 compound;
  - Remains in the vicinity of a medieval moated site (segment WM11 - Scheduled Monument National Heritage List for England (NHLE) 1018584 – Multon Hall) including Lidar Anomaly 49;
  - Remains in WM6 in the vicinity of a HER entry for a possible medieval hall (MLI41733);
  - Possible remains of salterns, moated sites or medieval dylings as referenced by LiDAR anomalies:
    - Segment WM7 LiDAR anomaly 32;
    - Segment WM8 HER references MLI13174/5 and LiDAR anomaly 33;
    - Segment WM9 LiDAR anomaly 42;
    - Segment WM11 – LiDAR anomaly 51 (included above with survey area adjacent to NHLE 1018584);
    - Segment WM12 – LiDAR anomalies 60 & 57;
    - Segment WM13 LiDAR anomalies 62 and 63; and
    - Segment WM14 LiDAR anomaly 69.

5.1.4 It is anticipated that for (1-3) that the survey will generally be undertaken across a 100m corridor. This is anticipated to represent a corridor within which a final ECC option will sit. Albeit at the proposed Lincolnshire Node substation, which sits within Segment LN2, a wider footprint of survey will reference a greater footprint. Other wider corridors are applied at compound locations and at the transition bay and particularly sensitive areas where the Historic Environment Record references deserted medieval villages or where the corridor sits within proximity to a Scheduled Monument.

5.1.5 It is anticipated that for (4) that the whole footprint of anomalies will be surveyed including a buffer which allows for an understanding of their topographic character within AOP A1.

5.1.6 It is anticipated that a magnetometer (gradiometer survey) is suitable for AOP D and AOP E but that the dual use of electromagnetic survey may be beneficial where tidal mudflats are recorded (generally AOP A2 but AOP A1 in segment WM10 and the targeted areas of segments WM7, WM8, WM9, WM11 and WM13.

5.1.7 The geophysical survey will comprise the electromagnetic and magnetic methods to the specifications set out in Table 1.

Table 1: Geophysical Survey Specifications

Method	Transverse Interval	Sample Interval
Magnetic	1m	0.125m
Electromagnetic Induction – Conductivity and Magnetic Susceptibility	4m	0.25m

5.1.8 The magnetic survey will be used for its ability to identify a range of different subsurface features. The technique is particularly suited to detecting fired or magnetically enhanced features, such as ditches, pits, kilns, sunken featured buildings (SFBs) and industrial activity (David et al., 2008).

5.1.9 Electromagnetic survey is particularly suited for the detection of palaeolandscape features, such as palaeochannels, and deeper conductive targets.

5.1.10 Magnetic and Electromagnetic data will be regularly downloaded and processed to check the data quality. Preliminary greyscale plots will also be submitted to the client in line with the requirements of the programme.

5.1.11 Magnetic and Electromagnetic processing will confirm to the EAC and Historic England guidelines for 'minimally enhanced data' (see Segment 3.8 in Schmidt et al., 2015: 33 and Segment IV.2 in David et al., 2008: 11). Data plots contained within the report also conform to these guidelines. This may include:

- Zero Median Traverse – The median of each sensor traverse will be calculated within a specified range and subtracted from the collected data. This removes striping effects caused by small variations in sensor electronics;
- Projection to a Regular Grid – Data collected using RTK GPS positioning requires a uniform grid projection to visualise data. Data will be rotated to best fit an orthogonal grid projection and are resampled onto the grid using an inverse distance-weighting algorithm; and
- Interpolation to Square Pixels – Data will be interpolated using a bicubic algorithm to increase the pixel density between sensor traverses. This produces images with square pixels for ease of visualisation.

5.1.12 Positional referencing should provide that data-points be located on the ground to survey grade accuracy (±0.1 m). To allow the geophysical data to be used as part of the national archaeological site archive the survey grid should be independently re-locatable on the ground by a third party, by measurement to local permanent features, and/or by the use of GPS/GNSS coordinates.

5.1.13 Multiple greyscale images at different plotting ranges will be used for data interpretation, total field data from the sensors will also be used where appropriate.

5.1.14 Geophysical results will be interpreted using greyscale images and XY traces in a layered environment, overlaid against OS Open Data, satellite imagery, historical maps, LiDAR data, and soil and geology mapping. Google Earth (2023) will also be consulted, to compare the results with recent land use.

5.1.15 Geodetic position of results – All vector and raster data will be projected into OSGB36 (ESPG27700) and provided upon request in ESRI Shapefile (.SHP) and Geotiff (.TIF) respectively. Figures will be provided with raster and vector data projected against OS Open Data/vector mapping.

5.1.16 Project management, survey work, data processing and report production will be carried out by qualified and professional geophysicists to standards exceeding the current best practice (CIfA, 2020; David et al., 2008, Schmidt et al., 2015).

5.1.17 A detailed report of the survey will be produced after data collection is completed. The Planning Archaeologist will be provided with a draft report for approval, and the approved report will be submitted to the HER. The final report will include as standard:

- Abstract;
- Introduction – Details survey location and client details;
- Quality Assurance – Details the expertise of Magnitude Surveys and Magnitude Surveys employees undertaking the work;
- Objectives – Details survey objectives;
- Geographic Background – Details the soils and geology of the survey area, as well as providing a general summary of site conditions at time of survey;
- Survey Considerations – Details specific points of note for each survey area, including topography, upstanding obstructions or neighbouring objects;
- Archaeological Background – Details a brief summary of the archaeological and historical background of the survey area and its immediate environs. While this will not be an exhaustive assessment, it will draw on elements relevant to the results obtained during survey;
- Methodology – Details survey strategy employed, instruments used, data collection strategy, data processing and visualisation methods;
- Results – Details the results and interpretation of the geophysical survey, both in a general context and in terms of specific anomalies of archaeological interest. Geophysical results will be discussed in combination with satellite imagery, historical mapping and LiDAR data - if freely available - as supporting interpretative evidence;
- Conclusions;
- Archiving;
- Copyright;
- References; and
- Figures – The survey location and individual survey areas will be presented. Georeferenced greyscale images of the minimally enhanced data, XY traces and corresponding interpretations will be displayed at appropriate scales. Interpretations will also be displayed over satellite imagery, historical mapping and LiDAR - as applicable - to provide further context for the interpretations. All figures will include a detailed scale bar, north arrow and key.

5.1.18 All geophysical survey should be undertaken in accordance with an approved Written Scheme of Investigation which will be developed, in conjunction with the geophysical survey contractor, when appointed .

6 Geoarchaeological monitoring of geotechnical site investigation

6.1.1 In Spring 2023 twenty-five locations will be subject to a Geotechnical Site Investigation (SI). Further SI is planned post determination, see Table 1.

6.1.2 Geoarchaeological monitoring of SIs is recommended to allow the updating of the geoarchaeological deposit model.

6.1.3 The monitoring, or "watching brief" is intended to watch intrusive works associated with the Site Investigations.

6.1.4 The archaeological contractor will stipulate that during their presence intrusive groundworks are carried out using a mechanical excavator fitted with a toothless ditching bucket to maximise the chance for identification of archaeological remains should they be present. However, a toothed bucket may be necessary in areas where substantial obstacles are present.

6.1.5 All machine excavation subject to the watching brief will be done under the close supervision of a suitably experienced geoarchaeologist.

6.1.6 If possible, profiles through the alluvium will be examined in segment. If access into the trenches is not feasible, the alluvial deposits will be recorded by examining spoil brought up from the excavation by machine bucket. Depths of the sequences will be recorded by measuring down from the side of the excavation if safe to do so.

6.1.7 Significant features and/or layers of alluvial stratigraphy revealed during the investigations may require sampling if deemed necessary by the monitoring archaeologist. The strategy and methodology for the sampling of deposits with palaeo-environmental potential will be discussed with the Historic England Regional Science Advisor and in accordance with English Heritage Centre for Archaeology Guidelines, 'Environmental Archaeology – A guide to the theory and practice of methods, from sampling and recovery to post-excavation' (2011).

7 Trial trenching

7.1 Overview

7.1.1 Trial trenching to date and characterise geophysical anomalies of potential high importance should be undertaken after geophysical survey and prior to determination. With stakeholder agreement the predetermination trial trenching may straddle submission and examination – Autumn 2023 – duration of 2024.

7.1.2 In the first instance predetermination trial trenching is planned for areas of the highest potential for the presence of remains which could either require design modifications and/or significant archaeological mitigation.

7.1.3 A necessity for predetermination trial trenching is considered likely in the following circumstances:

- The footprint and vicinity of geophysical anomalies indicative of the presence of remains of potential high (national) importance and/or the presence of remains which may require significant mitigation or avoidance.
- Areas of near surface peat as identified within the geoarchaeological deposit model (AOP B) due to the potential for remains of high importance such as waterlogged wood which may require significant mitigation.
- Sea walls of potential medieval date as identified by LiDAR and/or HER references due to their potential high (national) significance.
- Areas of medieval settlement as identified by the HER due to their potential for remains of high (national) significance; and
- The footprint of the OnSS due to its relative footprint and depth of construction disturbance.

7.1.4 Outside of the above parameters, additional trial trenching should be considered during the determination period to test blank areas (but not within AOP A1) or areas of lesser potential where programme and other constraints allow i.e., it is acknowledged that where possible trenching beyond the targeting referenced above would be beneficial in informing a post consent programme and strategy.

7.1.5 A broad trial trenching method is provided below but all trial trenching should be undertaken in accordance with an approved Written Scheme of Investigation, agreed with the Lincolnshire Historic Environment Advisor and Historic England.

7.1.6 In all instances the requirements for trial trenching as set out within the Lincolnshire Handbook should take precedence over any broad method set out below[2].

[2] https://www.lincolnshire.gov.uk/downloads/file/2204/archaeology-handbook-pdfa

7.2 Setting Out

7.2.1 The trial trenches will be set out in locations agreed with the Historic Environment Officer and Historic England. The trench locations will be identified using survey-grade Differential GPS (DGPS) equipment, with either end of each trench marked out on the ground using either marker spray, wooden stakes and/or survey flags, ahead of excavation.

7.2.2 Where it transpires that unanticipated Site conditions/constraints, e.g. un-mapped services, prohibit the excavation of a given trench in its proposed location, then a reasonable alternative location/orientation will be sought for the trench, within the context of the investigation aims and objectives. In the event that significant trench re-location is required then the Archaeological Contractor will inform the Archaeological Consultant, who will then agree an acceptable new location with the Lincolnshire Historic Environment Officer and Historic England.

7.3 Service scanning

7.3.1 Ahead of any excavation taking place, the length of each trench, as set out, will be scanned using an industry standard Cable Avoidance Tool (CAT) and Signal Generator (Genny) system. The scan will be performed by a suitably qualified operator.

7.4 Trial trench excavation

7.4.1 Each trial trench will be machine-excavated:

- Using a suitably sized 360° mechanical excavator fitted with a toothless ditching/grading bucket;
- Under the full supervision and control of a suitably qualified and experienced archaeologist; and
- To the depth of agreed excavation or the upper-most archaeological horizon (whichever is encountered first).

7.4.2 Should the supervising archaeologist identify any potential archaeological remains during the excavation of the trenches, this will be communicated to the machine operator. Excavation of the trench will then cease while the supervising archaeologist examines the remains and/or marks-up any identified archaeological features. Once the supervising archaeologist is satisfied, machine excavation will re-commence.

7.4.3 Once a trial trench has been fully machine-excavated to the satisfaction of the archaeological supervisor, either:

- Any identified archaeological features/potential features will be hand-investigated, consistent with the Lincolnshire Handbook; or
- The blank trench will be recorded to a proportionate extent.

7.5 Investigation and Sampling Strategy

7.5.1 Archaeological features will be sampled sufficiently to characterise, date them and determine their significance i.e. 10% of fills of linear features (unless the linear features are substantial in which case an alternative sampling strategy will be discussed with the Lincolnshire Historic Environment Advisor) and 50% of pit fills. Smaller discrete features such as postholes will be 100% sampled.

7.5.2 Measures will be taken to protect particularly significant, valuable, or sensitive archaeological remains from exposure, accidental damage and/or theft.

7.6 Recording

7.6.1 Regardless of whether they are found to contain archaeological features, all trial trenches will be photographed following excavation, with written descriptions of the stratigraphic sequence (including depths bpgl) and a photograph of a representative segment taken. Where trial trenches are found to contain archaeological features, recording will then include:

- A pro-forma context record for each stratigraphic unit revealed[3];
- A record of any areas identified as being devoid of archaeological remains and of any features investigated and confirmed to be of natural origin;
- A 'Harris Matrix' diagram to elucidate any complex stratigraphic sequences;
- Site plans, either DGPS-recorded, or hand-drawn at a scale of 1:100, and depicting:
  - The extent of the mitigation area, tied into the Ordnance Survey National Grid and located on a 1:2,500 scale plan;
  - The extent of all stratigraphic units revealed; and
  - Appropriate detail identified within stratigraphic units;
- Plans of stratigraphic units at a minimum scale of 1:20, unless specific circumstances dictate an optimal scale;
- Segments of stratigraphic units at an appropriate scale. Unless specific circumstances dictate an optimal scale, then this should be a minimum of 1:20. For areas of detailed, significant or complex stratigraphy the scale used should be a minimum of 1:10;[4]
- A photographic record comprising recognised industry-quality digital SLR photographs, with a minimum resolution of 10 mega-pixels and saved as high quality .jpg files
- Numerical indices of all context records, drawings, photographs, samples and small finds, checked and cross-referenced as necessary; and
- A diary record of the progress of the archaeological work, including details of liaison and monitoring meetings, site visits, and a record of staff on site.

[3] Typically, this would relate to any individual 'context' identified within a single archaeological intervention. However, there may be occasions where a context evidently recurs within multiple interventions, most commonly in relation to linear features. In such instances, it may optimise the intelligibility of the information derived, and aid in its interpretation, for a single context record to be compiled.

[4] All scale drawings will include spot heights relative to the Ordnance Datum in metres, correct to two decimal places.

7.6.2 All of the above records will form part of the eventual Project archive, to be deposited with a suitable repository upon completion of the Project.

7.6.3 All archaeological recording will be undertaken in accordance with industry best practice, including the Standard and guidance for archaeological field evaluation (CIfA, 2014).

7.7 Human Remains

7.7.1 Should human remains be encountered, they will initially be left in situ, suitably covered and secured, in compliance with industry best practice. The Archaeological Contractor will notify the Archaeological Consultant, who will then inform both the client and the Lincolnshire Historic Environment Advisor.

7.7.2 Following this initial consultation, the removal of human remains, if required, will only take place in accordance with a Ministry of Justice exhumation license, the appropriate Environmental Health regulations and the Burial Act 1857.

7.7.3 The Archaeological Contractor will be responsible for applying for an exhumation license from the Ministry of Justice, and, once in receipt, for ensuring that the provisions of that license are complied with.

7.8 Finds Recovery and Processing

7.8.1 All artefacts recovered during the course of the archaeological evaluation by trial trenching are the property of the landowner/Client. They will be suitably bagged, boxed and marked in accordance with the Standards and Guidance for the Collection, Conservation and Research of Archaeological Materials (CIFA 2014c) and the Standard and Guide to Best Practice for Archaeological Archiving in Europe (Perrin et al. 2014).

7.8.2 All artefacts revealed will be recovered regardless of date so that the provisional dating of as many contexts as possible can be ascertained. In circumstances where the quantity of finds present preclude total recovery then a representative sample will be taken and this noted on the context sheet.

7.8.3 On completion of the Project modern material, unstratified remains and objects that have been assessed as having no obvious grounds for retention will be discarded after a period of six months, unless there is a specific request to retain them (and subject to the collection policy of the relevant depository).

7.8.4 The primary archive records will clearly state how all artefact assemblages have been recovered, sub-sampled and processed.

7.9 Treatment of Treasure

7.9.1 The Treasure Act 1996 (the “Treasure Act”) sets out the precious metal content required for a find to qualify as treasure; and it extends the definition of treasure to include other objects found in archaeological association with finds of treasure. Six categories of object are now classed as treasure under the Treasure Act and the Treasure (Designation) Order 2002:

- Any object other than a coin which is at least 10% silver or gold by weight and more than 300-years old;

- Any coins that are at least 10% silver or gold by weight and come from a single find, provided the find contains at least two coins with a gold or silver content of at least 10%. The coins must be at least 300 years old at the time of discovery. Where finds consist of coins that are less than 10% gold or silver by weight, there must be at least 10 coins in the find and they must be at least 300 years old at the time of discovery for the find to be considered treasure;
- Any object, of whatever, composition, that is found in the same place as, or that had previously been together with, another object that is treasure;
- Any object (other than a coin), any part of which is base metal, which, when found is one of at least two base metal objects in the same find which are of prehistoric date;
- Any object, (other than a coin) which is of prehistoric date, and any part of which is gold or silver; and
- Any object that would previously have been treasure trove but does not fall within the specific categories given above.

7.9.2 Intentional non-reporting can lead to imprisonment for up to three months, a fine of up to £5,000 (level five), or both. The coroner is to take reasonable steps to inform occupiers and landowners of finds of treasure from their land and that they will be eligible for any rewards.

7.9.3 If any objects are recovered that are deemed to potentially qualify as treasure, the Archaeological Contractor will inform the Archaeological Consultant, who will then inform the client, and consult with the Lincolnshire County Council Finds Liaison Officer to determine the object's status.

7.9.4 Should any treasure be discovered, it will be removed, if possible, to a secure location; ideally, it will be deposited with the Finds Liaison Officer. Where removal from site is not practical on the same working day as the discovery, suitable security measures will be put in place to protect the find from damage, loss or theft.

7.9.5 Upon discovery of any treasure, the local coroner must be informed within fourteen days of discovery, in accordance with section 8 of the Treasure Act and the Treasure Act 1996 Code of Practice and its amendments ("Code of Practice"). In accordance with those provisions, the local coroner is specified in Section 2.5.

7.9.6 The Archaeological Contractor will ensure that the provisions of the Treasure Act and Code of Practice are complied with and that all relevant parties are kept informed. A list of finds which have been collected and which fall under the Treasure Act will be included within the fieldwork report.

7.10 Paleoenvironmental Sampling

7.10.1 A detailed strategy for the sampling and recording will be devised by the Project palaeo-environmental specialist, in consultation with the Lincolnshire Historic Environment Advisor, Historic England and the Client.

7.10.2 If deposits with the potential to yield palaeo-environmental or micro-artefactual data are identified, a programme of archaeological sampling will be undertaken in accordance with the following general protocol:

- Samples will be recovered from cleaned surfaces, using clean tools and placed in clean containers;
- Samples will be appropriately recorded and labelled, and a register of all samples recovered will be maintained; and
- The samples will be stored safely in a sufficiently secure location prior to their delivery to the appropriate specialist.

7.10.3 If required, bulk samples of 40 litres or 100% of <40l features will be taken for flotation and subsequent recovery of charred plant remains and associated small bones or industrial debris, with initial assessment consisting of:

- 10 litre sub-samples from waterlogged deposits for wet sieving and examination for biological remains;
- 5 litre sub-samples from dry deposits to assess their potential; and
- Full processing of any samples considered to warrant further assessment.

7.10.4 Issues to be addressed through sampling would include chronological and spatial variation within the site sequence.

7.10.5 Any sampling would be undertaken in accordance with Historic England's 'Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record' (2015).

7.10.6 Should any palaeo-environmental deposits of particular interest be revealed, the Historic England Regional Science Advisor will be contacted, and their advice sought in respect of an appropriate further sampling strategy. The relevant remote sensing archaeology (RSA) is set out in segment 7.

7.11 Staffing

7.11.1 The Project will be directly managed by a full Member of the Chartered Institute for Archaeologists or an archaeologist of equivalent standing.

7.11.2 The standards and codes of conduct of the Chartered Institute for Archaeologists will be adhered to at all times.

7.11.3 Details of specialists will be provided to the archaeological advisors to the Historic Environment Officer for Lincolnshire and Historic England as necessary.

7.12 Reporting

Interim Reporting

7.12.1 Interim reporting is likely to be required to inform either the Onshore Archaeology and Cultural Heritage chapter of the Environmental Statement or Environmental Improvement Plan (EIP) should the trial trenching be being undertaken post submission.

Assessment Report

7.12.2 As a minimum, this assessment report will include:

- A summary of the Project's background and results;

- Compilation of a site narrative;
- An interpretation of the results in an appropriate context;
- An assessment of the stratigraphic and other written, drawn and photographic records;
- A catalogue and assessment of each category of artefact recovered during the excavation (including a conservation assessment), and a discussion of appropriate discard policy;
- A catalogue and assessment of all faunal remains and a discussion of appropriate discard policy;
- Processing and sorting of all soil samples, and a catalogue and assessment of ecofacts;
- An impact assessment referencing the proposed scheme;
- A summary of the potential for further analysis (post excavation) if appropriate;
- An appendix containing a list and summary description of all contexts recorded; and
- A summary of the contexts of the Project archive and its location.

7.12.3 The evaluation (assessment) report will be accompanied by plans, segments and photographs where appropriate.

7.12.4 In the event that analysis of finds and samples (in addition to processing and assessment) is required to determine the necessity for further fieldwork, a revised timetable for report production would be agreed with the Client. However, this level of reporting, if required, could be delayed and form part of reporting undertaken as a condition to the DCO consent if this is applicable.

Dissemination

7.12.5 The Project will be registered with the Online AccesS to the Index of archaeological investigationS (OASIS), where a digital copy of the report will be made available.

7.12.6 A summary of the work will be submitted to the editor of a suitable Archaeological Journal should the results of the fieldwork warrant this.

Archive Preparation and Deposition

7.12.7 The Archaeological Contractor will make arrangements for the deposition of the site archive with the appropriate archive.

7.12.8 The site archive will include all Project records and cultural material produced by the watching brief and will be prepared in accordance with Archaeological Archives Forum and EAC guidance (Brown 2011; EAC 2014). Any additional guidelines from the archive regarding the deposition of the site archive will also be followed.

Health and Safety

7.12.9 Site staff will have an appropriate level of training to enable them to carry out fieldwork safely. Appropriate personal protective equipment (PPE) as directed by the Client will be worn by field staff at all times.

7.12.10 The Client will be requested to provide details of their own risk assessment and specify PPE required before fieldwork commences.

7.12.11 The Archaeological Contractor will abide by the Client's health and safety methodology as well as producing their own internal risk assessment and method statement document as required. If there is conflict between the Client's risk assessment and that of the Archaeological Contractor's then the Client's will take priority, unless it is perceived to be placing the field team at greater risk.

7.12.12 All staff will assist the client in maintaining the Site in a safe condition. Hazards will be appropriately identified and managed including identification of buried and above ground services/utilities.

7.12.13 In addition to the risk assessment and method statement, where appropriate a Control of Substances Hazardous to Health (COSHH) assessment will also be undertaken. Once on Site these documents will be assessed, and any variations will be highlighted and added to the appropriate assessment. These will be re-evaluated periodically during the course of the fieldwork to make sure that they remain consistent to the Site-specific risks. All staff and visitors will be required to be inducted and sign these documents on first arrival to Site to show that they have read and understood the contents and any variations will be communicated as required.

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