

Outer Dowsing Offshore Wind

Environmental Statement

Chapter 20: Onshore Archaeology and Cultural Heritage

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Table of Contents

Acronyms & Definitions.....	4
Abbreviations / Acronyms	4
Terminology.....	4
Reference Documentation	7
20 Onshore Archaeology and Cultural Heritage.....	8
20.1 Introduction.....	8
20.2 Statutory and Policy Context	8
20.3 Consultation	24
20.4 Baseline Environment.....	41
20.4.1 Study Area	41
20.4.2 Data Sources	41
20.4.3 Existing Environment - Archaeology.....	42
20.4.4 Existing Environment - Cultural Heritage	55
20.4.5 Future Baseline	58
20.5 Basis of Assessment.....	59
20.5.1 Scope of the Assessment.....	59
20.5.2 Realistic Worst-Case Scenario	59
20.6 Assessment Methodology	66
20.6.1 Assumptions and Limitations	68
20.7 Impact Assessment.....	69
20.7.1 Construction	69
20.7.2 Operations and Maintenance.....	87
20.7.3 Decommissioning	89
20.8 Mitigation	90
20.9 Cumulative Impact Assessment.....	90
20.9.1 Naylor's Farm Application	90
20.9.2 National Grid Substation	92
20.10 Inter-Relationships	95
20.11 Transboundary Effects.....	95
20.12 Conclusions.....	95
References.....	111

Table of Tables

Table 20.1 Legislation and policy context	9
Table 20.2: Summary of consultation relating to Archaeology and Cultural Heritage	25
Table 20.3: Archaeological Potential Summary Table	49
Table 20.4: Maximum design scenario for Onshore Archaeology and Heritage for the Project alone	61
Table 20.5: Embedded mitigation relating to Onshore Archaeology and Cultural Heritage	65
Table 20.6: Impact magnitude definitions	66
Table 20.7: Sensitivity/importance of the environment	67
Table 20.8: Matrix to determine effect significance	68
Table 20.9: Permanent direct impacts to buried archaeological remains.	74
Table 20.10: In-direct Temporary Impacts – Construction Phase	81
Table 20.11: Direct Temporary Impacts – Construction Phase	86
Table 20.12: Indirect Permanent Impacts – Operational Phase	87
Table 20.13: Indirect Temporary Impacts – Decommission Phase	89
Table 20.14: Potential Common Archaeology Receptors with the Naylor's Farm Application.....	91
Table 20.15: Potential Common Heritage Receptors with the Naylor's Farm application	92
Table 20.16: Potential Common Archaeology Receptors with the NGSS	93
Table 20.17: Potential Common Heritage Receptors with the NGSS	94
Table 20.18: Summary of the Residual Impacts for each Effect.....	97

Table of Figures (Volume 2)

Chapter 20 does not contain any figures.

Table of Appendices (Volume 3)

- Appendix 20.1 Onshore Archaeology and Cultural Heritage Desk-Based Assessment
- Appendix 20.2 Onshore Archaeology and Cultural Heritage - Heritage Statement

Acronyms & Definitions

Abbreviations / Acronyms

Abbreviation / Acronym	Description
AAI	Area of archaeological interest
AOP	Areas of Potential
BGL	Below ground level
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DBA	Desk Based Assessment
DMRB	Design Manual for Roads and Bridges
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EMHERF	East Midlands Environment Historic Research Framework
EN	National Planning Policy Statement for Energy
EPP	Evidence Plan Process
ES	Environmental Statement
ETG	Expert Topic Group
HER	Historic Environment Record
HS	Heritage Statement
IPC	Infrastructure Planning Commission
LVIA	Landscape Visual Impact Assessment
NHLE	National Heritage List for England
MDS	Maximum Design Scenario
NPPF	National Planning Policy Framework
NSIP	Nationally Significant Infrastructure Projects
ODOW	Outer Dowsing Offshore Wind
OnSS	Onshore Substation
PAS	Portable Antiquity Scheme
PEIR	Preliminary Environmental Information Report
RPG	Registered Park and Garden
TJB	Transition Joint Bay
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Study

Terminology

Term	Definition
400 kV cables	High-voltage cables linking the OnSS to the NGSS.
400kV cable corridor	The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated.
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, TotalEnergies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF.

Term	Definition
Baseline	The status of the environment at the time of assessment without the development in place.
Connection Area	An indicative search area for the NGSS.
Cumulative effects	The combined effect of the Project acting cumulatively with the effects of other developments, on the same single receptor/resource.
Cumulative impacts	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the sensitivity of the receptor, in accordance with defined significance criteria.
EIA Directive	European Union 2011/92/EU (as amended in 2014 by Directive 2014/52/EU).
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Environmental Impact Assessment (EIA) Regulations, including the publication of an Environmental Statement (ES).
Environmental statement (ES)	The suite of documents that detail the processes and results of the EIA.
Evidence Plan	A voluntary process of stakeholder consultation with appropriate Expert Topic Groups (ETGs) that discusses and, where possible, agrees the detailed approach to the Environmental Impact Assessment (EIA) and information to support Habitats Regulations Assessment (HRA) for those relevant topics included in the process, undertaken during the pre-application period.
Export cables	High voltage cables which transmit power from the Offshore Substations (OSS) to the Onshore Substation (OnSS) via an Offshore Reactive Compensation Platform (ORCP) if required, which may include one or more auxiliary cables (normally fibre optic cables).
Haul Road	The track within the onshore ECC which the construction traffic would use to facilitate construction.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Joint bays	An excavation formed with a buried concrete slab at sufficient depth to enable the jointing of high voltage power cables.
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.
Link boxes	Underground metal chamber placed within a plastic and/or concrete pit where the metal sheaths between adjacent export cable sections are connected and earthed.
Maximum Design Scenario	The project design parameters or a combination of project design parameters that are likely to result in the greatest potential for change in relation to each impact assessed.
Mitigation	Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of

Term	Definition
	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.
National Grid Onshore Substation (NGSS)	The National Grid substation and associated enabling works to be developed by the National Grid Electricity Transmission (NGET) into which the Project's 400kV Cables would connect.
National Policy Statement (NPS)	A document setting out national policy against which proposals for Nationally Significant Infrastructure Projects (NSIPs) will be assessed and decided upon.
Offshore Reactive Compensation Platform (ORCP)	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents) housing electrical reactors and switchgear for the purpose of the efficient transfer of power in the course of HVAC transmission by providing reactive compensation
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 Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid
Outer Dowsing Offshore Wind (ODOW)	The Project.
Order Limits	The area subject to the application for development consent. The limits shown on the works plans within which the Project may be carried out.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Preliminary Environmental Information Report (PEIR)	The PEIR was written in the style of a draft Environmental Statement (ES) and provided information to support and inform the statutory consultation process during the pre-application phase.
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.
Project design envelope	A description of the range of possible elements that make up the Project's design options under consideration, as set out in detail in the project description. This envelope is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Study Area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.

Term	Definition
Transboundary impacts	Transboundary effects arise when impacts from the development within one European Economic Area (EEA) state affects the environment of another EEA state(s).
Transition Joint Bay (TJBs)	The offshore and onshore cable circuits are jointed on the landward side of the sea defences/beach in a Transition Joint Bay (TJB). The TJB is an underground chamber constructed of reinforced concrete which provides a secure and stable environment for the cable.
Trenchless techniques	Trenchless technology is an underground construction method of installing, repairing, and renewing underground pipes, ducts and cables using techniques which minimize or eliminate the need for excavation. Trenchless technologies involve methods of new pipe installation with minimum surface and environmental disruptions. These techniques may include Horizontal Directional Drilling (HDD), thrust boring, auger boring, and pipe ramming, which allow ducts to be installed under an obstruction without breaking open the ground and digging a trench.

Reference Documentation

Document Number	Title
6.1.3	Project Description
6.1.6	Consultation
6.1.24	Hydrology, Hydrogeology and Flood Risk
6.1.26	Noise and Vibration
6.1.27	Traffic and Transport
6.1.28	Landscape and Visual Assessment
6.3.20.1	Onshore Archaeology and Cultural Heritage Desk-Based Assessment
6.3.20.2	Cultural Heritage - Heritage Statement
6.3.32.1	Cumulative Effects Assessment Approach
8.9	Outline Onshore Written Scheme of Investigation
8.13	Schedule of Mitigation

20 Onshore Archaeology and Cultural Heritage

20.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of Outer Dowsing Offshore Wind (“the Project”) on Onshore Archaeology and Cultural Heritage. Specifically, this chapter considers the potential impact of the Project from the Landfall, along the Onshore Export Cable Corridor (ECC) and 400 kV cable corridor and the Onshore substation (OnSS) during the construction, operation and maintenance, and decommissioning phases.
2. GT R4 Ltd (trading as Outer Dowsing Offshore Wind), hereafter referred to as the 'Applicant', is proposing to develop the Project. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) located approximately 54km from the Lincolnshire coastline, export cables to landfall, onshore cables, an onshore substation, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description (document reference 6.1.3) for full details). This chapter is supported by and summarises the baseline information contained within a Heritage Statement (HS) and an Archaeological Desk Based Assessment (DBA). These are provided within Volume 3, Appendix 20.1: Onshore Archaeology (document reference 6.3.20.1) and Cultural Heritage Desk-Based Assessment and Volume 3, Appendix 20.2: Onshore Archaeology and Cultural Heritage - Heritage Statement (document reference 6.3.20.2).
3. This chapter or the supporting appendices referenced above also reference pertinent findings within the following chapters presented in Volume 1 of the ES:
 - Chapter 24 Onshore Hydrology, Hydrogeology and Flood Risk (document reference 6.1.24);
 - Chapter 26 Noise and Vibration (document reference 6.1.26);
 - Chapter 27 Traffic and Transport (document reference 6.1.27); and
 - Chapter 28 Landscape and Visual Assessment (document reference 6.1.28).

20.2 Statutory and Policy Context

4. The applicable legislation and planning policy is summarised as follows.
 - The Infrastructure Planning (Decisions) Regulations 2010, regulation 3;
 - National Planning Policy Framework (NPPF) (2023);
 - National Planning Policy Statement for Energy (EN-1) (2023);
 - East Lindsey Local Plan (2018); and
 - South East Lincolnshire Local Plan 2011-2036 (2019).
5. This is set out within Table 20.1 below.

Table 20.1 Legislation and policy context

Legislation/policy	Key provisions	Section where comment addressed
The Infrastructure Planning (Decisions) Regulations 2010, regulation 3	(1) When deciding an application which affects a listed building or its setting, the Secretary of State must have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses.	The HS identifies the presence/absence of Listed Buildings and Conservation Areas within the Order Limits and a search area of up to 5km. It then assesses the potential for adverse effects/harm to Listed Buildings and Conservation Areas through setting change. Where necessary and possible, special regard to the setting of a Listed Building or attention to preserving or enhancing the character of a Conservation Area has been referenced through embedded design mitigation. The implementation of embedded mitigation is referenced within the proposed planting set out within LVIA Chapter 28 (document reference 6.1.28.15). The avoidance of construction traffic through relevant Conservation Areas is set out within the Outline Construction Traffic Management Plan (CTMP) (document reference 8.15).
	(2) When deciding an application relating to a conservation area, the Secretary of State must have regard to the desirability of preserving or enhancing the character or appearance of that area.	
	(3) When deciding an application for development consent which affects or is likely to affect a scheduled monument or its setting, the Secretary of State must have regard to the desirability of preserving the scheduled monument or its setting.	The DBA identifies the presence/absence of Scheduled Monuments within the Order Limits and has identified one Scheduled Monument – Abbey Hills Moated Site (NHLE 1016044) where measures may be required to preserve the monument as set out within Schedule of Mitigation – document reference 8.13. The HS identifies the presence/absence of Scheduled Monuments within the Order Limits and a search area of up to 5km. It then assesses the potential for adverse effects/harm through setting change.
National Planning Policy Framework Chapter 16 Conserving and	In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by	The HS provides proportionate statements of significance for potentially affected assets. This has allowed for the assessment of the

Legislation/policy	Key provisions	Section where comment addressed
Enhancing the historic environment - Paragraph 200	their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.	potential impact to assets through setting change. The DBA provides statements of significance for potential archaeological remains. The DBA references the results of field evaluation comprising a watching brief of site investigations and targeted magnetometer geophysical survey and electromagnetic geophysical survey. It is noted that the targeted geophysical survey has included the footprint of the Transition Joint Bays, the only part of the Order Limits where significant impacts may have been predicted on the basis of historic geography and archaeological potential but where a potential for preservation in situ is not possible (see submission documents Figure 3.4.7 and the schedule of Mitigation - document reference 8.13). At all other locations within the Order Limits where significant impacts could occur (in reference to historic geography and resulting archaeological potential) the indicative onshore infrastructure as set out in Figure 3.4.7 and the Schedule of Mitigation (document 8.13) provide for the preservation in situ of remains of national importance should it be required.
National Planning Policy Framework Chapter 16 Conserving and Enhancing the	When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater	Paragraph 205 of the NPPF will be applied by the decision maker.

Legislation/policy	Key provisions	Section where comment addressed
historic environment – Paragraph 205	the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.	
National Planning Policy Framework Chapter 16 Conserving and Enhancing the historic environment – Paragraph 206	Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of: a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional; b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly Exceptional¹	From the findings of the HS and the DBA, it is anticipated that Paragraph 206 of the NPPF will not be engaged.
National Planning Policy Framework Chapter 16 Conserving and Enhancing the historic environment – Paragraph 207	Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply: a) the nature of the heritage asset prevents all reasonable uses of the site; and b) no viable use of the heritage asset itself can be found in the medium term	From the findings of the HS and the DBA, it is anticipated that Paragraph 207 of the NPPF will not be engaged.

¹ Non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

Legislation/policy	Key provisions	Section where comment addressed
	through appropriate marketing that will enable its conservation; and c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and d) the harm or loss is outweighed by the benefit of bringing the site back into use.	
National Planning Policy Framework Chapter 16 Conserving and Enhancing the historic environment - Paragraph 208	Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.	Where harm to designated heritage assets is identified within the HS it will be justified by the public benefits of the Project which relate to a secure electricity supply and the heritage capital released by any archaeological fieldwork.
National Planning Policy Framework Chapter 16 Conserving and Enhancing the historic environment – Paragraph 209	The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset	Paragraph 209 will be applied by the decision maker with reference to the effects identified within the ES.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.9	The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA, and describe these along with how the mitigation hierarchy has been applied in the ES (see Section 4.3). This should include consideration of heritage assets above, at, and below the surface of the ground. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. The assessment should include reference to any historic landscape or seascape character assessment and associated studies as	The ES chapter, supported by the DBA and the HS, provide a sufficient level of information to understand the likely significant heritage impacts. Assets above, at and below ground have been considered and impact to Historic Landscape Character has been assessed. Impacts are presented in section 20.7.

Legislation/policy	Key provisions	Section where comment addressed
	a means of assessing impacts relevant to the proposed project.	
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.10	As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.	The DBA provides statements of significance for potential archaeological remains. The HS provides proportionate statements of significance for potentially affected assets. These are provided in proportion to the importance of assets and the level of impact anticipated.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.11	Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to explain the impact.	The DBA references the results of field evaluation comprising a watching brief of site investigations, magnetometer geophysical survey and electromagnetic geophysical survey. It is noted that the targeted geophysical survey has included the footprint of the Transition Joint Bay, the only part of the Order Limits where significant impacts may have been predicted on the basis of historic geography and archaeological potential but where a potential for preservation in situ is not possible (see submission documents Figure 3.4.7 and the schedule of Mitigation - document reference 8.13). At all other locations within the Order Limits where significant impacts could

Legislation/policy	Key provisions	Section where comment addressed
		occur (in reference to historic geography and resulting archaeological potential) the indicative onshore infrastructure as set out in Figure 3.4.7 and the Schedule of Mitigation (document 8.13) provide for the preservation in situ of remains of national importance should it be required Further geophysical survey and trial trenching will be carried out post EIA as well as post consent works set out within the OWSI (document reference 8.9). These works will support the preservation in-situ of remains of national importance commitment. In these circumstances the baseline presented is considered adequate for the determination of the DCO. Visualisations of the OnSS are provided and include computer generated images of the proposals from viewpoints relevant to heritage assets, see Figures 6.2.28.17-27.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.12	The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents. Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected.	The information provided within the HS and DBA provides for an understanding of which assets may experience adverse impact/harm.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.13	The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the	The proposals do not offer opportunities to enhance or to better reveal the significance of heritage assets.

Legislation/policy	Key provisions	Section where comment addressed
	significance of heritage assets affected. This can include, where possible: ■ enhancing, through a range of measures such a sensitive design, the significance of heritage assets or setting affected ■ considering where required the development of archive capacity which could deliver significant public benefits. ■ considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to, or interpretation, understanding and appreciation of, the heritage assets affected by the scheme.	
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.14	Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary, or permanent.	The impacts identified within this ES, and assessed in section 20.7 of this chapter, are classified as direct, indirect, temporary or permanent. With regard to the potential impacts to heritage assets through setting change, permanent impacts have been avoided by mitigation planting. This is set out within the HS.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.15	Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.	The proposals do not offer opportunities to enhance or to better reveal the significance of heritage assets.
National Statement for Energy – EN-1 (2023) –	Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and	An Outline Written Scheme of Investigation for Archaeological Works (document reference 8.9) has been prepared setting out a

Legislation/policy	Key provisions	Section where comment addressed
Mitigation Paragraphs 5.9.17-5.9.21	- advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the asset's importance and significance and the impact. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant Historic Environmental Record. They should also be required to deposit the archive generated in a local museum or other public repository willing to receive it. Where appropriate, the Secretary of State will impose requirements on the Development Consent Order to ensure that the work is undertaken in a timely manner, in accordance with a written scheme of investigation that complies with the policy in this NPS and which has been agreed in writing with the relevant local authority, and to ensure that the completion of the exercise is properly secured. Where the loss of significance of any heritage asset has been justified by the applicant on the merits of the new development and the significance of the asset in question, the Secretary of State should consider: ▪ imposing a requirement in the Development Consent Order ▪ requiring the applicant to enter into an obligation. That will prevent the loss occurring until the relevant part of the development has commenced, or it is reasonably certain that the relevant part of the development is to proceed.	framework for all WSIs to be prepared in respect to archaeological fieldwork. All WSIs prepared in reference to the OWSI would be implemented after the written agreement of the local authority. The archaeological work set out within the OWSI would provide for the recording of archaeological remains prior to the commencement of the development or during the commencement of the development according to the mitigation requirements agreed with the local authority against the framework of the OWSI.

Legislation/policy	Key provisions	Section where comment addressed
	Where there is a high probability (based on an adequate assessment) that a development site may include, as yet undiscovered heritage assets with archaeological interest, the Secretary of State will consider requirements to ensure appropriate procedures are in place for the identification and treatment of such assets discovered during construction.	
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.27	When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.	Paragraph 5.9.27 will be applied by the decision maker with reference to the effects identified within the ES.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.28	The Secretary of State should give considerable importance and weight to the desirability of preserving all heritage assets. Any harm or loss of significance of a designated heritage asset (from its alteration or destruction, or from development within its setting) should require clear and convincing justification	Paragraph 5.9.28 will be applied by the decision maker with reference to the effects identified within the ES and the public benefits around an electricity supply that the proposals offer.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.29	Substantial harm to or loss of significance of a grade II Listed Building or a grade II Registered Park or Garden should be exceptional.	From the findings of the HS it is anticipated that Paragraph 5.9.29 will not be engaged.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.30	Substantial harm to or loss of significance of assets of the highest significance, including Scheduled Monuments; Protected Wreck Sites; Registered Battlefields; grade I and II* Listed Buildings; grade I and II* Registered Parks and Gardens; and World Heritage Sites, should be wholly exceptional	From the findings of the HS and DBA, it is anticipated that Paragraph 5.9.30 will not be engaged.

Legislation/policy	Key provisions	Section where comment addressed
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.31	Where the proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset the Secretary of State should refuse consent unless it can be demonstrated that the substantial harm to, or loss of, significance is necessary to achieve substantial public benefits that outweigh that harm or loss, or all the following apply: - the nature of the heritage asset prevents all reasonable uses of the site. - no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation. - conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible. - the harm or loss is outweighed by the benefit of bringing the site back into use.	From the findings of the HS, it is anticipated that Paragraph 5.9.31 will not be engaged.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.32	Where the proposed development will lead to less than substantial harm to the significance of the designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate securing its optimum viable use	Where harm to designated heritage assets is identified this will be justified by the public benefits which relate to a secure electricity supply and the heritage capital that would be released by any archaeological fieldwork.
National Statement for Energy – EN-1 (2023) – Paragraph 5.9.33	In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.	Paragraph 5.9.33 will be applied by the decision maker with reference to the effects identified within the ES. The Inspector is referred to the public benefits of a secure electricity supply and the public benefits of the release of heritage capital through archaeological fieldwork.
East Lindsey Local Plan Core	The Council will support proposals that secure the continued protection	The DBA and HS (Volume 3, Appendices 20.1 and 20.2) have

Legislation/policy	Key provisions	Section where comment addressed
Strategy – Strategic Policy 11 – Historic Environment	and enhancement of heritage assets in East Lindsey, contribute to the wider vitality and regeneration of the areas in which they are located and reinforce a strong sense of place. Proposals will be supported where they: ▪ Preserve or enhance heritage assets and their setting; ▪ Preserve or enhance the special character, appearance and setting of the District’s Conservation Areas. Proposals should take into account the significance of Conservation Areas including spaces, street patterns, views vistas and natural features, and reflect this in their layout, scale, design, detailing, and materials; ▪ Have particular regard to the special architectural or historic interest and setting of the District’s Listed Buildings. Proposals will be expected to demonstrate that they are compatible with the significance of a listed building including fabric, form, setting and use; ▪ Do not harm the site or setting of a Scheduled Monument; any unscheduled nationally important or locally significant archaeological site. Appropriate evaluation, recording or preservation in situ is required and should be undertaken by a suitably qualified party; ▪ Preserve or enhance the quality and experience of the historic landscapes and	sought to understand the significance of heritage assets potentially affected by the proposals so that the level of any adverse harm can be understood and mitigated where appropriate. Harm to Scheduled Monuments and Listed Buildings through setting change has been identified but this is not significant and will be mitigated by planting set out within Figure 6.2.28.15. No harm to Conservation Areas is predicted.

Legislation/policy	Key provisions	Section where comment addressed
	woodland of the District and their setting; ▪ Are compatible with the significance of non-designated heritage assets in East Lindsey; ▪ Do not have a harmful cumulative impact on heritage assets; ▪ Promote a sustainable and viable use which is compatible with the fabric, interior, surroundings and setting of the heritage asset; and ▪ Conserve heritage assets identified as being at risk, ensuring the optimum viable use of an asset is secured where it is consistent with the significance of the heritage asset. This may include redevelopment or enabling development, particularly where a use would benefit the wider.	
South East Lincolnshire Local Plan 2011-2036 – Policy 29 The Historic Environment	Distinctive elements of the Southeast Lincolnshire historic environment will be conserved and, where appropriate, enhanced. Opportunities to identify a heritage asset's contribution to the economy, tourism, education and the local community will be utilised including: ▪ The historic archaeological and drainage landscape of the Fens; ▪ The distinctive character of South East Lincolnshire market towns and villages; ▪ The dominance within the landscape of church towers, spires and historic windmills. To respect the historical legacy, varied character and appearance of South	The supporting technical appendices set out the significance of assets potentially affected (Volume 3, Appendices 20.1 and 20.2). Appendix 20.2, the HS, sets out the contribution that setting makes towards the significance of assets and sets out potential impacts through setting change. No significant impacts are identified. The DBA references the results of field evaluation comprising a watching brief of site investigations, magnetometer geophysical survey and electromagnetic geophysical survey. In light of the indicative onshore infrastructure as set out in Figure 3.4.7, a commitment that

Legislation/policy	Key provisions	Section where comment addressed
	East Lincolnshire's historic environment, development proposals will conserve and enhance the character and appearance of designated and non-designated heritage assets, such as important known archaeology or that found during development, historic buildings, conservation areas, scheduled monuments, street patterns, streetscapes, landscapes, parks (including Registered Parks and Gardens), river frontages, structures and their settings through high-quality sensitive design. A. Listed Buildings Proposals that affect the setting of a Listed Building will be supported where they preserve or better reveal the significance of the Listed Building. B. Conservation Areas Proposals within, affecting the setting of, or affecting views into or out of, a Conservation Area should preserve (and enhance or reinforce, as appropriate) features that contribute positively to the area's character, appearance and setting. Proposals should: Assess, and mitigate against, any negative impact the proposal might have on the townscape, roofscape, skyline and landscape; C. Archaeology and Scheduled Monuments Proposals that affect archaeological remains, whether known or potential, designated or non-designated, should take every reasonable step to protect and, where possible, enhance their significance.	preservation in situ could be accommodated for works along the onshore ECC between the TJB and the OnSS (Schedule of Mitigation - document reference 8.13) and the findings of the DBA and this Chapter, further fieldwork is not considered necessary at EIA. Post EIA works to support the preservation in-situ commitment will include further geophysical survey and trial trenching and post consent works mitigation is set out within the OWSI (document reference 8.9). In these circumstances the baseline presented is considered adequate for the determination of the DCO. All impacts should be balanced against the public benefit of the scheme which contributes towards a secure electricity supply.

Legislation/policy	Key provisions	Section where comment addressed
	Planning applications for such development should be accompanied by an appropriate and proportionate assessment to understand the potential for and significance of remains, and the impact of development upon them. If initial assessment does not provide sufficient information, developers will be required to undertake field evaluation in advance of determination of the application. This may include a range of techniques for both intrusive and non-intrusive evaluation, as appropriate to the site. Wherever possible and appropriate, mitigation strategies should ensure the preservation of archaeological remains in-situ. Where this is either not possible or not desirable, provision must be made for preservation by record according to an agreed written scheme of investigation submitted by the developer, undertaken by a suitably qualified person, and approved by the Local Planning Authority. Any work undertaken as part of the planning process must be appropriately archived in a way agreed with the Local Planning Authority. D. Registered Parks and Gardens Proposals that cause substantial harm to a Registered Park or Garden, or its setting will not be permitted, unless in an exceptional case, where a clear and convincing justification is made in line with national policy. F. Development Proposals Where a development proposal would affect the significance of a heritage	

Legislation/policy	Key provisions	Section where comment addressed
	asset (whether designated or non-designated), including any contribution made to its setting, it should be informed by proportionate historic environment assessments and evaluations (such as heritage impact assessments, desk-based appraisals, field evaluation and historic building reports) that: ▪ identify all heritage assets likely to be affected by the proposal; ▪ explain the nature and degree of any effect on elements that contribute to their significance and demonstrating how, in order of preference, any harm will be avoided, minimised or mitigated; ▪ provide a clear explanation and justification for the proposal in order for the harm to be weighed against public benefits; and ▪ demonstrate that all reasonable efforts have been made to sustain the existing use, find new uses, or mitigate the extent of the harm to the significance of the asset; and whether the works proposed are the minimum required to secure the long-term use of the asset.	

20.3 Consultation

6. Consultation is a key part of the Development Consent Order (DCO) application process. Consultation regarding Onshore Archaeology and Cultural Heritage has been conducted through the following processes:
 - Evidence Plan Process (EPP) including Expert Topic Group (ETG) meetings;
 - EIA scoping process (ODOW, 2022);
 - Bilateral engagement with relevant stakeholders;
 - Section 47 consultation process (all public consultation phases including phase 1 and 1a); and,
 - Section 42 consultation process (Phase 2 Consultation, the Autumn Consultation and the Targeted Winter Consultation).
7. An overview of the Project's consultation process with reference to technical considerations is presented within Volume 1, Chapter 6: Technical Consultation (document reference 6.1.6). Further information on the Project's consultation phases can be found in the Project's Consultation Report (document reference 5.1).

A summary of the key issues raised during consultation to date, specific to Onshore Archaeology and Cultural Heritage, is outlined in Table 20.2 below, together with how these issues have been considered in the provision of this chapter.

Table 20.2: Summary of consultation relating to Archaeology and Cultural Heritage

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.1 - Table 8.2.4 - The consideration of indirect (setting) effects caused by the construction of the onshore export cable on designated heritage assets located in excess of 500m from the route.	Given the stage of the Proposed Development and current absence of information regarding the significance of assets and potential impacts of the Proposed Development, the Inspectorate does not agree to scope this matter out. The ES should include an assessment of indirect (setting) effects arising from the construction of the onshore export cable on designated heritage assets more than 500m from the route, where likely significant effects could occur.	The HS provided in Appendix 20.2 has addressed all potential impact to designated and non-designated assets within search areas extending to 5km for designated assets of high importance.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.2 - Table 8.2.4 - The consideration of indirect (setting) effects caused by the presence of the substation on designated heritage assets in excess of 2km from the installations.	Given the stage of the Proposed Development and lack of information about the location of the OnSS, the Inspectorate does not agree at this stage it is possible to scope out effects on heritage assets in excess of 2km from the route. Given the potential size, scale and undefined location of this element of the Proposed Development, this matter should be scoped into the assessment where likely significant effects could occur.	The HS provided in Appendix 20.2 has addressed all potential impact to designated and non-designated assets within search areas extending to 5km for designated assets of high importance.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.3 - Table 8.2.4 - The consideration of indirect (setting) effects caused by the offshore turbines and substations on terrestrial designated heritage assets not	Given the distance to the array, the Inspectorate agrees that there is unlikely to be a significant effect on the terrestrial heritage assets not highlighted by stakeholders or identified as being potentially sensitive by the heritage consultant and that this matter can be scoped out of the assessment.	Scoped out.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
highlighted by stakeholders or identified as being potentially sensitive by the heritage consultant.		
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.4 - Paragraph 8.2.44 – Potential transboundary effects	The Inspectorate agrees that given the localised onshore nature of the effects from the Proposed Development, significant transboundary heritage effects are unlikely to occur, and this matter can be scoped out of the assessment.	Scoped out.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.5 - Table 8.2.1	The Applicant's attention is directed to the response of Historic England at Appendix 2 of this Opinion, which identifies the East Midlands Historic Environment Research Framework (EMHERF) as an important resource for both marine and terrestrial archaeology impact assessments.	The East Midlands Historic Environment Research Framework (EMHERF) is referenced appropriately within the OWSI (document reference 8.9).
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.6 - Paragraph 8.2.23	It is not clear from the Scoping Report why a 2km search area around the OnSS has been chosen to establish those heritage assets that could be sensitive to changes in their setting. The ES should explain the choice of all search areas used including the reasons for their selection.	The HS provided in Appendix 20.2 has addressed all potential impact to designated and non-designated assets within search areas extending to 5km for designated assets of high importance
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.7 - Paragraph 8.2.38	The Inspectorate notes that a ZTV will be prepared as part of the landscape and visual assessment (LVIA) for the onshore works and that it may be used for the Archaeology and Cultural Heritage assessment. The Inspectorate recommends the LVIA, and heritage consultants liaise closely with regards to the ZTV to ensure heritage assets within the LVIA ZTV are appropriately identified, noting that impacts on setting are not limited to just visual. Should the use of a ZTV be considered ineffective for the cultural	The ZTV is shown on the drawings illustrating the location of designated heritage assets. The ZTV was referred to during the filtering of assets undertaken as part of the EIA. It is recognised and understood that impacts to setting are not just visual, as it also recognised that a visual change does not necessarily equate to 'harm'. The assessment of effects to setting which may include the consideration of lighting and noise changes has been considered. This is addressed within Appendix 20.2.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	heritage assessment (as noted as possible in the Scoping Report), this should be explained and justified in the ES.	
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.8 - Paragraph 8.2.39	The ES should clearly explain what aspect-specific criteria are used to define receptor value/sensitivity and magnitude of change for the archaeology and cultural heritage assessment.	For the purposes of EIA, a tabulated matrix has been utilised to present the results of impact assessment. The Design Manual for Roads and Bridges (DMRB) matrices has been referenced with a technical narrative presented within the HS, DBA and Chapter where necessary.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.9 - Table 8.2.3	The ES should also consider the potential for effects on other historic land features, such as drainage patterns and ditches alongside historic landscape character, where significant effects are likely to occur. Reference could be made to the Lincolnshire Historic Landscape Characterisation (2011).	The assessment of potential effects on historic landscape character is addressed within Appendix 20.2, Annex 3. Features of the historic landscape areas assessed referencing the areas included in the Lincolnshire Historic Landscape Characterisation Project include drainage ditches and dykes. As such these features of historic landscape character are considered to be assessed. No significant impacts are identified.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.10 - Paragraph 8.2.31	The assessment should address the significance of both designated and non-designated heritage assets, using sufficiently robust evidence and taking into account advice from relevant consultation bodies.	Non-designated assets and designated heritage assets have been considered. These primarily include assets of a built heritage nature, designated and non-designated. However, other remains may also be sensitive to change, particularly if they have earthworks and are tangible features where understanding is clearly evidenced by visible landscape features. In respect to non-designated assets, consideration of the latter has highlighted certain categories of non-designated asset which may be affected by setting change under the circumstances of the proposals. These include earthworks which could be affected by potential partial breach/loss of footprint. This is addressed within Appendix 20.2.
9th September 2022 Scoping Opinion	The baseline data should include a review of available Portable Antiquities Scheme data.	The Portable Antiquities Scheme has been consulted with and the results included within the DBA, Appendix 20.1.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
The Planning Inspectorate 3.14.11 -Paragraph 8.2.35		
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.12 - Paragraphs 8.2.40 to 8.2.41	The Inspectorate notes that limited information is provided in the Scoping Report on the approach to mitigation, beyond proposed embedded measures. The Applicant should seek to agree an appropriate mitigation strategy that addresses significant effects with the relevant consultation bodies, as part of the EPP.	Proposed mitigation measures which include preservation in situ for remains of national importance are set out within the OWSI (document reference 8.09).
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.13 - n/a	The onshore elements of the Proposed Development have potential to change the pattern of drainage within and adjacent to the boundary of works. Effects of changes to drainage on designated and non-designated heritage assets should be included in the assessment, where significant effects are likely to occur.	Acknowledgement of potential change to the water environment has been achieved through reference to Chapter 24.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.14 - n/a	Gunby Hall Registered Park and Garden - This RPG is located adjacent to the western boundary of the area of search for the Proposed Development. Setting effects on this receptor should be addressed in the assessment where significant effects are likely to occur. There should be appropriate cross reference between the LVIA and the Archaeology and Cultural Heritage assessments to ensure there is complete consideration of potential effects on this receptor.	The asset is located 4.7km west of the ECC and is addressed within Volume 3, Appendix 20.2: Onshore Archaeology and Cultural Heritage - Heritage Statement.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.15 n/a	The ES should assess impacts to peat deposits in this aspect chapter, in addition to the consideration of peat acknowledged for the Marine Archaeology aspect chapter, where significant effects are likely to occur. The approach to assessment and any proposed	Peat deposits have been referenced within the DBA, see Appendix 20.1. This has referenced a deposit model which has addressed the potential for peat deposits. The potential impact to peat deposits is set out within section 20.7.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	mitigation should be discussed with the relevant consultation bodies.	
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.16 - n/a	The Applicant's attention is directed to the response of Lincolnshire County Council contained in Appendix 2 to this Opinion in respect of the approach to the design and detail for the archaeological impact assessment. The Applicant should seek to agree the detailed scope of the impact assessment with the relevant consultation bodies, including the County Archaeologist and Historic England, as part of the EPP. <i>County Archaeologist Comment - Baseline data sources -</i> A full competent LiDAR and air photo analysis, interpretation and assessment is required with full aerial photo coverage using all available oblique and vertical air photos including the Historic England Archive and Cambridge University Collection of Air Photos as well as RAF and Ordnance Survey photos including those held by Lincolnshire County Council.	The DBA references a review of the necessity for a full air photo assessment (Appendix 20.1). On the grounds set out within the DBA it is anticipated that the geophysical survey is a reliable prospection technique for significant or extensive archaeological remains. Aerial photographic assessment is not necessary to supplement the geophysical survey.
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.16 - n/a	The Applicant's attention is directed to the response of Lincolnshire County Council contained in Appendix 2 to this Opinion in respect of the approach to the design and detail for the archaeological impact assessment. The Applicant should seek to agree the detailed scope of the impact assessment with the relevant consultation bodies, including the County Archaeologist and Historic England, as part of the EPP.	The post medieval section of the DBA, Appendix 20.1, references a cartographic regression including Ordnance Survey maps and pre-Ordnance Survey maps held by the Lincolnshire record office.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	<i>County Archaeologist Comment - Baseline data sources - Full historic map regression of impact zone to include all available maps.</i>	
9th September 2022 Scoping Opinion The Planning Inspectorate 3.14.16 - n/a	The Applicant's attention is directed to the response of Lincolnshire County Council contained in Appendix 2 to this Opinion in respect of the approach to the design and detail for the archaeological impact assessment. The Applicant should seek to agree the detailed scope of the impact assessment with the relevant consultation bodies, including the County Archaeologist and Historic England, as part of the EPP. <i>County Archaeologist Comment - Baseline data sources - Full LiDAR assessment across the impact zone.</i>	A LiDAR assessment has been undertaken for the Order Limits (see Volume 3, Appendix 20.1, Annex 17).
9th September 2022 Scoping Opinion The Planning Inspectorate Appendix 2 responses	The Applicant's attention is directed to the response of Lincolnshire County Council contained in Appendix 2 to this Opinion in respect of the approach to the design and detail for the archaeological impact assessment. The Applicant should seek to agree the detailed scope of the impact assessment with the relevant consultation bodies, including the County Archaeologist and Historic England, as part of the EPP. County Archaeologist comment - Fieldwork – <i>It's vital that a competent full desk-based assessment be completed at the earliest opportunity, as this along with a full Air Photo/LiDAR assessment and the geophysical survey results across the impact zone all required to inform the trial trenching strategy which is necessary to determine the archaeological</i>	The DBA, Appendix 20.1, references the results of field evaluation comprising a watching brief of site investigations and targeted magnetometer geophysical survey and electromagnetic geophysical survey. In light of the indicative onshore infrastructure as set out in Figure 3.4.7, a commitment that preservation in situ of remains of national importance could be accommodated for works along the onshore Order Limits (document reference 8.13) and the findings of the DBA and this Chapter, it is not considered necessary to further evaluate the significance of potential archaeology. Further geophysical and trial trenching will be undertaken post EIA to support the preservation in-situ commitment. In these circumstances the baseline presented is considered adequate for the determination of the DCO. The Outline Written Scheme of Investigation (OWSI) provides for a framework for the

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	<i>potential within the impact zone.</i> <i>Following geophysical survey a programme of trial trenching is required, not only across known or suspected archaeology to determine their presence or absence, depth, extent and significance but also across the 'blank' areas to obtain baseline evidence where previous evaluation techniques have not identified archaeological remains. This is required to get a full understanding of the archaeology which will be impacted across the full impact zone and will inform the archaeological mitigation strategy which must be undertaken as part of the EIA.</i> <i>Trenching results are essential for effective risk management and to inform programme scheduling and budget management. Failing to do so could lead to unnecessary destruction of heritage assets, potential programme delays and excessive cost increases that could otherwise be avoided. A programme of trial trenching is required to inform a robust mitigation strategy which will need to be agreed by the time the Environmental Statement is produced and submitted with the DCO application.</i>	undertaking of evaluation to inform all mitigation strategies including preservation in situ post consent of the DCO. All potential mitigation strategies are set out within the OWSI (document reference 8..
Section 42 responses	Historic England - it will be important as design is developed that there is no loss of coverage between the Marine and Terrestrial WSI's - this should be specifically reviewed to ensure continuous coverage of archaeological methodology. In addition, where remains such for instance as buried soils or shoreline structures span between the two regimes it will be	The geoarchaeological deposit model appended to the DBA extends within the inter-tidal zone. Any further geoarchaeological deposit modelling undertaken after the implementation of further geoarchaeological field work set out within the DBA will reference the results of any work undertaken in respect to the offshore works such that any relevant information on deposits recorded by the

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	important that investigation and report are integrated.	offshore works will be dovetailed with the results of the onshore works, where it is pertinent to do so.
Section 42 responses	Historic England - Consultation on the terrestrial geophysical survey has been positive. This work has we understand now commenced (too late for inclusion in the PEIR) hence cannot be discussed at length here. We would note however the importance of a nuanced approach to the deployment of survey techniques in particular on the cable run along the coastal silts where within those areas of low potential there are evident areas of more solid ground with medieval and later archaeological features which should be targeted in their geomorphological context (i.e., not just the features visible on lidar but the 'dry' landscape component as a whole). It will be important to test 'blank areas' for methodological rigor in addition to positive targets.	Geophysical survey has targeted the parts of the Order Limits within areas west of historic high-water marks. These areas in the northern and central parts of the Order Limits (ECC1-ECC10) are considered to hold archaeological potential due to their historic location within areas not characterised by permanent inundation or tidal conditions for part of or all of the periods between the Late Mesolithic period and the medieval period. Areas of drier land in these parts of the Order Limits, which may have persisted as habitable or semi-habitable places within areas being affected by the historic fluctuations in high water marks and coastal flooding, have been identified by the electromagnetic survey. The geophysical report is annexed to the DBA (annex 19). The anomalies recorded and areas highlighted as being dry (as well as their immediate proximities/interactions with wet land) will be targeted by post EIA trial trenching. Works are set out within the OWSI.
Section 42 responses	Historic England - In the Onshore Archaeology and Cultural Heritage PEIR section (Chapter 20, Outer Dowsing Document No: 6.1.20) the authors make reference in paragraph 20.4.6 (and elsewhere) to a deposit model that was prepared. This is provided in 'Volume 2, Appendix 20.1: Onshore Archaeology and Cultural Heritage Desk-Based Assessment' as Annex 23A. The assessment has been produced by AOC and appears substantially more robust than the offshore version. It is worth noting, however, that this terrestrial deposit modelling assessment is a desk-	An updated deposit model has been prepared for submission at EIA. This is annexed to the DBA (annex 18). This includes updates in reference to a monitored programme of Site Investigations undertaken post PEIR. Further updates to modelling are referenced within the OWSI.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	based report only. We understand there were plans to monitor a small number of geotechnical boreholes and update the model with these in the spring (see paragraph 6.19 of chapter 20), it is regrettable that update does not appear yet to have been provided. It would be better to have started to ground truth and fill in gaps in the model now, but what has provided for the onshore is significantly superior to the offshore work.	
Section 42 responses	Historic England - The sooner the results of geophysical survey can be integrated with desk-based assessment and deposit modelling, and targets taken forwards for trial trenching the better. To restate a point made in previous discussion, it is never possible to identify all features of archaeological interest in evaluation, but one can manage down the risk of the discovery of multiple sensitive, complex and time-consuming remains being encountered during works and the associated inefficiencies in mitigation and delivery. In particular an understanding of the detail of the historic coast and inlets / points of entry will assist greatly to identify both potential in channels and on 'dry' land sites which articulated with such points (we attach a final pre-publication copy of Caitlin Green's Coastal Landscape Report in this regard).	Dr Caitlin Green's publication was gratefully received and has been referenced within the DBA. The use of electromagnetic survey, identifying areas of drier ground alongside possible channels will inform trial trenching which is being undertaken post EIA as referenced within the OWSI (document reference 8.9). This will inform on mitigation works with due regard to conclusions of the DBA and ES that no significant impacts are predicted where preservation in situ cannot be secured.
Section 42 responses	Historic England - Regarding the understanding and management of impacts upon buried wet remains (intersected by the cable corridor) we highlight our detailed preservation guidance. It is important to stress that where the works are likely to affect the	The presence of the tidal mudflats in-particular is acknowledged as providing an area within which organic remains may be present. The Historic England publication referenced (Environmental Archaeology 2011) will be referenced within any WSIs. The OWSI references

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	burial environment of important remains any solution involving avoidance / excavation etc needs to be grounded in a sound understanding of the burial environment the preservation of the remains and the mechanisms for effect from the works (which may act over distance depending upon the hydrology).	protocols for dealing with wet remains to ensure their preservation (not necessarily in-situ). The hydrological environment of the footprint of disturbance and the effect of changes over a greater area has been acknowledged as far as is possible within the ES chapter with reference to findings from the hydrology, hydrogeology and flood risk chapter (document reference 6.1.24).
Section 42 responses	Historic England - A scheme wide approach to the targeting, recovery and analysis of samples to considered research questions should form a key element of the Outline written Scheme of Investigation. See our guidance and the advice of our regional Science Advisor.	The OWSI includes reference to research objectives relevant to the potential impacts of the Project. Reference is made in the OWSI to the Historic England publication referenced (Environmental Archaeology 2011) and also the East Midlands Research Framework.
Section 42 responses	Historic England - In NPS / NPPF / PPG terms it is helpful to consider the above terms to be nested, with values being the socially constructed view of assets, significance being the structured assessment (professional assessment) there-of and importance the relative worth (including designation by the state). Whilst the use of language is further complicated in the context of EIA by the use significant as an adjective, it remains useful to avoid further ambiguity in terminology. At para 5.6 second bullet for instance 'highest level of significance' would read better as 'highest level of importance'	Ambiguity in terminology – specifically the term 'significance' – has been reviewed at EIA where possible. It is acknowledged EIA references the term 'significance' to describe effects whereas Chapter 16 of the NPPF references the term 'significance' to infer importance. The term importance is used more widely at EIA.
Section 42 responses	Historic England - We welcome the initial approach to setting set out in PIER Heritage Statement in particular the flexible approach to consideration based upon judgement in preference to overly rigid	Historic Landscape Character did not form part of the PEIR baseline but has been referenced as part of EIA within the HS (6.3.20.2 annex 3).

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	radii. As explored in section 5 of the onshore cultural heritage and archaeology section of the PEIR there is much good analysis, but this could be enhanced with stronger reference to a structured understanding of the shifting historic landscape and the contemporary siting of features there in (see the attached report by Caitlin Green). Weight should be given to the experience of historic places as the aggregate of phases of landscape change in addition to specifically contemporaneous relationships - see our GPA 3	
Section 42 responses	Historic England – Work yards/compounds. It is important for the effective control of environmental impacts that the sites of ancillary facilities are addressed within the scope of the ES whether to be used by the principal contractor or subcontractors or suppliers. There should be robust mechanisms in place to ensure that secondary / unplanned for additional facilities are nevertheless sited and managed in accordance with the ES. It is our experience that such facilities on linear projects can become detached from the strategies for the management of risk set out in the ES hence the need for particular attention to this point.	The location of all works compounds have been included within the Order Limits subject to assessment at EIA.
Section 42 responses	Historic England – duck decoys. As noted in the PEIR decoys that survive late enough to appear on OS 1:2500 mapping or as extant earthworks form only a fraction of the extent of such features once present (compare the OS1” and accounts such as the link below) a systematic approach to assessment in areas of survival is likely to identify additional features and	Geophysical survey and historic map regression undertaken at EIA and presented within the DBA has included the assessment of the Order Limits adjacent to the scheduled duck decoy. A possible water management feature associated with the monument is shown on historic mapping crossing the Order Limits, but this is a drainage feature planned for avoidance through trenchless works.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	water management systems	
	Historic England - The unscheduled remains believed to comprise the medieval village of Slackholme are potentially of equivalent importance to a scheduled monument and in the first instance options to avoid should be pursued, potential to pass through / under on a route at a point of least apparent survival are challenging given the inherent uncertainty of the relationship between surface expression and below ground survival and the risk of being 'locked in' to a line revealed later to be undesirable. The desirability and effectiveness of such a 'surgical' solution would depend to a large extent upon the degree to which early detailed understanding could be secured. Consideration to collateral impacts of vehicle movements, hydrological severance etc should also be considered. Overall, avoidance or direct drill options would be much preferable for identified high importance features both for the reduction of avoidable harm and the husbanding of archaeological resource to mitigate impacts revealed later which cannot so readily be avoided.	The footprint of the asset recorded by the HER and all associated earthworks would be avoided through the use of trenchless works. This is secured through Figure 3.4.7.8 and the Schedule of Mitigation (document reference 8.13). It is anticipated that directional drilling achieving a depth of 5m BGL will avoid the base of cut features. Furthermore, no works associated with haul roads are proposed within the asset.
Section 42 responses	Historic England - Consideration of terrestrial crash sites / military remains / UXO should be given alongside that afforded offshore (given the extensive aviation heritage of the area).	The EIA baseline does not reference any crash sites or military remains within the Order Limits. Nevertheless, a protocol has been included within the OWSI.
Section 42 responses	Historic England - Assumptions as to the loss of Roman Coastal features due to post-Roman inundation should be treated with caution pending the testing of survival given limited data.	Baseline assessment presented within the DBA, including deposit modelling provides data on the depth of Roman land surfaces. Portable Antiquities Scheme data (PAS) has been referenced within the DBA.

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	Localised unexpectedly good preservation should be allowed for. Portable Antiquities Scheme data may assist in this regard and should be consulted.	
Section 42 responses	Historic England - Considerable prior thought should be given to the handling and conservation of waterlogged wood revealed, past experiences of linear schemes have involved large wooden artefacts being sat exposed for significant period due to the lack of an in-place plan for extraction and wet storage and assessment in conservation controlled conditions	A broad strategy for effective short-term measures and timely long-term solutions for the preservation of waterlogged timbers has been drawn into the OWSI. These will also be referenced in any subordinate WSIs.
Section 42 responses	Historic England - the archaeological potential of extant ridge and furrow to reveal sequence (of intercutting strips / reorganisation) or in stratigraphic relation to earlier and later boundaries should not be underestimated. There is potential for buried land surfaces to be preserved under the centre line of ridges. Where/if Ridge and Furrow is extant and to be bisected by the cable then it should be reinstated to profile.	No areas of extant ridge and furrow would be disturbed within the Order Limits.
	Historic England - The relationship of saltings of all periods to contemporary topography and water levels is crucial, prospection based upon geophysical (mag) survey and deposit modelling (often sited on rodens as dry ground) is of high importance, scientific dating strategies are clearly important as is a careful approach to excavation to identify the often ephemeral traces of contemporary seasonal (?) occupation in association with the more obvious productive remains themselves.	The presence/absence of saltings and their anticipated levels of importance are set out within the DBA. Geophysical survey has identified some potential salterns and these will be targeted by the trial trenching as referenced within the OWSI (document reference 8.9).
Section 42 responses	Historic England - All direct impacts upon scheduled monuments should be regarded as avoidable and	A proposed access track to the north of the monument and a secondary compound to the west of the monument

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	designed out. We note that the line of the causeway from Abbey Hills to Friskney appears to be crossed by the PEIR - there is a clear need for further investigation and discussion of options with HE as a feature of high importance (directional drill?)	are shown within the Order Limits, Figure 3.4.7.24. The potential for the preservation in situ of remains of national importance present within the construction parameters associated with these activities is set out within the Schedule of Mitigation (document reference 8.13). These acknowledge that the results of fieldwork will inform detailed design. Mitigation through preservation in situ informed by archaeological evaluation is referenced within the OWSI.
Lincolnshire County Council Section 42 Comments	Lincolnshire County Council – comments re historic map regression and LiDAR – requesting a full map regression and a full LiDAR assessment.	The EIA has included a full map regression including reference to historic Ordnance Survey and pre-Ordnance Survey maps including Tithe Maps and Inclosure Maps. These are discussed and illustrated within the DBA. The EIA has also included a full LiDAR Assessment. This is annexed to the DBA (Annex 17) and is referenced throughout the DBA. The results of LiDAR also influenced the targeting of geophysical survey in areas not otherwise selected for geophysical survey.
	Lincolnshire County Council – comments re aerial photographic assessment. Reference made to the necessity of a full competent aerial photographic assessment referencing photographs from Historic England’s Archive, the Cambridge Collection and the HER.	The EIA has not included a full aerial photographic assessment. This is not considered to render the DBA ‘incompetent’. The selection of baseline survey techniques presented within the DBA has taken into account the depositional environment of the Order Limits and the position of the Order Limits in reference to historic coastlines. The use of geophysical survey using magnetometer and electromagnetic survey techniques is considered to be a more useful and effective tool in determining archaeological potential in this instance. Nevertheless, sample areas of aerial photography assessment referencing the most extensive collections of

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
		aerial photographs held at the Historic England archives have been undertaken within the Order Limits to provide some reassurance that a dual application of geophysical survey and aerial photographic assessment is not necessary to illustrate archaeological potential. This is presented within the DBA.
	Lincolnshire County Council – comments around trial trenching.	Trial trenching has not been undertaken as part of EIA. In light of the indicative onshore infrastructure as set out in Figure 3.4.7, and the Schedule of Mitigation which accommodates the preservation in situ of remains of national importance along the onshore ECC between the TJB and the OnSS (document reference 8.13) and the findings of the DBA (document reference 6.3.20.1) and this Chapter, the necessity for fieldwork to determine the application is not considered necessary to further evaluate the significance of potential archaeology. Investigations will be carried out prior to construction to support the preservation in-situ commitment. Fieldwork is therefore scheduled for post the consent of the DCO. In these circumstances the baseline presented is considered sufficient for the determination of the DCO. Trial trenching is set out within the OWSI (document reference 8.9).
	Lincolnshire County Council – areas of tree planting need to be included within evaluation phases including mitigation.	Areas of tree planting are anticipated to disturb to depths of 0.4-0.5m. The areas of tree planting are proposed at the southern end of the Order Limits within areas not anticipated from coastline regressions to be within areas of particular archaeological potential. Nevertheless, it is anticipated that areas of extensive planting would be included for evaluation as set out within the OWSI (document reference 8.9).

Date and Consultation Phase/type	Consultation and key issues raised	Sections where comment addressed
	Lincolnshire County Council – general comments on the absence of an Outline WSI for Evaluation	An Outline WSI for Archaeological Works has been prepared setting out evaluation and mitigation strategies (document 8.09).
	Lincolnshire County Council - Sufficient information on the archaeological potential must include evidential information on the depth, extent and significance of the archaeological deposits which will be impacted by the development. The results will inform a fit for purpose mitigation strategy which will identify what measures are to be taken to minimise or adequately record the impact of the proposal on archaeological remains which must be submitted with the EIA. This is in accordance with The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 which states "The EIA must identify, describe and assess in an appropriate manner...the direct and indirect significant impacts of the proposed development on... material assets, cultural heritage and the landscape." (Regulation 5 (2d))	The full citation for (Regulation 5 (2d)) provides that the paragraph cited is in reference to 'significant effects' only. The ES chapter supported by a DBA has not predicted significant impacts where preservation in situ is not possible. Preservation in situ to prevent any impacts which could be significant is secured through the Schedule of Mitigation (document reference 8.13), Figure 3.4.7 and the OWSI (document 8.9). Of the two locations where preservation in situ is not possible, the OnSS and the TJB, only the TJB is located within an area where significant archaeology could be present and geophysical survey has demonstrated that this is unlikely.

20.4 Baseline Environment

20.4.1 Study Area

8. The ES references 'Order Limits'. This comprises the extent of the land subject to the application for development consent. It reflects an approximately 80m wide corridor around a centre line with a total length of approximately 70km (the Onshore ECC) which runs from the landfall to the OnSS, followed by a typically 60m wide corridor around a centre line with a length of approximately 4km (the 400kV cable corridor) which will connect the OnSS to a National Grid substation (NGSS) within the Connection Area².
9. The study areas for this Chapter are set out in Volume 3, Appendix 20.1: Archaeological Desk Based Assessment (document reference 6.3.20.1) and Volume 3, Appendix 20.2: Heritage Statement (document reference 6.3.20.2).
10. The study area for the Archaeological DBA comprised a buffer of up to 2km from the Order Limits. This parameter was established through consultation with the Lincolnshire Historic Environment Officer through their scoping response. This study area is anticipated to provide a robust baseline in respect to the known archaeological potential of the footprint of the Order Limits where ground disturbance may occur.
11. The study area for the HS comprised a buffer of up to 5km from the Order Limits. This was established through consultation with the Lincolnshire Historic Environment Officer through their scoping response and includes an inner 2km buffer for assets of lower significance; the 2-5km buffer being utilised for Scheduled Monuments and Grade I and II* Listed Buildings as well as RPGs and Conservation Areas.
12. The study areas are shown on Figures 20.1.1.1-20.1.1.7 in Volume 3, Appendix 20.1: Archaeological Desk-Based Assessment, and Figures 20.1.2.1-20.1.2.18 in Volume 3, Appendix 20.2: Heritage Statement.

20.4.2 Data Sources

13. The following sources were consulted during the preparation of the Archaeological DBA and HS:
14. Historic England's GIS datasets for all assets of an archaeological nature (Scheduled Monuments) included on the National Heritage List for England (NHLE);
 - Lincolnshire Historic Environment Record (HER);
 - Historic Landscape Character data;
 - Portable Antiquities Scheme (PAS) data;
 - historic cartographic sources at Lincoln Archives and Boston Library;
 - Historic England's Aerial Archaeology Mapping Explorer, for mapped archaeological earthworks and other features identified by the aerial investigation unit;

² This is an indicative search area for the National Grid substation (NGSS)

- Historic England's Aerial Photo Explorer, for digitised photographs from the Historic England archive;
- Historic England's collection of aerial photography held at the National Archives (for selected sections of the Order Limits within ECC2);
- the Environment Agency's library of open access LiDAR data (DSM, DTM and point cloud);
- AOC Archaeology– geoarchaeological deposit model for the Order Limits;
- Magnitude Surveys - magnetometer geophysical survey;
- Magnitude Surveys - electromagnetic geophysical survey;
- AOC Archaeology – archaeological trial trenching; and
- Land on the edge the landscape evolution of the Lincolnshire coastline (Green 2023).

20.4.3 Existing Environment - Archaeology

15. The Archaeological DBA (Volume 3, Appendix 20.1 (document reference 6.3.20.1)) sets out an archaeological background to understand the archaeological sensitivity of the Order Limits. The resources for assessment included HER & PAS data, a targeted site walkover survey, a LiDAR assessment and aerial photography review, a geoarchaeological deposit model including observations from site investigations, a magnetometer geophysical survey and an electromagnetic geophysical survey. The DBA includes the results of additional geophysical survey and archaeological trial trenching undertaken.
16. Alongside secondary and primary material including a review of historic mapping, these sources are considered to provide an extensive and robust baseline on which to consider archaeological potential/risk.
17. With regards to secondary material, a particular acknowledgement is extended to the work of Dr Caitlin Green which is referenced extensively within the Archaeological DBA.
18. The summary potential of the study area as indicated by the baseline is summarised below. For full details the reader is referred to document 6.3.20.1.

20.4.3.1 Overall Archaeological Potential Summary

19. The location of the Order Limits on a coastline which has seen significant periods of marine transgression and regression has resulted in complex and thick sequences of interchanging alluvium and peat, covering deeply buried prehistoric and later land surfaces.
20. Episodes of sea flooding since the end of the Mesolithic into the medieval period have deposited substantial deposits of mud flats across the entirety of the Project footprint. The first period of mudflat deposition occurred during the prehistoric period when the high-water mark became established 5-10km west of the current coastline (Green 2023). This earlier mudflat is referenced as deposit A1 in the deposit modelling referenced within the DBA. The coastline subsequently moved in and out with further episodes of sea transgression and regression which are anticipated to have affected all of the Order Limits at some point, with the southern part of the Order Limits under water or tidal from the late Mesolithic onwards.

21. A notable period of regression occurred in the Iron Age/Roman period when the high-water mark is known to have moved eastwards, placing some of the Order Limits which had been marshland or tidal since the Neolithic period, into dry land once more. However, the southern end of the Order Limits remained tidal or under water. A later phase of mud deposition, likely post Roman in date, is anticipated to have occurred when sea flooding into the Anglo Saxon and medieval periods caused the high-water mark to move west again. This is referenced within the deposit modelling set out within the DBA as deposit A2.
22. These sequences of dramatic depositional events have buried earlier archaeology at some significant depth across much of the Order Limits footprint with some areas, such as the southern end of the Order Limits being under water or tidal conditions from the Mesolithic to the Post Medieval period.
23. Medieval activity was made possible through the construction of sea walls with extant earthworks or below ground potential for sea walls identified in segments ECC1 & ECC11-13. These would have contributed to bringing the whole of the Order Limits into possible agricultural or pastoral activity apart from the southern extremity which was likely within the footprint of the Bicker Haven – ECC13/14. Settlement is known to have become established at extant historic villages within the vicinity of the Order Limits at this time and evidence for some deserted settlement extending within the Order Limits is known at ECCC2, ECC3 and ECC6. Evidence for significant moated sites is provided by two scheduled examples comprising Abbey Hills moated site (NHLE 1016044) adjacent to ECC7 and Multon Hall moated site (NHLE 1018584) located 100m west of ECC11.
24. Post medieval activity references land reclamation and agricultural activity across the entirety of the Project footprint. This includes some potential for remains of demolished farmsteads and other agricultural buildings. This period likely saw the first occupation of the southern parts of the route, specifically ECC13/14.
25. Table 20.3 presents a simplified illustration of archaeological potential with due regard to the outline construction proposals presented in Figure 3.4.7.

Prehistoric (up to 750BC)

26. Only at isolated and specific locations within the Order Limits would the Proposals have the potential to disturb stratigraphy of possible early prehistoric date. At these discrete locations worked flint of Palaeolithic and Mesolithic and possible short term features date may be present. These areas are at locations where the proposals have the potential to breach the base of the earliest mud flat deposit. This may occur at the following locations and assumes project parameters as set out in Table 20.4.
 - Trenchless crossing entry and exit pits in -
 - ECC1 (part of)
 - ECC2
 - ECC3 (part of)

- ECC5 (part of)
- ECC6 (part of)
- ECC7
- ECC8
- ECC9 (part of)
- ECC10 (part of)
- ECC11 (part of)
- ECC13 (part of)
- ECC14 (part of)
- Joint bays in -
 - ECC7 (part of)
 - ECC8 (part of)
- Open cut trenching in -
 - ECC7 (part of)
 - ECC8 (part of)
 - ECC10 (part of)
- OnSS - piled foundations in excess of 10.5 BGL

27. Later prehistoric worked flint and wooden artefacts such as fishtraps and jetties may survive within the waterlogged stratigraphy of the earlier mudflat. These artefacts would represent episodes of transient activity from the Mesolithic period onwards. These may be present where the works could breach the later mud deposit and potentially affect stratigraphy of the earlier mud flat deposit. This may occur at the following locations and assumes worst case project parameters.

- TJB in ECC1.
- OnSS in ECC13.
- Open cut trenching in -
 - parts of ECC1, 9, 12, 13.
 - all of ECC2, 3, 4, 5, 6, 7, 8, 10, 11
- Joint bays in -
 - parts of ECC1, 2, 9, 13, 14
 - all of ECC3, 4, 5, 6, 7, 8, 10, 11, 12.
- Trenchless entry and exit pits in -

- parts of ECC9, 13, 14
- all of ECC1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12.

Iron Age to Roman (750BC to c.410 AD)

28. Iron Age occupation/agricultural activity may be present sealed by the later mudflat and could be exposed where the works may breach the base of the later mudflat deposit. Based on the results of baseline assessment including the results of geophysical survey and the variable location of the Order Limits in relation to the high-water mark at this time it is anticipated that Iron Age occupation or agricultural activity could be present where the later mudflat (deposit A2) could be breached by the following works in.

- Open cut trenching in -
 - parts of ECC1
 - all of ECC2, 3, 4, 5, 6.
 - this includes area of archaeological interest 2 in ECC2 (verified through trial trenching).
- Joint bays in -
 - parts of ECC1, 2
 - this includes area of archaeological interest 2 in ECC2 (verified through trial trenching).
 - all of ECC3, 4, 5, 6
- Trenchless entry and exit pits in -
 - all of ECC1, 2, 3, 4, 5, 6
 - this includes area of archaeological interest 2 in ECC2 (verified through trial trenching).

29. Potential Roman occupation and agricultural activity may extend into the footprint of the Order Limits in segments ECC1-ECC10 reflecting marine regression which pushed the high-water mark east in the northern and central parts of the Order Limits. On the premise that these are covered by the later mudflats these would be affected where the works could breach the later mudflat in areas where the Roman high-water mark is anticipated to the east of the Order Limits. With regard to baseline assessment including the results of the geophysical survey and trial trenching this would potentially be restricted to works within the footprint of the following:

- Open cut trenching in -
 - parts of ECC1, 9, including the ditches of possible Roman date recorded in trial trenches in ECC1 and in ECC9 area of archaeological interest 14.
 - all of ECC2, 3, 4, 5, 6, 7, 8, 10.

- this includes area of archaeological interest 2 in ECC2 verified through trial trenching. Also includes possible Roman occupation recorded through trial trenches at the southern end of ECC3 and a ditch in ECC7.

- Joint bays in -

- parts of ECC1, 2, 9
 - this includes the ditches of possible Roman date recorded in trenches in ECC1, area of archaeological interest 2 in ECC2 (verified through trial trenching) and area of archaeological interest 14 in ECC9.
- all of ECC3, 4, 5, 6, 7, 8, 10.
- this includes the potential Roman occupation recorded through trial trenches at the southern end of ECC3 and a ditch in ECC7.

- Trenchless entry and exit pits in -

- all of ECC1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - this includes the ditches of possible Roman date recorded in trenches in ECC1, area of archaeological interest 2 in ECC2 (verified through trial trenching), the potential Roman occupation recorded through trial trenches at the southern end of ECC3, a ditch in ECC7 as well as, areas of archaeological interest 12 and 14 ECC8 and ECC9.

30. Iron Age/Roman salterns could be possible within the footprint of the order Limits in segments ECC1-14. On the premise that these are covered by the later mudflats these would be within deposits breached by the following Project parameters. This includes AOP A1 of the deposit modelling plus areas north of this where the early tidal mud flat may be breached. With regards to the results of baseline assessment including the results of geophysical survey and trial trenching, salterns could be present at the following locations:

- OnSS in ECC13.

- Open cut trenching in -

- parts of ECC1, 9, 12, 13, 14.
- all of ECC2, 3, 4, 5, 6, 7, 8, 10, 11.
 - this includes areas of archaeological interest 2, 4 and 13 in ECC2 (verified through trial trenching), areas of archaeological interest 6 & 7 in ECC5 with salterns in particular being verified through trial trenching in AAI 7 and other specific anomalies verified through trial trenching in ECC3, ECC4 and ECC8.

- Joint bays in -

- parts of ECC1, 2, 9, 13, 14.
- all of ECC3, 4, 5, 6, 7, 8, 10, 11, 12.

- this includes areas of archaeological interest 2, 4 and 13 in ECC2 (verified through trial trenching and areas of archaeological interest 6 & 7 in ECC5 with salterns in particular being verified through trial trenching in AAI 7 and other specific anomalies verified through trial trenching in ECC3 and ECC8.
- Trenchless entry and exit pits in -
 - parts of ECC9, 13, 14.
 - all of ECC1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12.
 - this includes area of archaeological interest 2, 4 and 13 in ECC2 (verified through trial trenching) and areas of archaeological interest 6 & 7 in ECC5 with salterns in particular being verified through trial trenching in AAI7 and other specific anomalies verified through trial trenching in ECC3 and ECC8.

Anglo-Saxon (c.410 AD to 1066)

31. A wetter character to the central and northern parts of the route is likely to have returned during the Anglo-Saxon period when the sea levels encroached once more. This likely rendered the majority of the Project footprint marginal with settlement favouring slightly elevated land which does not appear to have extended into the footprint of the Project. Some potential for agricultural/pastoral activity may extend to segments ECC2, 7, 8 & 9. Salterns may be present in segments ECC1-14 (inclusive).

Medieval (1066-1485)

32. Areas identified through geophysical survey and/or trial trenching which could include medieval activity comprise areas of archaeological interest 3 & 13 (ECC2), 4 (ECC2), 5 (ECC3), 6 (ECC5), 9 (ECC7), 10 (ECC6), , potentially 12 & 14 (ECC8& ECC9), 11 (ECC9/10) and a discrete area at the southern end of ECC3. Conditions would have allowed the continued presence of salterns along tidal creeks in most of the Order Limits except potentially large parts of segments ECC2-ECC4. Saltern geophysical anomalies which could be of medieval date are located in area of archaeological interest 6 (ECC5).

Post Medieval (1485-modern)

33. Post medieval activity references land reclamation and agricultural activity across the entirety of the Project footprint. This includes some potential for remains of demolished farmsteads and other agricultural buildings. This period likely saw the first occupation of the southern parts of the route, specifically ECC13/14. Areas identified through geophysical survey which could include post medieval remains comprise areas of archaeological interest 1 (ECC1), 8 (ECC6) and 12 (ECC8).

Peat and Palaeochannels

34. Also, of note, are the potential deposits of peat which could be present between the tidal mudflats or interleaved within them. Peat deposits could potentially be present within the Project parameters bar the haul roads and the compounds across the Order Limits. The deposit modelling identifies particularly thick areas of peat deposits (**Annex 18** Figure 47-49). The thickness of these deposits likely infers where the most stable wetland habitats were located. These areas are where the potential for organic preservation may be greater. Thinner deposits located elsewhere may infer less stable areas or areas where erosion caused by inter-tidal process has affected the accumulation and survival of peat. The electromagnetic geophysical survey may be useful in indicating areas where the preservation of organic material in areas of peat is most likely. These are high conductivity areas shown in blue on the geophysical figures (**Annex 19**).
35. The peat has the potential to hold the same artefacts discussed for the waterlogged deposits of mud, namely fishtraps, jetties and trackways but also (alongside the waterlogged deposits in general) deposits with paleoenvironmental potential which could inform on past landscapes and environments. The thicker areas of peat referencing more stable areas of wetland, not affected by more energetic tidal or fluvial processes, would hold a greater potential. The deposits associated with the palaeochannels across the Order Limits could also inform on landscape change over time and depositional sequences from the prehistoric period onwards.

Table 20.3: Archaeological Potential Summary Table

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
ECC1						
TJB	✓ T	X	X	X	X	✓
TRENCHLESS exit	✓ P/A/T/S	✓ P/A/S	S	SW	A PMF (MLI118799)	
TRENCHLESS entry	✓ P/A/T/S	✓ P/A/S				
Open Cut	✓ p/a/t/s	✓ p/a/s				
JB	✓ p/a/t/s	✓ p/a/s				
HR	X	X				
Compounds	X	X				
ECC2						
TRENCHLESS exit	✓ P/A/T/S (AAI 2)	✓ P/A/S (AAI 2) (AAI 13)	S A P	A P (AAI 4) (AAI 13)	A	✓
TRENCHLESS entry	✓ P/A/T/S (AAI 2)	✓ P/A/S (AAI 2) (AAI 13)				
Open Cut	✓ P/A/T/S (AAI 2)	✓ P/A/S (AAI 2) (AAI 13)				
JB	✓ p/a/t/s (AAI 2)	✓ p/a/s (AAI 2) (AAI 13)				
HR	X	X				
Compounds	X	X				
ECC3						

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
TRENCHLESS exit	✓ P/A/T/S	✓ P/A/S	S	A P	A M PMF (LiDAR 16) and windmill	✓
TRENCHLESS entry	✓ P/A/T/S	✓ P/A/S				
Open Cut	✓ P/A/T/S	✓ P/A/S				
JB	✓ P/A/T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC4						
TRENCHLESS exit	✓ P/A/T/S	✓ P/A/S	S	A S	A	✓
TRENCHLESS entry	✓ P/A/T/S	✓ P/A/S				
Open Cut	✓ P/A/T/S	✓ P/A/S				
JB	✓ P/A/T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC5						
TRENCHLESS exit	✓ P/A/T/S (AAI 6? & 7?)	✓ P/A/S (AAI 6? & 7?)	S	A S (AAI 6? & 7?)	A PMF (MLI120254)	✓
TRENCHLESS entry	✓ P/A/T/S (AAI 6? & 7)	✓ P/A/S (AAI 6? & 7?)				
Open Cut	✓ P/T/S (AAI 6? & 7?)	✓ P/A/S (AAI 6? & 7?)				
JB	✓ P/T/S (AAI 6? & 7?)	✓ P/A/S (AAI 6? & 7?)				
HR	X	X				

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
Compounds	X	X				
ECC6						
TRENCHLESS exit	✓ P/A/T/S	✓ P/A/S	S	A S P (10)	A (AAI 8?) PMF (MLI124352)	✓
TRENCHLESS entry	✓ P/A/T/S	✓ P/A/S				
Open Cut	✓ P/A/T/S	✓ P/A/S				
JB	✓ P/A/T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC7						
TRENCHLESS exit	✓ T/S	✓ P/A/S	S A	A S P (AAI 9?) M	A	✓
TRENCHLESS entry	✓ T/S	✓ P/A/S				
Open Cut	✓ T/S	✓ P/A/S				
JB	✓ T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC8						
TRENCHLESS exit	✓ T/S	✓ P/A/S (AAI 12?)	S A	A (AAI 12?) S	A PMF (MLI124527) (AAI 12?)	✓
TRENCHLESS entry	✓ T/S	✓ P/A/S (AAI 12?)				
Open Cut	✓ T/S	✓ P/A/S				
JB	✓ T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC9						

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
TRENCHLESS exit	t/s	✓ P/A/S (AAI 14?)	S A	A (AAI 11?) (AAI 14?) S	A PMF (MLI124196) LiDAR 35 LiDAR 37	✓
TRENCHLESS entry	t/s	✓ P/A/S (AAI 14?)				
Open Cut	t/s	✓ p/a/s (AAI 14?)				
JB	t/s	✓ p/a/s (AAI 14?)				
HR	X	X				
Compounds	X	X				
ECC10						
TRENCHLESS exit	✓ T/S	✓ P/A/S	S	A (AAI 11?)	A PMF (MLI124228/LiDAR 39)	✓
TRENCHLESS entry	✓ T/S	✓ P/A/S				
Open Cut	✓ T/S	✓ P/A/S				
JB	✓ T/S	✓ P/A/S				
HR	X	X				
Compounds	X	X				
ECC11						
TRENCHLESS exit	✓ T/S	✓ S	S	SW S A	A	✓
TRENCHLESS entry	✓ T/S	✓ S				
Open Cut	✓ T/S	✓ S				
JB	✓ T/S	✓ S				
HR	X	X				
Compounds	X	X				
ECC12						
TRENCHLESS exit	✓ T/S	✓ S	S	SW S	A	✓
TRENCHLESS entry	✓ T/S	✓ S				

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
Open Cut	✓ t/s	✓ s		A	PMF (MLI123126/LiDA R 51)	
JB	✓ T/S	✓ S				
HR	X	X				
Compounds	X	X				
ECC13						
OnSS	✓ T/S	✓ S	S	SW S	A	✓
TRENCHLESS exit	✓ t/s	✓ s				
TRENCHLESS entry	✓ t/s	✓ s				
Open Cut	✓ t/s	✓ s				
JB	✓ t/s	✓ s				
HR	X	X				
Compounds	X	X				
ECC14						
TRENCHLESS exit	✓ t/s	✓ s	S	SW S	A TW (MLI22401/LiDA R 59) PMF LiDAR 60	✓
TRENCHLESS entry	✓ t/s	✓ s				
Open Cut	✓ t/s	✓ s				
JB	✓ t/s	✓ s				
HR	X	X				
Compounds	X	X				
A16						
Compound	X	X	A	A	A	X
	P = permanent activity A = agricultural/pastoral activity		P = permanent activity (occupation) A = agricultural/pastoral activity			

Project Parameter	Prehistoric Potential*	Roman Potential*	Anglo Saxon Potential*	Medieval Potential*	Post Medieval Potential*	Peat & Palaeochannels
	T = transient activity S = salterns PL = palaeochannel PT = peat X = no potential *capital letters reference general segment wide potential for specified project parameter. Lowercase letters represent restricted potential due to depths of later mudflats.		S = salterns PL = palaeochannel PT = peat SW = sea walls PMF = post medieval farmstead with HER 'MLI' reference cited M = mill identified in the DBA TW = tramway identified in the DBA LiDAR = LiDAR feature identified in the DBA X = no potential *capital letters reference general segment wide potential.			
	Bold text references identified sites (geophysical and/or HER entries). This does not include all geophysical anomalies unless morphology is clear and anomalies concur with other baseline data, however, (numbers in brackets) do reference the areas of archaeological interest with a '?' if dating is uncertain.					

20.4.4 Existing Environment - Cultural Heritage

36. Cultural Heritage receptors are typically those that may be affected by changes in 'setting', as opposed to archaeological receptors typically affected by direct impacts referenced in the Section 20.4.3.
37. Cultural Heritage receptors primarily include assets of a built heritage nature, designated and non-designated. However, other types of asset may also be sensitive to setting change, particularly if they have earthworks and are tangible features where understanding is clearly evidenced by visible landscape features or associated earthworks.
38. Also considered under the 'Cultural Heritage' umbrella are Historic Landscape Character (HLC) and hedgerows important under the historic criteria of the Hedgerow Regulations. HLC can be affected by direct and indirect impacts, whilst hedgerows are typically affected by direct impacts.
39. The HS presented within Volume 3, Appendix 20.2 (document reference 6.3.20.2) sets out the designated and non-designated heritage assets within a search area of 2km-5km from the Order Limits for which consideration of sensitivity was given. These are shown on Figure 20.2.1 and 20.2.2.
40. The assets specified below represent the worst-case scenario of the number of assets potentially affected by the Project, primarily through changes in setting but in respect to certain assets such as HLC and hedgerows physical impact too.

20.4.4.1 Scheduled Monuments

41. The following is a list of scheduled monuments which are located within the study area:
 - ECC6 - Decoy Wood decoy pond (NHLE 1019098) – 30m west of the Order Limits.
 - ECC7 - Abbey Hills Moated Site (NHLE 1016044) – adjacent to Order Limits (compound and temporary access).
 - ECC8 - King's Hill Motte and bailey castle (NHLE 1018398) – 500m north Order Limits.
 - ECC11 - Moulton Hall moated site (NHLE reference 1018584) – 110m west of the Order Limits.
 - ECC13/14 - Wykeham Chapel (NHLE reference 1019096) – 1.4km south-west of Order Limits.
 - ECC13/14 - Pinchbeck Engine (NHLE reference 1004966) – 2.8km south-west.
 - ECC14 - Elloe Stone (NHLE reference 1005037) – 3.3km south-east of Order Limits.

20.4.4.2 Listed Buildings

42. The following is a list of listed buildings which are located within the study area:
 - ECC9 - Grade I Listed Building – Church of St James (NHLE 1308415) – 400m north of Order Limits.
 - ECC10 - Grade II Listed Building – Coupledye Hall (NHLE 1308426) – 500m south of the Order Limits.

- ECC12 - Grade II Listed Building – Suffolk House (NHLE reference 1062020) – 180m south of the Order Limits.
- ECC12 - Grade II Listed Building – Middlecott’s Hospital (NHLE reference 1317493) – 25m west of Order Limits.
- ECC13 - Grade I Listed Building – The Wykeham Chapel of St Nicholas (NHLE reference 1064471) – 1.6km south-west of the Order Limits.
- ECC13 - Grade I Listed Building – Church of St Lawrence (NHLE reference 1064403) 3.6km west of the Order Limits.
- ECC13/14 - Grade II Listed Building – Pigeoncote to the south of Wraggmarsh House (NHLE reference 1064477) – 80m from the Order Limits.
- ECC13/14 - Grade II Listed Building – The Gables (NHLE reference 1146546) – 100m west of the Order Limits.
- ECC13/14 - Grade II Listed Building - Wraggmarsh House Farmhouse (NHLE reference 1147603) – 90m east of Order Limits

20.4.4.3 Conservation Areas

43. The following is a list of Conservation Areas which are located within the study area:

- ECC11 & A6 compound - Frampton – 520m west of Order Limits.
- ECC13 - Gosberton – 2.7km west of Order Limits.
- ECC14 - Moulton – 2.7km south of Order Limits.

20.4.4.4 Non-Designated Farmhouses

44. The following is a list of non-designated farmhouses which are located within the study area:

- ECC1 - Lowgate Farm (HER reference MLI118859) – 110m north of the Order Limits.
- ECC1 - Chestnut Farm (HER reference MLI118860) – 75m east of the Order Limits.
- ECC1 - Quaker’s Hill Farmhouse (MLI118805) – 290m east of the Order Limits.
- ECC2 - Field Farm (MLI118858) – 55m west of the Order Limits.
- ECC2 - un-named farmstead (MLI118865) – 170m east of the Order Limits.
- ECC2 - Malt Farm (MLI118869) – 160m west of the Order Limits.
- ECC2 - Slackholme End House Farm (MLI118880) – 150m west of the Order Limits.
- ECC2 - Jasmine Cottage (MLI118883) – 275m west of the Order Limits.
- ECC2 - Willcox Farm (MLI119832) – 260m east of the Order Limits.
- ECC2 - The Grange (MLI41973) – 240m east of the Order Limits.
- ECC3 - Fir Tree Farm (MLI119851) – 145m east of the Order Limits.
- ECC3 - Bristol Farm (MLI119871) – 190m south of the Order Limits.
- ECC4 - Rookery Farm (MLI120243) – 215m north of the Order Limits.
- ECC4 - Rivulet House (MLI120244) – 270m west of the Order Limits.

- ECC4 - Bank House (MLI120267) – 250m south-west of the Order Limits.
- ECC5 - Sycamore Lodge (MLI120271)– 190m south-west of the Order Limits.
- ECC6 - Decoy Farm (MLI124366)– 260m west of the Order Limits.
- ECC7 - Willoughby Farm (MLI1124362)– 70m north-west of the Order Limits.
- ECC7 - Avenue Farm (MLI1124368)– 90m west of the Order Limits.
- ECC7 - Walnut Farm (MLI1124369)– 170m south of the Order Limits.
- ECC7 - Bleak House (MLI124370)– 110m south of the Order Limits.
- ECC7 - Hawthorn Farm (MLI124441)– 80m south of the Order Limits.
- ECC8 - Farmstead (MLI124437)– 70m south of the Order Limits.
- ECC8 - Farmstead (MLI124438)– 20m west of the Order Limits.
- ECC8 - Farmstead (MLI124526)– 160m west of the Order Limits.
- ECC8 - Old Leake Farmstead (MLI124541)– 100m north of the Order Limits.
- ECC8 - Faunt Bridge Cottage (MLI124506)– 90m west of the Order Limits.
- ECC9 - Swinedike Farm (MLI124199)– 45m east of the Order Limits.
- ECC9 - Reesons Farmstead (MLI124216)– 215m east of the Order Limits.
- ECC9 - Ings Farm (MLI124255)– 210m west of the Order Limits.
- ECC9 - Little Beeches (MLI124256)– 260m west of the Order Limits.
- ECC11 - Marsh Farm (MLI121210)– 170m south of the Order Limits.
- ECC11- Sandholme Farm (MLI123089)– adjacent to the Order Limits.
- ECC11- White House Farm (MLI123119)– 160m west of the Order Limits.
- ECC12 - Lloyds Farm (MLI123128)– 120m north of the Order Limits.
- ECC13 - Hills Farm (MLI122565)– adjacent to the Order Limits.
- ECC13 - Old Three Tuns Farm (MLI122568)– 10m south of the Order Limits.
- ECC13 - un-named farm (MLI122577)– 300m south of the Order Limits.
- ECCC13 - Woad farm (MLI122578)– adjacent to the Order Limits.
- ECCC13 - Welland House farm (MLI122570)– 135m north of the Order Limits.
- ECC13 - Vicarage Farm (MLI122878)– 20m north of the Order Limits.
- ECC13 - Surfleet farm (MLI122569)– 120m west of the Order Limits.
- ECC13 - un-named farm (MLI122909)– 240m east of the Order Limits.
- ECC13 – Manor Farm (MLI122876) – 20m north of the Order Limits.
- ECC14 Bottom Yard (MLI122915) – 150m east of the Order Limits.
- A16 Compound - Old Farm (MLI121208)– 90m west of the Order Limits.

20.4.4.5 Non-Designated Medieval Earthworks/Enclosures

45. The following is a list of non-designated medieval earthworks/enclosures which are located within the order limits:

- ECC2 - potential remains of medieval enclosures within the Order Limits (HER reference MLI98638).
- ECC2 - potential remains of medieval enclosures and a field system within the Order Limits (HER reference MLI98639).

20.4.4.6 Non-Designated Sea-banks/Drains

46. The following is a list of non-designated sea-banks/drain which are located within or abutting the order limits:

- ECC1 – sea bank in Anderby within the Order Limits (HER reference MLI88782)
- ECC11 – two sections of sea wall earthworks including the Roman Bank (MLI97710) crossing the northern part of the segment and another section to the south of Multon Hall Scheduled Monument abutting the Order Limits.
- ECC12 – two sections of sea wall/drain earthworks at Hundred Acre Farm and through the southern part of the segment – within the Order Limits.
- ECC13 – sea wall earthworks (site observations) – abutting the Order Limits.

20.4.4.7 Non-Designated Deserted Medieval Villages

47. The following is a non-designated deserted medieval village located within the order limits:

- ECC2 - potential remains of Slackholme village within the Order Limits (HER reference MLI99418).

20.4.4.8 Non-Designated – Medieval Roads

48. The following is a list of non-designated medieval roads which are located within the order limits:

- ECC6 - possible medieval drove road (MLI90647)– within the Order Limits.
- ECC9 - possible medieval road (MLI13280) – within the Order Limits.

20.4.4.9 Non-Designated – Other

49. The following is a list of non-designated – other features which are located within the order limits:

- ECC7 – possible mill mound and pond (MLI41778) – within the Order Limits.
- General Order Limits – HLC character areas and hedgerows important under the historic criteria.

20.4.5 Future Baseline

50. In a do-nothing scenario any archaeological receptors listed above would remain within a buried horizon or within above ground earthworks. These would be subject to natural erosion and drainage fluctuations. Arable activity may cause manmade erosion in some instances where remains are exposed or shallow.

51. In a do-nothing scenario any setting elements that currently contribute towards the significance of the cultural heritage assets listed above would be retained.

20.5 Basis of Assessment

20.5.1 Scope of the Assessment

52. The following impacts have been scoped into this assessment:

- Construction:
 - Impact 1: Permanent direct impacts to buried archaeological remains through the construction of the landfall, onshore ECC , OnSS and 400Kv cable corridor.
 - Impact 2: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the construction of the ECC and OnSS.
 - Impact 3: Temporary direct impact to non-designated heritage assets through the construction of the landfall, onshore ECC , OnSS and 400Kv cable corridor.
- Operation and maintenance:
 - Impact 1: Permanent indirect impacts to designated and non-designated heritage assets through setting change caused by the presence of the OnSS.
- Decommissioning:
 - Impact 1: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the demolition of the OnSS.
 - Impact 2: Permanent direct impacts to buried archaeological remains through the removal of infrastructure.

53. In line with the Scoping Opinion (The Planning Inspectorate, 2022), and based on the receiving environment, expected parameters of the Project (Chapter 3 (document reference 6.1.3)), and expected scale of impact/potential for a pathway for effect on the environment, the following impacts have been scoped out of the assessment:

- Construction:
 - Transboundary heritage effects.
- Operation and maintenance:
 - Indirect impacts to designated and non-designated heritage assets through setting change caused by the offshore turbines and ORCPs.

20.5.2 Realistic Worst-Case Scenario

54. The following section identifies the MDS in environmental terms, defined by the project design envelope. The MDS is outlined in Chapter 3 Project Description (document reference 6.1.3) and the following parameters are supported by the following figure that can be found in ES Volume 2:

- Figure 3.4 Indicative Onshore Infrastructure (document reference 6.2.3.4)

- *This figure outlines the indicative infrastructure layers as well as associated IDs that have been assigned to each infrastructure element for reference throughout this chapter and the ES. Where an ID is relevant to this figure it is presented in square brackets e.g. [PCC-1].*

Table 20.4: Maximum design scenario for Onshore Archaeology and Heritage for the Project alone

Potential effect	Maximum adverse scenario assessed	Justification
Construction		
Impact 1: Permanent direct impacts to buried archaeological remains through the construction of the ECC, OnSS, and National grid Connection area including the 400kV connection.	Landfall - A Landfall Compound [PCC-1] up to 70,000m² located to the west of Roman Bank and comprising up to six Transition Joint Bays (TJBs) each with a maximum area of 207m² and total area of 1,242m². - A temporary Duct Storage Compound (40,000m²) [SCC-2], where in the event of a pushdown installation (Chapter 3 Project Description), the ducts for the landfall installation will be assembled and stored. Onshore ECC & 400Kv cable corridor - The onshore ECC comprises a typically 80m working width, however the corridor widens at landfall, major trenchless crossing locations and at the OnSS. - The 400kV cable corridor is a typically 60m working width. The corridors each comprise up to 12 cables divided between up to 4 circuits each set in a separate trench each 5m wide and of variable depth. - The working width of the onshore ECC and 400Kv cable corridor also includes in places a typically 6.8m wide haul road (up to 9m at passing places) and stockpiling areas associated with cable construction. - The onshore ECC is approximately 70km in length and includes up to 680 joint bays, the 400kV cable corridor is approximately 4km in length and includes up to 20 joint bays with a maximum footprint of 234m² and up to 2.5m deep. - Up to 8 PCCs and 20 SCCs will be required across the onshore Order limits. The land take for each of the Primary Construction Compounds (PCCs) will be up to 45,000m² and for Secondary Construction Compounds (SCCs) will be up to 4,800m². - Trenchless techniques will be deployed in 216 locations and the remainder of the onshore ECC will be constructed using open cut trenching. - Where trenchless techniques are to be deployed Cable Installation Compounds (CICs) will be required to facilitate these works. There are 216 trenchless crossing	The maximum dimensions of disturbance will allow for the worst-case scenario of disturbance in the assessment of impact to potential buried archaeological remains.

Potential effect	Maximum adverse scenario assessed	Justification
	locations in the Project's design basis with up to 321 CICs. CICs will be of variable size with a footprint of up to 4,000m². ■ The cut for the cable trenches is anticipated to be a maximum of 3m bgl and 5m wide at the surface – 1.5m wide at the base. ■ Trenchless entry pits are expected to be a maximum footprint of 200m² to a depth of 6m. OnSS ■ An OnSS Primary Construction Compound (OnSS PCC) [PCC-29] with an area of up to 40,000m² to be located to the northeast and south of the OnSS. ■ Once the OnSS PCC is reinstated, a portion (5,400m²) of this area will be retained for an additional period of 15 months. ■ Access route from the A16 at the Newlands Road junction, where there will be an OnSS Security & Logistics Compound [PCC-30] with a maximum footprint of 2,400 m². A permanent access road from Surfleet Bank into the OnSS will be up to 8m wide and designed to provide access throughout the operational life of the substation. ■ Air Insulated Switchgear (AIS) and Gas Insulated Switchgear (GIS) options in the design envelope: ■ GIS OnSS with a footprint of approximately 270m x 268.5m (72,600m²) footprint and maximum height of buildings / equipment at 16.5m. ■ AIS OnSS with a footprint of approximately 285m x 325m (144,000m²) and maximum height of height of buildings / equipment at 13m. ■ Disturbance through tree planting, boundary fencing, and SUDS with depths of disturbance extending to 0.4-0.5m.	
Impact 2: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the construction of the ECC,	Construction activity would predominantly be anticipated to extend across a 12-hour working day (07:00 to 19:00 Monday – Saturday) although longer working hours may be required at landfall and at the OnSS. Construction activity would comprise or result in: ■ Plant and haulage movements resulting in noise, dust and visual change; ■ The creation of spoil mounds resulting in visual change; and ■ Light spillage from any temporary lighting required during Winter months.	Consideration of all potential effects on the sensory experience of an asset where changes may affect an understanding of significance.

Potential effect	Maximum adverse scenario assessed	Justification
OnSS, and National Grid connection area.	Direct impact to one part of an asset affecting the 'setting' of other parts for example breach or severance of component parts (temporary nature assumes reinstatement).	
Impact 3: Temporary direct impact to non-designated heritage assets through the construction of the landfall, onshore ECC, OnSS and 400Kv cable corridor	As per Impact 1	The maximum dimensions of disturbance will allow for the worst-case scenario of disturbance in the assessment of impact to hedgerows important under the historic criteria and Historic Landscape Character.
Operation and Maintenance		
Impact 1: Permanent indirect impacts to designated and non-designated heritage assets through setting change caused by the presence of the OnSS	The Project would result in the presence of the following elements which could be located within the setting of a cultural heritage receptor: - OnSS Gas Insulated building– the permanent above ground infrastructure would extend to an anticipated maximum of 16.5m above ground level. All other equipment (e.g., transformers, switchgear) would not exceed a height of 19m above ground level. - OnSS Air Insulated building– the permanent above ground infrastructure would extend to an anticipated maximum of 13m above ground level. - OnSS – tree planting to screen - OnSS – lighting. - OnSS – fencing and signage.	These elements represent all the above ground elements which would permanently alter the character of the area and have the potential to effect important elements of an asset's setting.
Decommissioning		
Impact 1: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the demolition of the OnSS	The visible removal of structures would be restricted to: OnSS – removal of the OnSS.	The decommissioning phase of the Project would cause a visual change at the OnSS only.

Potential effect	Maximum adverse scenario assessed	Justification
Impact 2: Permanent direct impacts to buried archaeological remains through the removal of infrastructure	As referenced by Table 20.4, ground disturbance associated with the decommissioning would be anticipated to be entirely within the footprint of disturbance caused by the construction of the Project.	Onshore decommissioning works would be anticipated to cause ground disturbance in the same areas affected by construction.

20.5.3 Embedded Mitigation

55. Mitigation measures that were identified and adopted as part of the evolution of the Project design (embedded into the Project design) and that are relevant to Onshore Archaeology and Cultural Heritage are listed in Table 20.5. General mitigation measures, which would apply to all parts of the Project, are set out first. Thereafter mitigation measures that would apply specifically to Onshore Archaeology and Cultural Heritage issues associated with the ECC and OnSS are described separately.

Table 20.5: Embedded mitigation relating to Onshore Archaeology and Cultural Heritage

Project phase	Mitigation measures embedded into the project design
General	
Project design	- Careful routing of the onshore ECC route, 400 kV cable corridor and siting of the OnSS to avoid key areas of heritage and archaeological sensitivity. This includes the avoidance of Slackholme DMV – see commitment COM-150. - Potential for preservation in situ of remains of national importance secured by the Schedule of Mitigation (document reference 8.13) and Figure 3.4.7
Construction	
ECC	- The footprint of all designated heritage assets had been avoided. Total avoidance of remains of national importance where possible. - The use of trenchless techniques to avoid open cut trenching and minimise disturbance footprint to other remains of high importance. - The restriction of a typically 60m working width within the typically 80m wide cable corridor to minimise ground disturbance to other remains of high importance. - The ground restoration would be flush. Above ground markers for link boxes may include fencing or marker posts. .
OnSS	The footprint of all designated heritage assets has been avoided.
Operation and Maintenance	
OnSS	Landscaping shown on landscape mitigation plans including woodland shelter belts, Chapter 28 (document reference 6.2.28.15)
Decommissioning	
OnSS	No disturbance to ‘new ground’ that hasn’t already been impacted.

20.6 Assessment Methodology

56. The applicable guidance is summarised as follows:

- National Planning Practice Guidance (DCLG 2014, as updated).
- Principles of Cultural Heritage Impact Assessment in the UK (IEMA, IHBC & Cifa 2021).
- Statements of Heritage Significance: Analysing Significance in Heritage Assets Historic England Advice Note 12 (Historic England 2019).
- The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (2nd edition, Historic England 2017).
- Design Manual for Roads and Bridges –
 - LA 104 Environmental Assessment and Monitoring (Highways England 2019)
 - LA 106 Cultural Heritage Assessment (Highways England 2019).
- The Lincolnshire Archaeology Handbook.³

57. The magnitude of the impact is defined in Table 20.6. This is in accordance with guidance presented in the Design Manual for Roads and Bridges and is considered relevant to a linear Project of this nature.⁴

58. This may be in reference to a direct impact i.e., through physical disturbance or it may be in reference to an indirect effect i.e., through changes to setting that affect significance.

Table 20.6: Impact magnitude definitions

Magnitude	Description/reason
Major	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
Minor	Some measurable change in attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements.

59. In general EIA terminology, the sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. In heritage terms, sensitivity relates to the nature of heritage assets as a non-renewable resource. Sensitivity is representative of an asset's designated status which references rarity on a national scale. Designated status infers the prevalence of a given asset and, therefore, the potential for that particular type of asset when viewed as a group to accommodate removal.

³ <https://www.lincolnshire.gov.uk/historic-environment/archaeological-handbook>

⁴ Design Manual for Roads and Bridges (2019)

60. The NPPF, in paragraph 206 part (b), infers a grading of significance in referring to ‘assets of the highest significance’ in reference to Scheduled Monuments, registered battlefields, Grade I and Grade II* Listed Buildings, Grade I and Grade II* Registered Parks and Gardens and World Heritage Sites. These categories of heritage assets have been incorporated into Table 20.7.

Table 20.7: Sensitivity/importance of the environment

Receptor sensitivity / importance	Definition
Very High	Very high importance and rarity, international scale and very limited potential for substitution. World Heritage Sites
High	High importance and rarity, national scale, and limited potential for substitution. - Assets described as being of the ‘highest significance’ within the NPPF (paragraph 206) - Scheduled Monuments - Registered Battlefields - Grade I and II* Listed Buildings - Grade I and II* Registered Parks and Gardens - Conservation Areas including a high number of Grade I and II* Listed Buildings - Non-designated archaeological remains of demonstrable equivalence to a Scheduled Monument
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution. Assets inferred as not being of the highest importance due to their omission from NPPF paragraph 200. - Grade II Listed Buildings - Other Conservation Areas - Grade II Registered Parks and Gardens - Archaeological remains contributing to regional research frameworks
Low	Low or medium importance and rarity, local scale - Locally listed buildings - Other archaeological remains
Negligible	Very low importance and rarity, local scale

61. Table 20.8 cross references the importance of the receptor with the magnitude of effect and refers to a DMRB matrix with ‘slight’ replaced by ‘minor’ and ‘large’ replaced with ‘major’ to achieve conformity across all chapters of this ES.

Table 20.8: Matrix to determine effect significance

		Magnitude of impact			
		Negligible	Minor	Moderate	Major
Sensitivity/Importance of receptor	Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
	Low	Minor	Minor	Minor	Minor or Moderate
	Medium	Minor	Minor	Moderate	Moderate or Major
	High	Minor	Minor or Moderate	Moderate or Major	Major
	Very High	Minor	Moderate or Major	Major	Major

62. It should be noted that a ‘significant’ impact in EIA terms does not necessarily equate to ‘substantial harm’ in reference to NPPF terminology. Also, as referenced within the DMRB guidance and considered applicable:

*‘the effect on the cultural heritage resource is not significant when the impact does not substantially diminish the heritage interest of the cultural heritage resource’.*⁵

63. A conclusion on whether or not an impact is considered significant will be made by the author of the EIA with regards to a narrative prepared outside of the tabulated summary. A significant impact in EIA terms is be considered to be an impact of moderate adverse effect or greater.

20.6.1 Assumptions and Limitations

64. The prediction of direct impacts to potential archaeological remains has been prepared with regard to a baseline as set out within Appendix 20.1 Onshore Archaeology and Cultural Heritage Desk-Based Assessment (document reference 6.3.20.1)..

65. With regard to archaeological fieldwork, NPPF (paragraph 200) and EN-1 (paragraph 5.9.11) reference a potential necessity for evaluation fieldwork. Fieldwork undertaken to inform the EIA has included targeted geophysical which has evaluated the footprint of the Transition Joint Bays (TJBs), the only part of the Order Limits outside of the onshore ECC and 400kV cable corridor where significant impacts may have been predicted and where preservation in situ is not possible. At the TJBs the geophysical survey has been undertaken and has not highlighted a potential for significant impacts. At the TJBs and the OnSS the geophysical survey has been undertaken and has not highlighted a potential for significant impacts. Trial trenching undertaken at the TJBs and the OnSS confirmed the lack of potential for significant impact at both the TJB and the OnS.
66. Therefore, in light of the indicative onshore infrastructure as set out in Figure 3.4.7, a commitment that preservation in situ could be accommodated for works along the onshore ECC between the TJB and the OnSS and for the 400kV cable corridor (Schedule of Mitigation – document reference 8.13) and the findings of the DBA (document reference 6.3.20.1)) and this Chapter, the baseline presented is considered sufficient for the determination of the DCO.
67. The assessment of indirect (setting) effects was undertaken using all standard desk-based resources. These are set out within Appendix 20.2 (document reference 6.3.20.2). Field observations were made from publicly accessible areas. No privately owned assets were inspected or visited. Assumptions on the private experience of assets have been made.

20.7 Impact Assessment

20.7.1 Construction

68. This section presents the assessment of impacts arising from the construction phase of the Project. The following tabulated matrices are provided as a worst-case scenario. The importance of an asset is provided in accordance with Table 20.7.
69. Remains as set out in the baseline section would be of varying archaeological interest contributing towards an understanding of activity from the prehistoric period onwards.

20.7.1.1 Archaeological Remains

Transient Prehistoric

70. These include potential archaeological remains on the surface of the Pleistocene land surface which is below the earlier tidal mudflat (AOP A1). These would only be reached in discrete areas of the Project as set out in Section 20.4.3. Potential remains would comprise Palaeolithic/Mesolithic worked flints or short lived early prehistoric features such as pits and hearths on the late Pleistocene land surface. Such remains would be of archaeological interest in their contribution towards an understanding of seasonal early hunter gatherer communities living on the edge of Doggerland when it was dry. However, their eroded or ex-situ nature would reduce their level of importance. On this basis a low level of importance is predicted.

71. This category also includes potential archaeological remains on the surface of or within the earlier mudflat. The Project parameters that may affect layers with the potential for these remains are set out in Section 20.4.3. These remains could comprise later (Neolithic onwards) worked flint and remains of fish traps, jetties and trackways. These would be of archaeological interest in their contribution towards an understanding of hunting activity or movement across marshy landscapes. These activities may have been undertaken on the edge of or within wetland habitats which emerged and re-emerged during various periods of inundation and regression. Due to the nature of the depositional environment involving estuarine tidal processes, it is anticipated that any remains would be eroded and ex-situ apart from in areas where peat may have preserved remains within areas of slower depositional processes.
72. Remains would be of archaeological interest. In general, they would not be regarded as being of the highest archaeological importance. Exceptions to this in the category in general may be significant structures such as trackways and jetties which could have been constructed within marshland habitats to facilitate hunting. However, in the footprint of the proposals the repeated estuarine tidal processes which have driven periods of inundation are anticipated to have caused disturbance such that features within and beneath the mudflats would be anticipated to be eroded and ex-situ in most instances. An importance of medium is predicted for areas of stability referenced by the thicker deposits of peat. A lower level of importance is predicted in areas of no peat or thin peat.

Palaeoenvironmental/geoenvironmental

73. These include deposits with organic potential which comprise peat but also waterlogged clays. These would be within and between the later and earlier tidal mudflats. Due to their antiquity, the deposits within the earlier mudflat would probably be of greater interest.
74. Plant remains, molluscs and pollen could inform on previous climate, hydrology and ecology and assist in reconstructing past landscapes. The dating of palaeochannels and the recording of sequences of deposition within them could assist in the understanding of periods of marine ingress and regression.
75. Deposits of palaeoenvironmental potential and geoarchaeological potential would therefore be of archaeological interest. The greater interest may lay within deposits held within the earlier mudflat deposit. They would not, however be regarded as being of the highest archaeological importance. An importance of low to medium is predicted.

Permanent Occupation and Agriculture

76. Permanent remains associated with occupation or agriculture would most likely be present on the surface of, within or beneath the later mudflat (AOP 02). The Project parameters where potential remains of this nature may be anticipated are set out within Section 20.4.3.
77. If remains are present it is anticipated that they would most likely be of Iron Age/Romano-British, medieval or post medieval in date.

78. Remains associated with Iron Age/Roman settlements would illustrate occupation and agricultural expansion into a late/post prehistoric landscape emerged from the marginal conditions of earlier periods through dropping sea levels. Any remains could inform on the construction of roundhouses and farmsteads and illustrate methods of enclosure, farming and small-scale industrial activity such as the making of pottery. Occupation remains would be anticipated to contribute to an understanding of regional patterns and would be of medium archaeological importance. Associated field systems would be of relatively less importance.
79. Much is left to be understood about medieval settlements, including defining settlement types and their relationships, such as towns and other large settlements, particularly in Lincolnshire and the Fenland ridge. Settlement remains dating to the medieval period would have the potential for archaeological remains which would contribute to our understanding of medieval settlement development, growth, level of planning, building types and construction materials, and domestic, agricultural and industrial remains. In general, they would be anticipated to contribute towards a regional understanding of medieval archaeology and be of medium importance but at isolated examples, where relatively large areas of activity are expected and where truncation has been minimal remains could be of higher importance. For example, the remains in ECC2 at Slackholme deserted medieval village may be of high importance due to the level of preservation inferred by earthworks (HER MLI99418). Remains of associated field systems of Anglo Saxon or medieval date would be regarded as being of relatively lesser importance apart from field systems with good surviving earthworks. Medieval roads could inform on communication routes between settlements and areas of other activity and would be anticipated to be of low to medium importance.
80. Post medieval farmsteads and other post medieval buildings, which could inform on the continuation of activity from the preceding medieval period and post medieval expansion of farming and occupation across reclaimed land, would be of low to medium archaeological importance. Other identified remains of post medieval date which could relate to post medieval agriculture are tramways at the southern end of the Order Limits. Any remains would be of negligible to low importance.
81. Post medieval field systems would inform on the post medieval agglomeration of earlier field systems and the enclosure of new areas of land. These would be anticipated to be of negligible to low archaeological interest.
82. Medieval/post medieval drainage ditches which would inform on the management of water for the purposes of drainage/land reclamation in making land suitable for occupation and agriculture. These would be anticipated to range in the region of negligible to medium importance, the larger ditches such as the Hob Hole Drain being of relatively higher interest due to the level of engineering and the impact that its construction had on regional land improvements.

Salterns

83. The remains of salterns may be present as low mounds made up of pottery waste and fragments of burnt clay which could have accumulated over many episodes of the heating of brine water and the collection of salt crystals. Saltern remains would be present between the earlier and the later mudflat deposit within the Project parameters as set out in Section 20.4.3. These are most likely to date to the Iron Age/Roman to medieval periods.
84. These assets would be considered of low importance in the circumstances of the Project footprint where repeated estuarine tidal processes which have driven periods of inundation are anticipated to have caused disturbance such that features within and beneath the mudflats would be anticipated to be eroded. Later arable intensification in the area would also have affected later examples such that all earthworks in general are eroded.

Seawalls

85. The waste products from salt making were responsible for the accumulation of debris which in places accumulated to such a height it acted as a sea wall. These accumulations are not anticipated within the Order Limits, with seawall remains of this type being specifically recorded outside of the Project footprint.
86. Purpose-built defences of likely medieval date are recorded within close vicinity to or extending into the Order Limits as referenced in Section 20.4.3. Depending on their level of preservation these assets would be considered of low to medium importance, illustrating a concerted effort in the medieval period to defend areas of land from inundation most likely for the purposes of grazing and agricultural expansion, albeit an association with defended settlement cannot be ruled out. Seawalls with extant earthworks would be considered to be of medium importance due to the visual appreciation of their function and the preservation of their structures informing on medieval methods of sea defence construction.

Summary

87. It is anticipated that archaeological remains would be predominantly gauged at no greater than low or medium importance. Exceptions to this are the medieval remains associated with Slackholme deserted medieval village. These could be well preserved and be of high importance. These would be avoided through trenchless methods.
88. The significance of effect for each Impact is provided in accordance with Table 20.8 as described Section 20.6.

20.7.1.2 Impact 1: Permanent direct impacts to buried archaeological remains through the construction of the Landfall, Onshore ECC, 400 kV cable route and OnSS.

89. A summary of the permanent direct impacts to buried archaeological remains through the construction of the landfall, onshore ECC, 400Kv cable corridor and the OnSS, are summarised within Table 20.9.

90. Impacts 1-20 relate to direct construction disturbance. The magnitude of impact is generally assessed as being 'moderate to major'. This reflects the likely footprint of an asset and the likely footprint of disturbance both horizontally and vertically. A lower level of magnitude is referenced where assets may be particularly large. A lower level of magnitude is also referenced where potential construction parameters are particularly shallow, such as compounds and haul roads where the ground disturbance may not penetrate beyond plough soils or 'overburden' such that deposits with archaeological potential would be minimally affected.
91. Impact 21 references potential effects through dewatering. The magnitude of impact is referenced with due regard to the conclusions of Chapter 24 Onshore Hydrology, Hydrogeology and Flood Risk,
92. Significant impacts are those referenced with a significance of effect of moderate or greater.
93. However, the impacts referenced in Table 20.9 present the worst-case scenario impacts i.e. they reference the installation of the cable via open cut methods where 'open cut or trenchless' works are referenced within Figure 3.4.7.
94. It is emphasised that preservation in situ of remains of national importance could be achieved through the implementation of construction techniques which could be applied across the entire onshore Order Limits between the TJB sites and the OnSS and the OnSS and the Project's connection point into the NGSS. These comprise the micro-siting of launch and receive pits, trenchless construction techniques for cable installation and no-dig methods at compounds and haul roads. These options are secured by the submission documents which reference flexible construction methods (Figure 3.4.7) and the Schedule of Mitigation (document reference 8.13). Final construction parameters referencing the above trenchless and no-dig methods would be informed by the works set out within the OWSI for Archaeological Works (document reference 8.9).
95. The potential best-case impact scenario which references a potential for preservation in situ, are set out in at the end of this chapter. In this scenario Table 20.18 does not reference any significant impacts, it being noted that the higher range of worst-case impacts identified in relation to impacts 4 and 6 do not apply to the TJB and the OnSS where deposits of peat are modelled at 0-0.5m in thickness only. This would infer a relative lack of importance in relation to thicker deposits located elsewhere.
96. All impacts should be balanced by the public benefits of providing a renewable electricity supply. Public benefits could also be achieved through the release of heritage capital that any archaeological fieldwork would trigger.

Table 20.9: Permanent direct impacts to buried archaeological remains.

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
1. Prehistoric (permanent) - Iron Age occupation features covered by later tidal mudflats. Potentially including - area of archaeological interest 2 in ECC2.	- Open cut trenching in parts of ECC1 and all of ECC 2-6. - Joint bays in all of ECC3-6. - Joint bays in parts of ECC1-2 and all of ECC3-6. - Trenchless entry and exit pits in all of EEC1 through to ECC6.	Medium	Moderate to Major	Moderate (significant)	Permanent
2. Prehistoric (permanent) - Iron Age agricultural features covered by later tidal mudflats. Potentially including - area of archaeological interest 2 in ECC2.	- Open cut trench in parts of ECC1 and all of ECC 2-6. - Joint bays in all of ECC3-6. - Joint bays in parts of ECC1-2 and all of ECC3-6. - Trenchless entry and exit pits in all of EEC1-ECC6.	Low	Moderate - Major	Minor	Permanent
3. Prehistoric (transient/short lived). Worked flint and short-lived features beneath the earlier mudflat deposit – potential Palaeolithic/Mesolithic date (importance affected by likely eroded and ex situ survival).	- Trenchless entry/exit in all of ECC2 and ECC7-8 and parts of ECC1, ECC3-6, ECC9-14. - Joint bays in parts of ECC7-8. - Open cut trench in parts of ECC7-8 and ECC10. - OnSS – piled foundations.	Low	Moderate-Major	Minor	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
4. Prehistoric (transient/ short lived). Later prehistoric worked flint and wooden artefacts such as fishtraps, jetties, trackways (importance affected by likely eroded and ex situ survival, greater levels of importance predicted for thicker deposits of peat).	- TJB in ECC1. - OnSS in ECC13. - Open cut trench in all of ECC1,9,12-13 and parts of ECC2-8 & 10-11. - Joint bays in all of ECC3-8 & 10-12. - Joint bays in parts of ECC1, 2, 9 & 13-14. - Trenchless entry/exit pits in all of ECC1-8 & 10-12 and parts of ECC9 & ECC13-14.	Low to medium	Moderate-Major	Minor to moderate (potentially significant)	Permanent
5. Palaeochannels with potential for deposits of geoarchaeological interest	All segments (all works but likely not haul roads or compounds due to relative depths)	Medium	Minor	Minor	Permanent
6. Peat may contain deposits of palaeoenvironmental and geoarchaeological potential	All segments (all works but likely not haul roads or compounds due to relative depths)	Low to Medium	Minor to moderate	Minor to Moderate (potentially significant)	Permanent
7. Roman occupation. Potentially including - - Area of archaeological interest 2 in ECC2 verified through trial trenching (trenches 24-58). - Discrete area in ECC3 recorded by trial trenching of an	- Open cut trench in all of ECC2-8 & 10 and parts of ECC1 & 9. - Joint bays in all of ECC3-8 and ECC10. - Joint bays in parts of ECC1-2 and ECC9. - Trenchless entry and exit pits in all of ECC1-ECC10.	Medium	Moderate to Major	Moderate (significant)	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
- isolated geophysical anomaly (trench 92) - Discrete area in EEC7 recorded by trial trenching of an isolated geophysical anomaly (trial trench 176).					
8. Roman agricultural. Potentially including - - Possible Roman ditches recorded in ECC1 in trial trenches 15-17 - Area of archaeological interest 2 in ECC2. - Area of archaeological interest 12 in ECC8 - Area of archaeological interest 14 in ECC9	- Open cut trench in all of ECC2-8 & 10 and parts of ECC1 & 9. Joint bays in all of ECC3-8 and ECC10. Joint bays in parts of ECC1-2 and ECC9. - Trenchless entry and exit pits in all of ECC1-ECC10.	Low	Moderate to Major	Minor	Permanent
9. Iron Age/Roman salterns. Potentially including – Area of archaeological interest 2 in ECC2 verified through trial trenching (trenches 27-58).	- TJB in ECC1. - OnSS in ECC13. - Open cut trench in all of ECC2-8 & 10-12. - Open cut trench in parts of ECC1, 9 & 12-14. - Joint bays in all of ECC2-8 & ECC10-12.	Low	Moderate to Major	Minor	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
- Area of archaeological interest 13 in ECC2 verified through trial trenching (trial trenches 59-63) - Geophysical anomalies in ECC3, ECC4 and ECC8 verified through trial trenches (trenches 76-81 and 99 and 178). - Area of archaeological interest 6 in ECC5 Area of archaeological interest 7 in ECC5 verified through trial trenching (trenches 127-128 & 130-133).	- Joint bays in parts of ECC1, ECC9 & ECC13-14. - Trenchless entry/exit pits in all of ECC1-8 and ECC10-12. - HDD entry/exit pits in parts of ECC9 & ECC13-14.				
10. Anglo Saxon Agricultural	- ECC2 (all works) - ECC7-9 & A16 compound (all works)	Low	Moderate to Major	Minor	Permanent
11. Anglo Saxon salterns	ECC1-ECC14 (all works)	Low	Moderate to Major	Minor	Permanent
12. Medieval sea walls	ECC1, ECC11-ECC13 (all works)	Medium	Neutral	None	-
13. Medieval salterns. Potentially including –	ECC1, ECC5-ECC14 (all works)	Low	Moderate to Major	Minor	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
14. Medieval occupation Slackholme	ECC2	Medium/High	Neutral	None	
15. Medieval occupation at area of archaeological interest 9 in ECC7	ECC7 including SCC-13 (all works)	Medium/High	Minor to moderate	Moderate (significant)	Permanent
16. Medieval occupation other locations. Potentially including - Area of archaeological interest 13 in ECC2 verified through trial trenching (trenches 59-63). - Area of archaeological interest 4 in ECC 2 - Discrete area of potential activity at the southern end of ECC3 referenced by an isolated geophysical anomaly and verified by trial trenching (trial trench 92) - Area of archaeological 10 in ECC6 verified through trial trenching (trial trenches 148-149 & 151-154).	ECC2, ECC3, ECC6, ECC7 (all works)	Medium	Moderate to Major	Moderate (significant)	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
17. Potential Medieval agricultural remains. ▪ Ditches recorded by trial trenching in ECC 3 (trial trenches 84, 85 & 87) ▪ Area of archaeological interest 5 in ECC3 verified through trial trenching (trial trenches 84-85 & 87) ▪ Area of archaeological interest 12 in ECC8 ▪ Area of archaeological interest 11 in ECC9 and ECC10 ▪ Area of archaeological interest 14 in ECC9	▪ ECC1-ECC12 & A16 compound [PCC-23] (all works)	Low	Moderate to Major	Minor	Permanent
18. Post medieval farmsteads/agricultural buildings. ▪ MLI118799 in ECC1 ▪ MLI120254 in ECC5 ▪ MLI124352 in ECC6 ▪ MLI124527 in ECC8 ▪ MLI124196 in ECC9 ▪ MLI124228 in ECC10 ▪ MLI123126 in ECC12	▪ ECC1, ECC5, ECC6, ECC8, ECC9, ECC10, ECC12 (all works)	Low	Moderate-Major	Minor	Permanent

Asset	Segment	Importance	Magnitude of Effect	Significance of Effect (Adverse)	Duration
Potentially Area of archaeological interest 12 in ECC8					
19. Post medieval field systems	All (all works)	Negligible to Low	Minor	Minor	Permanent
20. Post medieval tramline	ECC14 (all works)	Negligible to Low	Minor	Minor	Permanent
21. Peat deposits including peat deposits with potential for organic remains	All segments (all works but likely not haul roads or compounds due to relative depths)	Low to Medium	Negligible	Minor	Temporary

20.7.1.3 Impact 2: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the construction of the ECC, OnSS and National Grid connection.

97. This section presents the assessment of impacts arising from the construction phase of the Project. The following tabulated matrices in Table 20.10 are provided as a worst-case scenario. The importance of an asset is provided in accordance with Table 20.6. The magnitude of impact is provided in accordance with Table 20.7. The significance of effect is provided in accordance with Table 20.8.
98. A more detailed narrative is presented for selected assets within the Heritage Statement (document reference 6.3.20.2). Sections 5 and 6 of Appendix 20.2 include statements of significance and a detailed impact assessment for assets which were assessed to be at a potential risk of significant impact due to either their level of importance and/or the anticipated nature of impact. All assets referenced in more detail in Appendix 20.2 (document reference 6.3.20.2) are presented in italics in the tables below.
99. Cross references will be made to other chapters (presented in Volume 1 of the ES) providing for information on setting change. These will be:
- Chapter 26 Noise and Vibration (document reference 6.1.26);
 - Chapter 27 Traffic and Transport (document reference 6.1.27); and
 - Chapter 28 Landscape and Visual Assessment (document reference 6.1.28).
100. It is noted here that it is anticipated that should any ‘significant’ impacts be identified here under EIA terminology, they are not indicative of ‘substantial harm’ as referenced by the NPPF.
101. All impacts should be balanced by the public benefits around an electricity supply that the proposals would offer.

Table 20.10: In-direct Temporary Impacts – Construction Phase

Segment	Asset	Importance	Magnitude	Effect	Duration
Scheduled Monuments					
ECC7	Abbey Hills Moated Site (1016044)	High	Negligible/Minor	Minor adverse	Temporary
ECC8	King’s Hill Motte (1018398)	High	Negligible	Minor adverse	Temporary
ECC11	Moulton Hall (1018584)	High	Negligible/Minor	Minor adverse	Temporary
ECC13	Wykeham Chapel (1019096)	High	Negligible	Minor adverse	Temporary
Listed Buildings					
ECC9	Church of St James (Grade I 1308415)	High	Negligible	Minor adverse	Temporary

Segment	Asset	Importance	Magnitude	Effect	Duration
ECC10	Coupledyeke Hall (Grade II 1308426)	Medium	Negligible	Minor adverse	Temporary
ECC13	The Wykeham Chapel of St Nicholas (Grade I 1064471)	High	Negligible	Minor adverse	Temporary
ECC13	The Gables (Grade II 1146546)	Medium	Negligible/Minor	Minor adverse	Temporary
ECC13	Wraggmarsh Farmhouse (Grade II 1147603)	Medium	Negligible/Minor	Minor adverse	Temporary
Non-Designated Farmhouses					
ECC1	Lowgate Farm (HER reference MLI118859)	Low	Negligible/Minor	Minor adverse	Temporary
ECC1	Chestnut Farm (HER reference MLI118860)	Low	Negligible/Minor	Minor adverse	Temporary
ECC1	Quaker's Hill Farmhouse (MLI118805).	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	Field Farm (MLI118858)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	un-named farmstead (MLI118865)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	Malt Farm (MLI118869)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	Slackholme End House Farm (MLI118880)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	Jasmine Cottage (MLI118883)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	Willcox Farm (MLI119832)	Low	Negligible/Minor	Minor adverse	Temporary
ECC2	The Grange (MLI41973)	Low	Negligible/Minor	Minor adverse	Temporary

Segment	Asset	Importance	Magnitude	Effect	Duration
ECC3	Fir Tree Farm (MLI119851)	Low	Negligible/Minor	Minor adverse	Temporary
ECC3	Bristol Farm (MLI119871)	Low	Negligible/Minor	Minor adverse	Temporary
ECC4	Rookery Farm (MLI120243)	Low	Negligible/Minor	Minor adverse	Temporary
ECC4	Rivulet House (MLI120244)	Low	Negligible/Minor	Minor adverse	Temporary
ECC4	Bank House (MLI120267)	Low	Negligible/Minor	Minor adverse	Temporary
ECC5	Sycamore Lodge (MLI120271)	Low	Negligible/Minor	Minor adverse	Temporary
ECC6	Decoy Farm (MLI124366)	Low	Negligible/Minor	Minor adverse	Temporary
ECC7	Willoughby Farm (MLI1124362)	Low	Negligible/Minor	Minor adverse	Temporary
ECC7	Avenue Farm (MLI1124368)	Low	Negligible/Minor	Minor adverse	Temporary
ECC7	Walnut Farm (MLI1124369)	Low	Negligible/Minor	Minor adverse	Temporary
ECC7	Bleak House (MLI124370)	Low	Negligible/Minor	Minor adverse	Temporary
ECC7	Hawthorn Farm (MLI124441)	Low	Negligible/Minor	Minor adverse	Temporary
ECC8	Farmstead (MLI124437)	Low	Negligible/Minor	Minor adverse	Temporary
ECC8	Farmstead (MLI124438)	Low	Negligible/Minor	Minor adverse	Temporary
ECC8	Farmstead (MLI124526)	Low	Negligible/Minor	Minor adverse	Temporary
ECC8	Old Leake Farmstead (MLI124541)	Low	Negligible/Minor	Minor adverse	Temporary
ECC8	Faunt Bridge Cottage (MLI124506)	Low	Negligible/Minor	Minor adverse	Temporary

Segment	Asset	Importance	Magnitude	Effect	Duration
ECC9	Swinedike Farm (MLI124199)	Low	Negligible/Minor	Minor adverse	Temporary
ECC9	Reasons Farmstead (MLI124216)	Low	Negligible/Minor	Minor adverse	Temporary
ECC9	Ings Farm (MLI124255)	Low	Negligible/Minor	Minor adverse	Temporary
ECC9	Little Beeches (MLI124256)	Low	Negligible/Minor	Minor adverse	Temporary
ECC11	Marsh Farm (MLI121210)	Low	Negligible/Minor	Minor adverse	Temporary
ECC11	Sandholme Farm (MLI123089)	Low	Negligible/Minor	Minor adverse	Temporary
ECC11	White House Farm (MLI123119)	Low	Negligible/Minor	Minor adverse	Temporary
ECC12	Lloyds Farm (MLI123128)	Low	Negligible/Minor	Minor adverse	Temporary
ECC12	Lentons Farm (MLI123053)	Low	Negligible/Minor	Minor adverse	Temporary
A16 Compound	Old Farm (MLI121208)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Hills Farm (MLI122565)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Old Three Tuns Farm (MLI122568)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	un-named farm (MLI122577)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Woad farm (MLI122578)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Welland House farm (MLI122570)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Vicarage Farm (MLI122878)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Surfleet farm (MLI122569)	Low	Negligible/Minor	Minor adverse	Temporary

Segment	Asset	Importance	Magnitude	Effect	Duration
ECC13	un-named farm (MLI122909)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Manor Farmhouse (MLI122876)	Low	Negligible/Minor	Minor adverse	Temporary
ECC14	Crowtree Farm (MLI122916)	Low	Negligible/Minor	Minor adverse	Temporary
ECC14	Bottom Yard (MLI122915)	Low	Negligible/Minor	Minor adverse	Temporary
Non-Designated Medieval/Post Medieval Earthworks					
ECC2	Medieval enclosures (MLI98638)	Low to medium	Minor to moderate	Minor adverse	Temporary
ECC3	Medieval enclosures and field system (MLI98639)	Low to medium	Minor to moderate	Minor adverse	Temporary
Non-designated Deserted Medieval Villages					
ECC2	Slackholme (MLI99418)	Medium to high	Negligible	Minor adverse	Temporary
Historic Landscape Character and Hedgerows					
ECC1-5	Skegness Holiday Coast - The Grazing Marshes	Low	Negligible to minor	Minor adverse	Temporary
ECC1-2	The Mablethorpe Outmarsh - The Grazing Marshes	Low	Negligible to minor	Minor adverse	Temporary
ECC5-13	Townlands - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC6-9	Eastern Fens - The Fens	Low	Negligible to minor	Minor adverse	Temporary
ECC11-12	Reclaimed Coastal Fringe - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC14	Reclaimed Wash Farmlands - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC13	Bicker Haven - The Wash	Low	Negligible to minor	Minor adverse	Temporary

20.7.1.4 Impact 3: Temporary direct impact to non-designated heritage assets through the construction of the landfall, onshore ECC, OnSS and 400Kv cable corridor

102. The temporary direct impacts to hedgerows and Historic Landscape Character (HLC) remains through the construction of the landfall, onshore ECC, 400Kv cable corridor and the OnSS are set out within Table 20.11.
103. Impacts presented below are temporary in reference to the reinstatement of hedgerows and the underground nature of the proposals within the ECC and 400kV cable corridor.
104. For all assets the magnitude of impact is assessed as being 'negligible to minor'. This reflects the relative size of the affected part of each asset, relative to the size of the wider HLC parcel or length of hedgerow.

Table 20.11: Direct Temporary Impacts – Construction Phase

Segment	Asset	Importance	Magnitude	Effect	Duration
Historic Landscape Character and Hedgerows					
Hedgerows	Hedgerows set out in Annex 2 of the HS	Medium	Negligible to Minor	Minor adverse	Temporary
ECC1-5	Skegness Holiday Coast - The Grazing Marshes	Low	Negligible to minor	Minor adverse	Temporary
ECC1-2	The Mablethorpe Outmarsh - The Grazing Marshes	Low	Negligible to minor	Minor adverse	Temporary
ECC5-13	Townlands - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC6-9	Eastern Fens - The Fens	Low	Negligible to minor	Minor adverse	Temporary
ECC11-12	Reclaimed Coastal Fringe - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC14	Reclaimed Wash Farmlands - The Wash	Low	Negligible to minor	Minor adverse	Temporary
ECC13	Bicker Haven - The Wash	Low	Negligible to minor	Minor adverse	Temporary

20.7.2 Operations and Maintenance

105. At the operational phase, impacts are anticipated to be restricted to those caused by upstanding buildings and associated features at the OnSS. These would be impacts caused by change within the setting of a heritage receptor which would be anticipated to affect the significance of the heritage receptor. It is noted here that change within the setting of a heritage receptor does not necessarily equate to adverse harm under this specific consideration. Impacts are referenced as short term due to mitigation planting which would provide screening.
106. A more detailed narrative is presented for selected assets within Appendix 20.2 (document reference 6.3.20.2).
107. It is noted here that it is anticipated that any 'significant' impacts identified here under EIA terminology are not indicative of 'substantial harm' as referenced by the NPPF.

20.7.2.1 Impact 1: Permanent indirect impacts to designated and non-designated heritage assets through setting change caused by the presence of the OnSS.

108. Table 20.12 presents the permanent indirect impacts to designated and non-designated heritage assets through setting change caused by the presence of the OnSS.

Table 20.12: Indirect Permanent Impacts – Operational Phase

Segment	Asset	Importance	Magnitude	Effect	Duration
Scheduled Monuments					
ECC13	Wykeham Chapel (1019096)	High	Negligible	Minor adverse	Short term
Listed Buildings					
ECC13	The Wykeham Chapel of St Nicholas (Grade I 1064471)	High	Negligible	Minor adverse	Short term
ECC13	The Gables (Grade II 1146546)	Medium	Negligible/Minor	Minor adverse	Short term
ECC13	Wraggmarsh Farmhouse (Grade II 1147603)	Medium	Negligible/Minor	Minor adverse	Short term
Non-Designated Farmhouses					
ECC13	Hills Farm (MLI122565)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	Old Three Tuns Farm (MLI122568)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	un-named farm (MLI122577)	Low	Negligible/Minor	Minor adverse	Short term

Segment	Asset	Importance	Magnitude	Effect	Duration
ECC13	Woad farm (MLI122578)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	Welland House farm (MLI122570)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	Vicarage Farm (MLI122878)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	Surfleet farm (MLI122569)	Low	Negligible/Minor	Minor adverse	Short term
ECC13	Manor farm (MLI122876)	Low	Negligible/Minor	Minor adverse	Short term
Historic Landscape Character					
ECC13	Bicker Haven - The Wash	Low	Minor	Minor adverse	Permanent

109. It is noted that for all assets bar Historic Landscape Character that these are short-term operational effects. In the long term the screening provided by proposed planting would substantially screen the proposals and remove any operational impact.

20.7.3 Decommissioning

20.7.3.1 Impact 1: Temporary indirect impacts to designated and non-designated heritage assets through setting change caused by the demolition of the OnSS.

Table 20.13: Indirect Temporary Impacts – Decommission Phase

Segment	Asset	Importance	Magnitude	Effect	Duration
Scheduled Monuments					
ECC13	Wykeham Chapel (1019096)	High	Negligible	Minor adverse	Temporary
Listed Buildings					
ECC13	The Wykeham Chapel of St Nicholas (Grade I 1064471)	High	Negligible	Minor adverse	Temporary
ECC13	The Gables (Grade II 1146546)	Medium	Negligible/Minor	Minor adverse	Temporary
ECC13	Wraggmarsh Farmhouse (Grade II 1147603)	Medium	Negligible/Minor	Minor adverse	Temporary
Non-Designated Farmhouses					
ECC13	Hills Farm (MLI122565)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Old Three Tuns Farm (MLI122568)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	un-named farm (MLI122577)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Woad farm (MLI122578)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Welland House farm (MLI122570)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Vicarage Farm (MLI122878)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	Surfleet farm (MLI122569)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13	un-named farm (MLI122909)	Low	Negligible/Minor	Minor adverse	Temporary

20.7.3.2 Impact 2: Permanent direct impacts to buried archaeological remains through the removal of infrastructure

110. It is anticipated that the footprint of ground disturbance associated with decommissioning would be within the zone of disturbance associated with the construction phase of the Project. On this assumption, there would be no potential significant impact to archaeological which would have been removed or heavily truncated by construction activity.

20.8 Mitigation

111. Mitigation works are set out in the OWSI for Archaeological Work (document reference 8.9). These comprise the standard suite of archaeological mitigation works including set piece excavation, strip, map and sample, watching briefs and preservation in situ. Mitigation options will be deployed in response to the results of archaeological evaluation also set out within the OWSI.

20.9 Cumulative Impact Assessment

112. This cumulative impact assessment for archaeology and cultural heritage has been undertaken in accordance with the methodology provided in Volume 3, Appendix 32.1 Cumulative Effects Assessment Approach (document reference 6.3.32.1).
113. The projects and plans selected as relevant 'other developments' to the assessment of cumulative impacts to Onshore Archaeology and Cultural Heritage are based upon a screening exercise undertaken on an initial long list of reasonably foreseeable other developments located within the Project's zone of influence; be it consented schemes not built out or schemes for which planning consent is actively being sought.
114. Each project, plan or activity under these terms has been considered and scoped in or out on the basis of effect-receptor pathway, data confidence and the temporal and spatial scales involved.
115. The determination of the short list of other developments is documented in Appendix 32.1 (document reference 6.3.32.1).
116. For the purposes of assessing the cumulative impact on Archaeology and Cultural Heritage all other developments, other than the Naylor's Farm application and the National Grid Substation (see below), were screened out due to the lack of common receptors. A

20.9.1 Naylor's Farm Application

20.9.1.1 Archaeology (Direct Impacts)

117. The Naylor's Farm application which comprises a proposed anaerobic digester plant is located to the immediate west of the Order Limits; specifically, west of the OnSS. Apart from the potential direct impact to possible palaeochannels, transient remains, salterns and deposits of peat which in this location would be anticipated to have been affected by erosion, no cumulative impacts would be predicted. The works associated with Naylor's Farm and the OnSS would not be anticipated to combine to cause a significant impact due to the anticipated level of importance or remains as set out in Table 20.14.

118. In both cases archaeological mitigation would be implemented to record archaeological and paleoenvironmental remains.

Table 20.14: Potential Common Archaeology Receptors with the Naylor's Farm Application

Segment	Asset	Importance	Cumulative Magnitude	Cumulative Effect	Duration
ECC13/OnSS	Disturbance to palaeochannels with potential for deposits of geoarchaeological interest	Medium	Minor	Minor adverse	Permanent
ECC13/OnSS	Peat which may contain deposits of palaeoenvironmental and geoarchaeological potential	Low	Minor to moderate	Minor adverse	Permanent
ECC13/OnSS	Prehistoric (transient/ short lived). Worked flint and short-lived features beneath the earlier mudflat deposit – potential Palaeolithic/Mesolithic date (importance affected by likely eroded and ex situ survival).	Low	Moderate to major	Minor	Permanent
ECC13/OnSS	Salterns (Iron Age to medieval)	Low	Moderate to major	Minor	Permanent

20.9.1.2 Cultural Heritage (Setting Impacts)

119. Common receptors would be anticipated to be as set out within Table 20.15. These are assets located in the vicinity of Naylor's Farm where effects have been predicted in respect to the construction in the Order Limits, principally the OnSS (see Appendix 20.2). It is noted that all cumulative impacts classified as temporary would only occur if the OnSS and Naylor's Farm were to be constructed at the same time.

120. As indicated, impacts identified for the Project OnSS are not anticipated to combine cumulatively with the Naylor Farm proposals to increase the level of impact already identified. Therefore, no significant cumulative impacts are predicted in respect to heritage receptors through setting change.

Table 20.15: Potential Common Heritage Receptors with the Naylor's Farm application

Segment	Asset	Importance	Cumulative Magnitude	Cumulative Effect	Duration
Scheduled Monuments					
ECC13/OnSS	Wykeham Chapel (1019096)	High	Negligible	Minor adverse	Temporary & Short term
Listed Buildings					
ECC13/OnSS	The Gables (Grade II (1146546))	Medium	Negligible/Minor	Minor adverse	Temporary & Short term
ECC13/OnSS	The Wykeham Chapel of St Nicholas (Grade I 1064471)	High	Negligible	Minor adverse	Temporary & Short term
Non-Designated Farmhouses					
ECC13/OnSS	un-named farm (MLI122577)	Low	Minor/Moderate	Minor adverse	Temporary & Short term
ECC13/OnSS	Old Three Tuns Farm (MLI122568)	Low	Minor/Moderate	Minor adverse	Temporary & Short term
ECC13/OnSS	Woad farm (MLI122578)	Low	Minor/Moderate	Minor adverse)	Temporary & Short term

20.9.2 National Grid Substation

121. The National Grid substation (NGSS) that the Project's OnSS would connect into is considered here. This would be located within the footprint of ECC14 in the Connection Area which is an indicative search area for this infrastructure.

20.9.2.1 Archaeology (Direct Impacts)

122. Apart from the potential direct impact to possible palaeochannels, transient remains, salterns and deposits of peat, which in this location would be anticipated to have been affected by erosion, no cumulative impacts would be predicted. The works associated with the 400kV cable route and the NGSS would not be anticipated to combine to cause a significant impact due to the anticipated level of importance or remains as set out in Table 20.16.
123. In both cases archaeological mitigation would be implemented to record archaeological and paleoenvironmental remains.

Table 20.16: Potential Common Archaeology Receptors with the NGSS

Segment	Asset	Importance	Cumulative Magnitude	Cumulative Effect	Duration
ECC14	Disturbance to paleochannels with potential for deposits of geoarchaeological interest	Medium	Minor	Minor adverse	Permanent
ECC14	Peat which may contain deposits of paleoenvironmental and geoarchaeological potential	Low	Minor to moderate	Minor adverse	Permanent
ECC14	Prehistoric (transient/ short lived). Worked flint and short-lived features beneath the earlier mudflat deposit – potential Palaeolithic/Mesolithic date (importance affected by likely eroded and ex situ survival).	Low	Moderate to major	Minor	Permanent
ECC14	Salterns (Iron Age to medieval)	Low	Moderate to major	Minor	Permanent

20.9.2.2 Cultural Heritage (Setting Impacts)

124. Common receptors would be anticipated to be as set out within Table 20.17. These are assets located in the vicinity of the NGSS where effects have been predicted in respect to the construction of the 400Kv cable and the OnSS (see Appendix 20.2). It is noted that all cumulative impacts classified as temporary would only occur if both substations were to be constructed at the same time.

125. As indicated, impacts identified for the Project OnSS are not anticipated to combine cumulatively with the NGSS proposals to increase the level of impact already identified. Therefore, no significant cumulative impacts are predicted in respect to heritage receptors through setting change.

Table 20.17: Potential Common Heritage Receptors with the NGSS

Segment	Asset	Importance	Cumulative Magnitude	Cumulative Effect	Duration
Scheduled Monuments					
ECC13/14	Wykeham Chapel (1019096)	High	Negligible	Minor adverse	Temporary & Short term
Listed Buildings					
ECC13/14	The Wykeham Chapel of St Nicholas (Grade I 1064471)	High	Negligible	Minor adverse	Temporary & Short term
ECC13/14	Wraggmarsh Farmhouse (Grade II 1147603)	Medium	Negligible/Minor	Minor adverse	Temporary & Short term
Non-Designated Farmhouses					
ECC13/14	Crowtree Farm (MLI122916)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13/14	ECC13 White House Farm (MLI122917)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13/14	ECC13 Welland Farm (MLI122918)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13/14	ECC13 Top Yard Farm (MLI122919)	Low	Negligible/Minor	Minor adverse	Temporary
ECC13/14	Bottom Yard (MLI122915)	Low	Negligible/Minor	Minor adverse	Temporary

20.10 Inter-Relationships

126. Archaeological and Cultural Heritage receptors may also be identified as a receptor within other specialist disciplines such as ‘Noise and Vibration’, ‘Hydrology and Flood Risk’ and ‘Landscape and Visual Assessment’. Any vibration or water environment effects would be important to understand in respect to potential harm to the fabric or deposits of a heritage asset and this has been referenced as necessary within this chapter, specifically in respect to the potential de-watering of peat. In respect to visual change assessed by the Landscape and Visual Assessment, it is important to understand that the receptor considered within the Archaeology and Cultural Heritage Assessment is the heritage asset itself whilst the receptor considered in the LVIA is the person only. The effects identified by each discipline may well therefore be different. It is recognised that visibility (or not) of proposals does not necessarily equate to adverse effects.

20.11 Transboundary Effects

127. No transboundary effects are anticipated.

20.12 Conclusions

128. The baseline provided by the ES indicates that the Project would be considered to be consistent with the provisions of the NPPF (2023) and EN-1 (2023).
129. This assessment has identified known and anticipated archaeological remains (heritage assets) within the Order Limits and has discussed their significance in accordance with the NPPF (2023) paragraph 200 and EN-1 (paragraph 5.9.10).
130. Field evaluation comprising a watching brief of site investigations, magnetometer geophysical survey and electromagnetic geophysical survey has been undertaken in accordance with the NPPF (paragraph 200) and EN-1 (2023 paragraph 5.9.11)). Although these surveys have not extended to the entire footprint of the Order Limits it is considered that the baseline presented has allowed a sufficient understanding of the potential significant impact of the proposed development upon archaeological remains. This is in light of the variable historic geography of the Order Limits and the resulting predicted significance of archaeological remains alongside the indicative onshore infrastructure (Figure 3.4.7) and the Schedule of Mitigation (document reference 8.13) which provide for flexibility around preservation in situ of remains of national importance along the entire onshore ECC and 400kV corridor. At the Transition Joint Bay, the only part of the Order Limits outside of the ECC where significant impacts could have been predicted and where preservation in situ is not possible, the geophysical survey has been undertaken and has not highlighted a potential for significant impacts. The results of fieldwork including geophysical survey of the footprint of the OnSS, and trial trenching has confirmed the lack of potential for significant impact at both the TJB and the OnSS.
131. No designated archaeological remains would be physically affected by the Project, this being secured by the Schedule of Mitigation (document reference 8.13) in respect to the Abbey Hills moated site monument (NHLE reference 1016044).

132. Other potential remains of national (high) importance which could be present in association with Slackholme deserted medieval village (HER MLI99418) would be avoided through the use of trenchless techniques, as per the submitted indicative infrastructure plans (Figure 3.4.7.8) and the Schedule of Mitigation (document reference 8.13).
133. No significant direct impacts to non-designated archaeological remains are predicted where preservation in situ is not possible, namely the location of the OnSS and the location of the TJB at landfall. In all instances, where significant impacts to non-designated remains are possible along the onshore ECC, the implementation of design measures at the detailed design stage to reference trenchless techniques, micro-siting and no-dig measures would remove significant impacts. On this basis there would be no residual significant impacts to non-designated archaeological remains.
134. Overall, any residual insignificant adverse effects should be weighed in the planning balance consistent with paragraph 209 (NPPF) and paragraph 5.9.33 (EN -1 2023). All impacts should be balanced by the public benefits around an electricity supply that the proposals offer. Public benefits could also be achieved through the release of heritage capital that any archaeological fieldwork would trigger.
135. No potentially significant indirect impacts have been identified for designated heritage assets or non-designated heritage assets. All indirect impacts are identified as insignificant and predominantly temporary or short term.
136. The proposals are considered to be compliant with the legislative and planning policy provisions relevant to heritage.
137. All impacts should be balanced by the public benefits around an electricity supply that the Project offers.

Table 20.18: Summary of the Residual Impacts for each Effect

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Construction – Direct Impacts to Non-Designated Assets				
1. Disturbance to prehistoric (permanent) - Iron Age occupation features covered by later tidal mudflats. Potentially including - ▪ area of archaeological interest 2 in ECC2.	Moderate (Significant)	Archaeological recording necessary as	Moderate	No change
2. Disturbance to prehistoric (permanent) - Iron Age agricultural features covered by later tidal mudflats. Potentially including - ▪ area of archaeological interest 2 in ECC2.	Minor	Archaeological recording necessary as	Minor	No change
3. Disturbance to prehistoric (transient/short lived) features. Worked flint and short-lived features beneath the earlier mudflat deposit – potential Palaeolithic/Mesolithic date (importance affected by likely eroded and ex situ survival). Medium levels of importance and the higher level of impact predicted for areas of peat.	Minor to Moderate (Potentially Significant)	Archaeological recording necessary as	Minor	Minor
4. Disturbance to prehistoric (transient/ short lived) features. Later worked flint and wooden artefacts such as fishtraps, jetties, trackways (importance affected by likely eroded and ex situ survival).	Minor to Moderate (Potentially Significant)	Archaeological recording necessary as	Minor to Moderate	Minor (assuming impact to thin deposits of peat at OnSS and TJB only)
5. Disturbance to palaeochannels with potential for deposits of geoarchaeological interest	Minor	Archaeological recording necessary as	Minor	Minor

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
6. Disturbance to peat which may contain deposits of palaeoenvironmental and geoarchaeological potential	Minor to Moderate (Potentially Significant)	Archaeological recording necessary as	Minor to Moderate	Minor (assuming impact to thin deposits of peat at OnSS and TJB only)
7. Disturbance to Roman occupation remains. Potentially including - - area of archaeological interest 2 in ECC2 verified through trial trenching (trenches 24-58). - Discrete area in ECC3 recorded by the trial trenching of an isolated geophysical anomaly (trial trench 92) - Discrete area in ECC7 recorded by trial trenching of an isolated geophysical anomaly (trial trench 176)	Moderate (Significant)	Archaeological recording necessary as	Moderate	No change
8. Disturbance to Roman agricultural remains. Potentially including - - Possible Roman ditches in ECC1, isolated geophysical anomalies verified by trial trenches 15-17 - Area of archaeological interest 2 in ECC2. - Area of archaeological interest 12 ECC8. - Area of archaeological interest 14 in ECC9.	Minor	Archaeological recording necessary as	Minor	No change
9. Disturbance to Iron Age/Roman salterns. Potentially including –	Minor	Archaeological recording necessary as	Minor	Minor

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
- Area of archaeological interest 2 in ECC2 verified through trial trenching (trenches 27-58). - Area of archaeological interest 13 in ECC2 verified through trial trenching (trenches 59-63). - Geophysical anomalies in ECC3, ECC4 and ECC8 verified through trial trenching (trenches 76-81 and 99 and 178). - Area of archaeological interest 6 in ECC5 - Area of archaeological interest 7 in ECC5 verified through trial trenching (trenches 127-128 and 130-133).				
10. Disturbance to Anglo Saxon agricultural remains	Minor	Archaeological recording necessary as	Minor	No change
11. Disturbance to Anglo Saxon salterns	Minor	Archaeological recording necessary as	Minor	Minor
13. Disturbance to medieval salterns Area of archaeological interest 6 in ECC5	Minor	Archaeological recording necessary as	Minor	Minor
15. Medieval occupation in area of archaeological interest 9 in ECC7	Moderate (Significant)	Archaeological recording necessary as	Moderate	No change
16. Disturbance to medieval occupation other locations outside Slackholme. Potentially including Area of archaeological interest 4 in ECC 2	Moderate (Significant)	Archaeological recording necessary as	Moderate	No change

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
- Discrete area of potential activity at the southern end of ECC3 referenced by an isolated geophysical anomaly and verified by trial trenching (trial trench 92). - Area of archaeological 10 in ECC6 verified through trial trenching (trial trenches 148-149 and 151-154) - Area of archaeological interest 13 verified through trial trenching (trenches 59-63).				
17. Disturbance to potential medieval agricultural remains. - Area of archaeological interest 5 in ECC3 verified through trial trenching (trenches 84-85 & 87) - Ditches recorded by trial trenches in ECC3 (trial trenches 84, 85 & 87). - Area of archaeological interest 12 at ECC8 - Area of archaeological interest 11 in ECC9 and ECC10 - Area of archaeological interest 14 in ECC9	Minor	Archaeological recording necessary as	Minor	No change
18. Disturbance to remains of post medieval farmsteads/agricultural buildings. - MLI118799 in ECC1 - MLI120254 in ECC5 - MLI124352 in ECC6 - MLI124527 in ECC8 - MLI124196 in ECC9 - MLI124228 in ECC10 - MLI123126 in ECC12	Minor	Archaeological recording necessary as	Minor	No change

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Potentially area of archaeological interest 12 at ECC8				
19. Disturbance to post medieval field systems	Minor	Archaeological recording as necessary	Minor	No change
20. Disturbance to post medieval tramline	Minor	Archaeological recording as necessary	Minor	No change
21. Peat deposits including peat deposits with potential for organic remains	Minor	Archaeological recording and sampling as necessary	Minor	No change
Construction – Indirect Effects to Scheduled Monuments				
Abbey Hills Moated Site (1016044)	Minor adverse	None	Minor adverse (temporary)	n/a
King's Hill Motte (1018398)	Minor adverse	None	Minor adverse (temporary)	n/a
Moulton Hall (1018584)	Minor adverse	None	Minor adverse (temporary)	n/a
Wykeham Chapel (1019096)	Minor adverse	None	Minor adverse (temporary)	n/a
Construction – Indirect Effects to Listed Buildings				

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Church of St James (Grade I 1308415)	Minor adverse	None	Minor adverse (temporary)	n/a
Coupledye Hall (Grade II 1308426)	Minor adverse	None	Minor adverse (temporary)	n/a
The Wykeham Chapel of St Nicholas (Grade I 1064471)	Minor adverse	None	Minor adverse (temporary)	n/a
The Gables (Grade II 1146546)	Minor adverse	None	Minor adverse (temporary)	n/a
Wraggmarsh Farmhouse (Grade II 1147603)	Minor adverse	None	Minor adverse (temporary)	n/a
Construction – Indirect Effects to Non-Designated Farmhouses				
Lowgate Farm (HER reference MLI118859)	Minor adverse	None	Minor adverse (temporary)	n/a
Chestnut Farm (HER reference MLI118860)	Minor adverse	None	Minor adverse (temporary)	n/a
Quaker's Hill Farmhouse (MLI118805).	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Field Farm (MLI118858)	Minor adverse	None	Minor adverse (temporary)	n/a
un-named farmstead (MLI118865)	Minor adverse	None	Minor adverse (temporary)	n/a
Malt Farm (MLI118869)	Minor adverse	None	Minor adverse (temporary)	n/a
Slackholme End House Farm (MLI118880)	Minor adverse	None	Minor adverse (temporary)	n/a
Jasmine Cottage (MLI118883)	Minor adverse	None	Minor adverse (temporary)	n/a
Willcox Farm (MLI119832)	Minor adverse	None	Minor adverse (temporary)	n/a
The Grange (MLI41973)	Minor adverse	None	Minor adverse (temporary)	n/a
Fir Tree Farm (MLI119851)	Minor adverse	None	Minor adverse (temporary)	n/a
Bristol Farm (MLI119871)	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Rookery Farm (MLI120243)	Minor adverse	None	Minor adverse (temporary)	n/a
Rivulet House (MLI120244)	Minor adverse	None	Minor adverse (temporary)	n/a
Bank House (MLI120267)	Minor adverse	None	Minor adverse (temporary)	n/a
Bristol Farm (MLI119871)	Minor adverse	None	Minor adverse (temporary)	n/a
Sycamore Lodge (MLI120271)	Minor adverse	None	Minor adverse (temporary)	n/a
Decoy Farm (MLI124366)	Minor adverse	None	Minor adverse (temporary)	n/a
Willoughby Farm (MLI1124362)	Minor adverse	None	Minor adverse (temporary)	n/a
Avenue Farm (MLI1124368)	Minor adverse	None	Minor adverse (temporary)	n/a
Walnut Farm (MLI1124369)	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Bleak House (MLI124370)	Minor adverse	None	Minor adverse (temporary)	n/a
Hawthorn Farm (MLI124441)	Minor adverse	None	Minor adverse (temporary)	n/a
Farmstead (MLI124437)	Minor adverse	None	Minor adverse (temporary)	n/a
Farmstead (MLI124438)	Minor adverse	None	Minor adverse (temporary)	n/a
Farmstead (MLI124526)	Minor adverse	None	Minor adverse (temporary)	n/a
Old Leake Farmstead (MLI124541)	Minor adverse	None	Minor adverse (temporary)	n/a
Faunt Bridge Cottage (MLI124506)	Minor adverse	None	Minor adverse (temporary)	n/a
Swinedike Farm (MLI124199)	Minor adverse	None	Minor adverse (temporary)	n/a
Reesons Farmstead (MLI124216)	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Ings Farm (MLI124255)	Minor adverse	None	Minor adverse (temporary)	n/a
Little Beeches (MLI124256)	Minor adverse	None	Minor adverse (temporary)	n/a
Marsh Farm (MLI121210)	Minor adverse	None	Minor adverse (temporary)	n/a
Sandholme Farm (MLI123089)	Minor adverse	None	Minor adverse (temporary)	n/a
White House Farm (MLI123119)	Minor adverse	None	Minor adverse (temporary)	n/a
Lloyds Farm (MLI123128)	Minor adverse	None	Minor adverse (temporary)	n/a
Lentons Farm (MLI123053)	Minor adverse	None	Minor adverse (temporary)	n/a
Old Farm (MLI121208)	Minor adverse	None	Minor adverse (temporary)	n/a
Crowtree Farm (MLI122916)	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Hills Farm (MLI122565)	Minor adverse	None	Minor adverse (temporary)	n/a
Old Three Tuns Farm (MLI122568)	Minor adverse	None	Minor adverse (temporary)	n/a
un-named farm (MLI122577)	Minor adverse	None	Minor adverse (temporary)	n/a
Woad farm (MLI122578)	Minor adverse	None	Minor adverse (temporary)	n/a
Welland House farm (MLI122570)	Minor adverse	None	Minor adverse (temporary)	n/a
Vicarage Farm (MLI122878)	Minor adverse	None	Minor adverse (temporary)	n/a
Surfleet farm (MLI122569)	Minor adverse	None	Minor adverse (temporary)	n/a
un-named farm (MLI122909)	Minor adverse	None	Minor adverse (temporary)	n/a
Manor Farm (MLI122876)	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Bottom Yard (MLI122915)	Minor adverse	None	Minor adverse (temporary)	n/a
Construction – Indirect Effects to Non-Designated Medieval Earthworks				
Medieval enclosures (MLI98638)	Minor adverse	None	Minor adverse (temporary)	n/a
Medieval enclosures and field system (MLI98639)	Minor adverse	None	Minor adverse	n/a
Construction – Indirect Effects to Non-Designated Deserted Medieval Villages				
Slackholme (MLI99418)	Minor adverse	None	Minor adverse (temporary)	n/a
Construction – Indirect Effects to Historic Landscape Character and Hedgerows				
Skegness Holiday Coast - The Grazing Marshes	Minor adverse	None	Minor adverse (temporary)	n/a
The Mablethorpe Outmarsh - The Grazing Marshes	Minor adverse	None	Minor adverse (temporary)	n/a
Townlands - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Eastern Fens - The Fens	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Reclaimed Coastal Fringe - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Reclaimed Wash Farmlands - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Bicker Haven - The Wash	Minor adverse	None	Minor Adverse (permanent)	n/a
Construction – Direct Effects to Historic Landscape Character and Hedgerows				
Hedgerows qualifying as important under historic criteria (Annex 2 Appendix 20.2)	Minor adverse	None	Minor adverse (temporary)	n/a
Skegness Holiday Coast - The Grazing Marshes	Minor adverse	None	Minor adverse (temporary)	n/a
The Mablethorpe Outmarsh - The Grazing Marshes	Minor adverse	None	Minor adverse (temporary)	n/a
Townlands - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Eastern Fens - The Fens	Minor adverse	None	Minor adverse (temporary)	n/a

Asset	Significance of Effect (Adverse)	Additional Mitigation Measures	Residual Impact Worst Case	Residual Impact Best Case
Reclaimed Coastal Fringe - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Reclaimed Wash Farmlands - The Wash	Minor adverse	None	Minor adverse (temporary)	n/a
Operation and Maintenance – Indirect Effects to Scheduled Monuments				
Wykeham Chapel (1019096)	Minor adverse	Screen planting	Neutral	n/a
Operation and Maintenance – Indirect Effects to Listed Buildings				
The Wykeham Chapel of St Nicholas (Grade I 1064471)	Minor adverse	Screen planting	Neutral	n/a
The Gables (Grade II 1146546)	Minor adverse	Screen planting	Neutral	n/a
Wraggmarsh Farmhouse (Grade II 1147603)	Minor adverse	Screen planting	Neutral	n/a
Operation and Maintenance – Indirect Effects to Non-Designated Farmhouses				
Hills Farm (MLI122565)	Minor adverse	Screen planting	Neutral	n/a
Old Three Tuns Farm (MLI122568)	Minor adverse	Screen planting	Neutral	n/a
un-named farm (MLI122577)	Minor adverse	Screen planting	Neutral	n/a
Woad farm (MLI122578)	Minor adverse	Screen planting	Neutral	n/a
Welland House farm (MLI122570)	Minor adverse	Screen planting	Neutral	n/a
Vicarage Farm (MLI122878)	Minor adverse	Screen planting	Neutral	n/a
Surfleet farm (MLI122569)	Minor adverse	Screen planting	Neutral	n/a
Manor Farm (MLI122876)	Minor adverse	Screen planting	Neutral	n/a
Operation and Maintenance – Effects to Historic Landscape Character				
Bicker Haven - The Wash	Minor adverse	None	Minor Adverse (permanent)	n/a

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