NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Chapter 25 Onshore Archaeology and Cultural Heritage

Document Reference:	3.1.27
Volume:	3.1
APFP Regulation:	5(2)(a)
Date:	July 2024
Revision:	0

Project Reference: EN010119

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Project	North Falls Offshore Wind Farm
Document Title	Environmental Statement Chapter 25 Onshore Archaeology and Cultural Heritage
Document Reference	3.1.27
APFP Regulation	5(2)(a)
Supplier	Royal HaskoningDHV
Supplier Document ID	PB9244-RHD-ES-ON-RP-ON-0209

Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
0	July 2024	Submission	RHDHV	NFOW	NFOW

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Glossary of Acronyms

ADBA	Archaeological Desk-Based Assessment
ADS	Archaeology Data Service
APS	Air Photo Services Limited
BGL	Below Ground Level
CAA	Conservation Area Appraisal
CEA	Cumulative Effects Assessment
CHIA	Cultural Heritage Impact Assessment
CIfA	Chartered Institute for Archaeologists
DBA	Desk-Based Assessment
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DLUHC	Department for Levelling Up, Housing and Communities
ECC	Essex County Council
EIA	Environmental Impact Assessment
EPP	Evidence Plan Process
ES	Environmental Statement
ETG	Expert Topic Group
GCZs	Geoarchaeological Character Zones
GDBA	Geoarchaeological Desk-Based Assessment
GIS	Geographic Information System
GI	Ground Investigation
HDD	Horizontal Directional Drilling
HECA	Historic Environment Characterisation Area
HECZ	Historic Environment Character Zone
HER	Historic Environment Record
HES	Historic Environment Service
HLC	Historic Landscape Character
IEMA	Institute of Environmental Management & Assessment
IHBC	Institute of Historic Building Conservation
LiDAR	Light Detection and Ranging
LVIA	Landscape and Visual Impact Assessment
MHCLG	Ministry of Housing, Communities and Local Government
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
NFOW	North Falls Offshore Wind Farm Limited
NHLE	National Heritage List of England
NMP	National Mapping Programme
NPPF	National Planning Policy Framework
NPS	National Policy Statement

NSIP	Nationally Significant Infrastructure Projects
OS	Ordnance Survey
OWSI	Outline Written Scheme of Investigation
PAS	Portable Antiquities Scheme
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PPG	Planning Practice Guidance
SLVIA	Seascape, Landscape and Visual Impact Assessment
TJB	Transition Joint Bay
WSI	Written Scheme of Investigation
WTG	Wind turbine generator
ZTV	Zone of Theoretical Visibility

Glossary of Terminology

400kV onshore cable route	Onshore route within which the 400kV onshore cables and associated infrastructure would be located.
400kV onshore cables	The cable circuits which take the electricity from the onshore substation on to the National Grid connection point. These comprise High Voltage Alternative Current (HVAC) cables, buried underground.
Array area	The offshore wind farm area, within which the wind turbine generators, array cables, platform interconnector cable, offshore substation platform(s) and/or offshore converter platform will be located.
Array cables	Cables which link the wind turbine generators with each other and the offshore substation platform(s).
Bentley Road improvement works	Works involving the widening and improvement of the carriageway along Bentley Road, required to facilitate heavy goods vehicle and abnormal indivisible load access to the onshore cable route and the onshore substation.
Cable circuit (onshore)	The onshore export cables are comprised of cable 'circuits.' Each cable circuit is typically comprised of three power cables, as well as fibre cables and earth cables. It is expected that each circuit would compromise up to seven cables in total.
Cable ducts	Housing for the onshore export cables, typically comprising plastic high-density polyethylene (HDPE) pipes buried underground. Each cable circuit will potentially comprise up to seven individual ducts (i.e. one per cable).
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the EIA and HRA for certain topics.
Expert Topic Group (ETG)	A forum for targeted engagement with regulators and interested stakeholders through the EPP.
Former array areas	The two distinct offshore wind farm areas (including the 'northern array area' and 'southern array area') which comprised the North Falls offshore wind farm at scoping and PEIR stage.
Geoarchaeology	The application of earth science principles and techniques to the understanding of the archaeological record. Includes the study of soils and sediments and of natural physical processes that affect archaeological sites such as geomorphology, the formation of sites through geological processes and the effects on buried sites and artefacts.
Haul road	The track along the onshore cable route used by construction traffic to access different sections of the onshore cable route.
Horizontal directional drill (HDD)	Trenchless technique to bring the offshore cables ashore at the landfall. The technique will also be used for installation of the onshore export cables at sensitive areas of the onshore cable route.
Jointing bay	Underground structures, constructed at regular intervals along the onshore cable route to connect the sections of cable together so that each cable is a continuous length, as well as facilitating the installation of the cables into the buried cable ducts.
Landfall	The location where the offshore export cables come ashore at Kirby Brook.
Landfall compound	Compound at landfall within which horizontal directional drill (HDD) or other trenchless technique would take place.
Landfall search area	The area considered at PEIR, comprising the Essex coast between Clacton-on-Sea and Frinton-on-Sea within which the landfall is located.
Link boxes	Underground chambers or above ground cabinets next to the onshore export cables housing low voltage electrical earthing links.
National Grid connection point	The grid connection location for the Project. National Grid are proposing to construct new electrical infrastructure (a new substation) to allow the Project to connect to the grid, and this new infrastructure will be located at the National Grid connection point.

National Grid substation connection works	Infrastructure required to connect the Project to the National Grid connection point.
North Falls Offshore Wind Farm Limited (NFOW)	NFOW is a joint venture between SSE Renewables Offshore Windfarm Holdings Limited (SSER) and RWE Renewables UK Swindon Limited (RWE).
Offshore converter platform	Should an offshore connection to an HVDC interconnector cable be selected, an offshore converter platform would be required/ This is a fixed structure located within the array area, containing HVAC and HVDC electrical equipment to aggregate the power from the wind turbine generators, increase the voltage to a more suitable level for export and convert the HVAC power generated by the wind turbine generators into HVDC power for export to shore via a third party HVDC interconnector cable.
Offshore export cables	The cables which bring electricity from the offshore substation platform(s) to the landfall, as well as auxiliary cables.
Offshore project area	The overall area of the array areas and the offshore cable corridor.
Onshore archaeological DBA study area	A desk-based assessment study area incorporating the onshore cable corridor(s) and onshore substation zone plus a buffer.
Onshore cable corridor(s)	Onshore corridor(s) considered at PEIR within which the onshore cable route, as assessed at ES, is located.
Onshore cable route	Onshore route within which the onshore export cables and associated infrastructure would be located.
Onshore export cables	The cables which take the electricity from landfall to the onshore substation. These comprise High Voltage Alternative Current (HVAC) cables, buried underground.
Onshore PEIR boundary	The boundary encompassing the Project landfall, onshore cable route and onshore substation, as considered within the PEIR.
Onshore project area	The boundary within which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and cables to the National Grid substation)
Onshore scoping area	The boundary in which all onshore infrastructure required for the Project will be located, as considered within the North Falls EIA Scoping Report.
Onshore substation	A compound containing electrical equipment required to transform and stabilise electricity generated by the Project so that it can be connected to the National Grid.
Onshore substation construction compound	Area set aside to facilitate construction of the onshore substation. Will be located adjacent to the onshore substation.
Onshore substation works area	Area within which all temporary and permanent works associated within the onshore substation are located, including onshore substation, construction compound, access, landscaping, drainage and earthworks.
Onshore substation zone	The area considered at PEIR, within which the onshore substation will be located.
Palaeochannel	Remnants of rivers or stream channels that flowed in the past and have been currently filled or buried by younger fluviatile sediments.
PEIR offshore project area	The boundary encompassing the offshore cable corridor and array areas, as considered within the PEIR.
Platform interconnector cable	Cable connecting the offshore substation platforms (OSP); or the OSP and offshore converter platform (OCP)
Prehistoric Period	Broad term encompassing the Palaeolithic, Mesolithic, Neolithic, Bronze Age and Iron Age.
Setting	The NPPF identifies setting as that which encompasses an asset's surroundings in which it is experienced. The extent of setting is not fixed and can contribute both positively and negatively to the heritage significance of an asset.

Study area	Area where potential impacts from the Project could occur, as defined for each individual EIA topic.
Transition joint bay	Underground structures that house the joints between the offshore export cables and the onshore export cables
Temporary construction compound	Area set aside to facilitate construction of the onshore cable route. Will be located adjacent to the onshore cable route, with access to the highway where required.
Trenchless crossing	Use of a technique to install limited lengths of cable below ground without the need to excavate a trench from the surface, used in sensitive areas of the onshore cable route to prevent surface disturbance. Includes techniques such as HDD.
Trenchless crossing compound	Areas within the onshore cable route which will house trenchless crossing (e.g. HDD) entry or exit points.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.
Wind turbine generator (WTG)	Power generating device that is driven by the kinetic energy of the wind.

25 Onshore Archaeology and Cultural Heritage

25.1 Introduction

1. This chapter of the Environmental Statement (ES) considers the likely significant effects of the North Falls offshore wind farm (hereafter 'North Falls' or 'the Project') on onshore archaeology and cultural heritage. The chapter provides an overview of the existing environment for the onshore project area and wider study areas, followed by an assessment of likely significant effects for the construction, operation, and decommissioning phases of the Project.

2. This chapter has been written by Royal HaskoningDHV, with the assessment undertaken with specific reference to the relevant legislation and guidance, of which the primary sources are the National Policy Statements (NPS). Details of these and the methodology used for the Environmental Impact Assessment (EIA) and Cumulative Effects Assessment (CEA) are presented in ES Chapter 6 EIA Methodology (Document Reference: 3.1.8) and Section 25.4.

3. The assessment should be read in conjunction with the following linked chapters (Volume 3.1):

   - ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18);
   - ES Chapter 20 Onshore Air Quality (Document Reference: 3.1.22);
   - ES Chapter 21 Water Resources and Flood Risk (Document Reference: 3.1.23);
   - ES Chapter 26 Noise and Vibration (Document Reference: 3.1.28);
   - ES Chapter 27 Traffic and Transport (Document Reference: 3.1.29);
   - ES Chapter 29 Seascape, Landscape and Visual Impact Assessment (Document Reference: 3.1.31); and
   - ES Chapter 30 Landscape and Visual Impact Assessment (Document Reference: 3.1.32).

4. Additional information to support the onshore archaeology and cultural heritage chapter includes the following appendices (Volume 3.3):

   - ES Appendix 25.1 Cable landfall search area historic environment desk-based assessment (DBA) (Document Reference: 3.3.48);
   - ES Appendix 25.2 Onshore Cable Corridor(s) and Onshore Substation Zone. Historic Environment Desk-Based (Baseline) Assessment (Document Reference: 3.3.49);
   - ES Appendix 25.3 Onshore Infrastructure Setting Assessment (Document Reference: 3.3.50);
   - ES Appendix 25.4 Offshore Infrastructure Setting Assessment (Document Reference: 3.3.51);
   - ES Appendix 25.5 Heritage Walkover Survey (Document Reference: 3.3.52);

- ES Appendix 25.6 Geoarchaeological Desk-Based Assessment (Document Reference: 3.3.53);
- ES Appendix 25.7 Onshore Historic Environment Gazetteers (Document Reference: 3.3.54);
- ES Appendix 25.8 Archaeological Geophysical Survey Report (Document Reference: 3.3.55);
- ES Appendix 25.9 Five Estuaries Archaeological and Geoarchaeological Monitoring of Ground Investigation Works Report (Document Reference: 3.3.56);
- ES Appendix 25.10 Five Estuaries & North Falls Onshore Substation Area Archaeological Evaluation Report: Phase 1 (Document Reference: 3.3.57);
- ES Appendix 25.11 Five Estuaries & North Falls Onshore Substation Area Archaeological Evaluation Report: Phase 2 (Document Reference: 3.3.58); and
- ES Appendix 25.12 Five Estuaries & North Falls Onshore Substation Area Palaeolithic Evaluation Report: Phase 2 (Document Reference: 3.3.59).

25.2 Consultation

5. Consultation with regard to onshore archaeology and cultural heritage has been undertaken in line with the general process described in ES Chapter 6 EIA Methodology (Document Reference: 3.1.8) and ES Chapter 7 Technical Consultation (Document Reference: 3.1.9). The key elements to date have included Scoping and the ongoing technical consultation via the Historic Environment Expert Topic Group (ETG) (onshore and offshore) which comprises Essex County Council, Tendring District Council and Historic England. The feedback received has been considered in preparing the ES. Table 25.1 provides a summary of how the consultation responses received to date have influenced the approach that has been taken.

6. This chapter has been updated following the consultation on the Preliminary Environmental Information Report (PEIR) in order to produce the final assessment. Full details of the consultation process will also be presented in the Consultation Report as part of the Development Consent Order (DCO) application.

Table 25.1 Consultation responses

Consultee	Date / Document	Comment	Response / where addressed in the ES
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	On the basis that the Proposed Development will not result in direct physical impacts to onshore designated heritage assets during operation, and that any effects arising from indirect impacts, including permanent change to setting, are scoped into the assessment as a separate matter, the Inspectorate agrees that this matter can be scoped out of the ES.	Noted, direct physical impacts to onshore designated heritage assets during the operation phase are scoped out of the assessment. Effects arising from indirect impacts including permanent change to setting during the operation phase are assessed in Section 25.6.2.
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	On the basis that the Proposed Development will not result in direct physical impacts to onshore non-designated heritage assets during operation, and that any effects arising from indirect impacts, including permanent change to setting, are scoped into the assessment as a separate matter, the Inspectorate agrees that this matter can be scoped out of this aspect of the ES.	Noted, direct physical impacts to onshore non-designated heritage assets during the operation phase are scoped out of the assessment. Effects arising from indirect impacts including permanent change to setting during the operation phase are assessed in Section 25.6.2.
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	The Scoping Report identifies the designated heritage assets within the onshore scoping area. Figure 3.12 illustrates the location of these assets, which also identifies assets in a wide area beyond the boundary of the onshore scoping area. The ES should provide evidence to justify the choice of any study area(s) used to define the assessment and discussion held with relevant consultation bodies.	Study areas defined for the purposes of this assessment were agreed with the Historic Environment ETG and are presented in Section 25.3.1.
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	The Applicant should make effort to agree the need for targeted archaeological evaluation, following completion of the baseline surveys, with the relevant consultation bodies. The rationale supporting the approach for pre-consent and any post-consent evaluation should be described in the ES. The mechanisms for securing any post-consent evaluation should also be described in the ES.	Noted, this will be addressed through consultation with the Historic Environment ETG throughout the EIA process and is described in the ES and supporting Outline Onshore Written Scheme of Investigation (onshore OWSI) (Document Reference: 7.12) and any relevant survey specific Written Schemes of Investigation (WSI), secured by DCO Requirement.

Consultee	Date / Document	Comment	Response / where addressed in the ES
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	The ES should include an assessment of potential effects on geoarchaeological deposits. This should include consideration of the potential effects on the zone between the marine and onshore environments.	A Geoarchaeological Desk-Based Assessment (DBA) is included as ES Appendix 25.6 (Document Reference: 3.3.53) of the ES and makes recommendations for further evaluation. The scope of further evaluation will be agreed with the relevant members of the Historic Environment ETG. The DBA will be updated and reissued with the results of any agreed geoarchaeological evaluation.
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	The Inspectorate considers that the onshore elements of the Proposed Development have the potential to affect elements of Historic Landscape Character (HLC), such as historic hedgerows and protected lanes. Given the stage of the design, the ES should therefore address whether significant effects are likely to occur to these features and therefore ensure cross over between other aspect chapters that could provide relevant information, such as the onshore ecology and landscape and visual aspect chapters.	The ES has included assessment of effects on elements of HLC including historic hedgerows and protected lanes (Section 25.6.1 and Section 25.6.2).
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	In respect of indirect physical impacts, the Inspectorate considers that there is potential for effects to below ground heritage assets arising from changes to groundwater levels and / or movement of water through deposits, which should be assessed in the ES where significant effects are likely to occur.	The ES has included assessment of any likely significant effects arising from changes to groundwater levels (Section 25.6.1 and Section 25.6.2).
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	In addition to the documents listed at paragraph 592, the Inspectorate considers that Principals of Cultural Heritage Assessment in the United Kingdom (UK). (Institute of Environmental Management and Assessment, Institute of Historic Buildings Conservation, Chartered Institute for Archaeologists 2021) should inform the approach to assessment, including in relation to understanding the significance of cultural heritage assets within the study area and evaluating the impact of the Proposed Development upon them.	The ES is compliant with the relevant guidance documents (see Section 25.4.1 and Section 25.4.3).

Consultee	Date / Document	Comment	Response / where addressed in the ES
The Planning Inspectorate (PINS)	26/08/2021, Scoping Opinion	The Applicant should review the potential for paleoenvironmental remains to survive within the study area once the surveys listed at paragraph 594 are complete; where there is potential for such remains, a palaeoenvironmental assessment should also be undertaken to inform the understanding of baseline conditions. The Inspectorate also notes that the onshore scoping area has potential for Pleistocene and Holocene deposits of archaeological significance; a Palaeolithic Desk-Based Assessment should be prepared to inform baseline conditions, as this information may not be fully represented in the Historic Environment Record (HER).	The updated Geoarchaeological Desk-Based Assessment (GDBA) included as ES Appendix 25.6 (Document Reference: 3.3.53) provides consideration and understanding of baseline palaeoenvironmental conditions as well as the potential for Pleistocene and Holocene deposits of archaeological significance. The DBA has been updated and reissued with the results of new data obtained from recent geoarchaeological monitoring of (Ground Investigation) GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Essex County Council	21/08/2021, Scoping Opinion	The archaeological response for the seaward area will be the responsibility of Historic England. With regard the onshore archaeology and cultural heritage section 3.7 we have a number of specific points.	Noted and addressed below.
Essex County Council	21/08/2021, Scoping Opinion	Paragraph. 568 needs to include a separate GDBA to assess the Palaeolithic / Pleistocene potential of the area due to the importance of these deposits within the study area. This should provide details of the scope for assessment of any significant geoarchaeological remains prior to any construction.	The updated GDBA included as ES Appendix 25.6 (Document Reference: 3.3.53) provides consideration and understanding of baseline palaeoenvironmental conditions as well as the potential for Pleistocene and Holocene deposits of archaeological significance. The DBA has been updated and reissued with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Essex County Council	21/08/2021, Scoping Opinion	Paragraph 568 should also include an Aerial Photographic Assessment and rectification which also includes an assessment and plotting of any available Light Detection and Ranging (LiDAR) data and provides a Geographic Information System (GIS) dataset of all cropmark features	An Aerial Photographic Assessment is included within ES Appendix 25.1 (Document Reference: 3.3.48). This assessment, alongside Geophysical Survey results (ES Appendix 25.8, Document Reference: 3.3.55), has been used to develop the

Consultee	Date / Document	Comment	Response / where addressed in the ES
		within the study area. This would allow more accurate location of any targeted trenches.	targeted evaluation trenching plan in consultation with the relevant members of the Historic Environment ETG.
Essex County Council	21/08/2021, Scoping Opinion	Though the addition of the above there would be greater confidence for the identification of areas of high potential for archaeological remains.	Noted and addressed above.
Essex County Council	21/08/2021, Scoping Opinion	Paragraph 569. Once the final route has been determined the length of this would require archaeological investigation prior to the submission of the application, in the first instance this could be through geophysical techniques. This should be followed by a targeted trial trench evaluation which includes features identified through the Aerial Photographic Assessment as well as those features identified in the geophysics survey. An assessment of the possible 'blank' areas will also be required. Any other areas where construction would require groundworks or the construction of compounds should also be targeted.	The EIA strategy for onshore archaeology and cultural heritage has been agreed with the relevant members of the Historic Environment ETG. The approach to geophysical survey and evaluation trenching has been agreed through Written Schemes of Investigation in consultation with the relevant members of the Historic Environment ETG.
Essex County Council	21/08/2021, Scoping Opinion	For information: Any ground investigation works carried out for engineering purposes would be of use and relevance to the geoarchaeological assessment and it is highly recommended that this be combined with the geoarchaeological assessment if possible. The results of any geotechnical boreholes should be made available to the specialist employed to carry out the assessment.	An updated GDBA is included as ES Appendix 25.6 (Document Reference: 3.3.53) of the ES and makes recommendations for further evaluation. The DBA has been updated and reissued with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Essex County Council	21/08/2021, Scoping Opinion	The scoping report provided (Environmental Impact Assessment Scoping Report rev-04 16/07/2021) describes the North Falls Nationally Significant Infrastructure Project (NSIP) development as being at an indicative stage only due to the magnitude and complexity of the project. As such, comments are limited to general terms.	Noted.

Consultee	Date / Document	Comment	Response / where addressed in the ES
Essex County Council	21/08/2021, Scoping Opinion	The area of scoping in its northern extent appears to be particularly large however it is understood that this accommodates the parameters for the corridor for onshore trenched cabling as set out in Table 1.1. From this table it appears that no pylons are proposed and the indicative maximum height of onshore substation equipment 18m.	Noted, since scoping the onshore project area and its design have undergone refinement. The Project Description is included in ES Chapter 5 (Document Reference: 3.1.7) of the ES. The study areas for ES Chapter 25 Onshore Archaeology and Cultural Heritage (Document 3.1.27) are set out in Section 25.3.1 of this chapter.
Essex County Council	21/08/2021, Scoping Opinion	The proposed methodologies for assessment of built heritage assets including proposed walkover surveys to identify any potential non-designated heritage assets are acceptable. However, the proposed location and timings of these walkover surveys remain unspecified. The documents and acts referenced in informing the standards and methodologies are acceptable.	Noted. These assessments have been undertaken in consultation and agreement with the relevant members of the Historic Environment ETG. The results of the Onshore Infrastructure Setting Assessment are included in ES Appendix 25.3 (Document Reference: 3.3.50) of the ES, and the Heritage Walkover Survey results are presented in ES Appendix 25.5 (Document Reference: 3.3.52) of the ES.
Essex County Council	21/08/2021, Scoping Opinion	There is potential for military coastal defences to be identified at the indicative area of cable onshoring between Clacton-on-Sea and Frinton-on- Sea that has been scoped in. There is also potential for the project to impact upon the fringes and built heritage assets of Clacton-on-Sea, Frinton-on-Sea, and Holland-on-Sea. The scoping out of these towns in their entirety is a cause for concern and would benefit from clear justification.	The Heritage Walkover Survey (ES Appendix 25.5, Document Reference: 3.3.52) confirmed the presence of four FW3/22 pillboxes and the absence of any remains associated with Martello Towers H and I and two other pillboxes within the landfall area. The scope of the Onshore Infrastructure Setting Assessment (ES Appendix 25.3, Document Reference: 3.3.50) and has been agreed in consultation with the relevant members of the Historic Environment ETG.
Essex County Council	21/08/2021, Scoping Opinion	3.11 It is recommended that an integrated approach is taken to assessing impacts of the scheme. It is important that this approach is applied to the inter- relationships of built heritage, landscape and visual assessment, and noise and vibration as identified in table 3.32 when assessing the impacts of the scheme on these topics and their relationship with onshore built heritage.	Noted and addressed in Section 25.6.1 of this chapter.

Consultee	Date / Document	Comment	Response / where addressed in the ES
Essex County Council	21/08/2021, Scoping Opinion	Table 3.21 How will operational and maintenance requirements of the project impact the built heritages assets identified both directly and indirectly through impacts to their setting.	Addressed in Sections 25.6.1, 25.6.2 and 25.6.3 of this chapter.
Essex County Council	21/08/2021, Scoping Opinion	3.73 The potential impacts of water management, of present watercourses and potential floodwaters upon identified heritage assets through temporary works, maintenance works, and decommissioning works should be considered. These works have the potential to result in physical impacts upon heritage assets through ground water level changes, run off and drainage.	Addressed in Section 25.6 of this chapter with respect to impacts 2,3 and 4.
Historic England	12/08/2021, Scoping Opinion	To assist any further planning of the proposed North Falls Offshore Wind Limited (NFOW) project we offer the following link to the Historic England Advice Note 15 Commercial Renewable Energy Development and the Historic Environment (2021): https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/	Noted and included in Table 25.5 of this chapter.
Historic England	12/08/2021, Scoping Opinion	We note Section 3.7 relating to onshore archaeology and cultural heritage that has been submitted in the Scoping Report. We agree that the scoping report has taken into consideration both designated and non-designated heritage assets and that the assessment methodologies are generally appropriate – and we offer the following specific comments below.	Noted.
Historic England	12/08/2021, Scoping Opinion	We acknowledge that the PINS (2018) Advice Note 9 (Paragraph 4.5), states that “At the time of the Scoping Request, it may be necessary to leave certain matters open” (para. 42). We are concerned, however, by the very large size of the onshore scoping area (Figure 1.4), which	Noted, since scoping the onshore project area and its design have undergone refinement. The Project Description is included in Chapter 5 of the ES (Document Reference: 3.1.7). The study

Consultee	Date / Document	Comment	Response / where addressed in the ES
		makes it impossible to offer any specific comments. It limits the response, in terms of onshore works, to only very general comments at this stage.	areas for onshore archaeology and cultural heritage are set out in Section 25.3.1 of this chapter.
Historic England	12/08/2021, Scoping Opinion	In our opinion, the submission is premature and the onshore scoping area is simply too large at this stage, covering more than half the Tendring peninsula. No cable corridor has been defined and no substation location has been identified in the Scoping Report. The onshore scoping area contains five Scheduled Monuments, 230 Listed Buildings (including four at Grade I and 13 at Grade II*), and one Registered Park and Garden (para. 563). Para. 566 acknowledges the region as a whole has high potential for archaeological remains of local, regional and national importance. We note the data for non-designated heritage assets from the HER has not been acquired at this stage (para. 565).	Noted, as above.
Historic England	12/08/2021, Scoping Opinion	We would expect the scoping area to be narrowed down at an early stage in the project, prior to submission of the Scoping Report. Consequently, we would recommend that the scoping exercise for onshore work is repeated once the grid access has been determined.	Noted, as above.
Historic England	12/08/2021, Scoping Opinion	We are aware that the location of the proposed substation will not be confirmed by National Grid until January 2022. We are also aware of the key milestones of this project and submission of the PEIR in summer 2022 (para. 55). Consequently, we are concerned to ensure there is adequate time to undertake, in particular, a programme of onshore archaeological assessment that we believe is necessary to support the DCO application (see below).	Noted.
Historic England	12/08/2021, Scoping Opinion	We note the sources of information to inform the baseline for the study area (Table 3.19). No results have been presented at this stage, with the exception of Figure 3.12 (designated heritage assets). We note that no preliminary assessment of the value of cultural heritage assets within the	Noted, this has since been addressed through consultation with the relevant members of the Historic Environment ETG and the results presented in this chapter and its appendices.

Consultee	Date / Document	Comment	Response / where addressed in the ES
		study area has been undertaken, presumably because of the very large size of the scoping area. At this stage, no systematic archaeological investigation has been undertaken.	
Historic England	12/08/2021, Scoping Opinion	In terms of below-ground heritage assets (Section 3.7), we welcome the investigations that are proposed to assess cultural heritage. We look forward to reviewing the reports, which should be submitted in the ES. The ES should provide a detailed archaeological baseline; only a detailed and comprehensive understanding of the below-ground archaeological resource will allow for impact to heritage to be properly mitigated. There is significant potential for further nationally important sites to be discovered within the scoping area – and along the onshore cable route, in the area of the proposed substation and in the areas of construction compounds and laydown areas. We would, therefore, recommend that the resolution of the baseline information is considered carefully. For example, a resolution of 1m is the basic minimum needed for archaeological assessments, but where greater detail is required, higher resolution is preferable (Historic England, Using Airborne LIDAR in Archaeological Surveys, 2018): https://historicengland.org.uk/images-books/publications/using-airborne-lidar-in- archaeological-survey/.	Noted. The baseline assessment is summarised in Section 25.5.
Historic England	12/08/2021, Scoping Opinion	For the ES DBA, this should also include the dataset from CITiZAN (https://citizan.org.uk/). In terms of aerial photographs, all potential archaeological features recorded by aerial photography in the scoping area should be accurately plotted and assessed (para. 593).	Noted, the CITiZAN data has been incorporated into both ES Chapter 25 Onshore Archaeology and Cultural Heritage and ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18).
Historic England	12/08/2021, Scoping Opinion	We welcome the proposed programme of archaeological evaluation, comprising geophysical survey followed by archaeological trial-trenching. We are pleased to see that further geophysical survey approaches will be considered in addition to magnetometry following the findings of the DBA (Table 3.20). We note, however, the proposal for only targeted	The EIA strategy for onshore archaeology and cultural heritage has been agreed with the relevant members of the Historic Environment ETG. The approach to geophysical survey and evaluation trenching is being agreed through Written Schemes of

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		geophysical survey and trial-trenched evaluation identified through desk-based baseline collation (Table 3.2).	Investigation in consultation with the relevant members of the Historic Environment ETG.
Historic England	12/08/2021, Scoping Opinion	In our opinion, the geophysical survey should be undertaken across the DCO application area to ensure the nature, extent and survival of subsurface archaeological and geoarchaeological remains are established and presented in the ES. This will enable an appropriate scheme of mitigation to be prepared. We note that all supporting technical heritage information (full survey reports) is included as appendices to allow the information to be critically assessed (paras. 593-4).	The geophysical survey has been carried out across the onshore project area with results from the surveys presented in ES Appendix 25.8 (Document Reference: 3.3.55).
Historic England	12/08/2021, Scoping Opinion	We also recommend trial-trenched evaluation should be carried out in the area of the proposed substation and in the areas of construction compounds, as well as in pinch-point locations along the proposed onshore cable route and to test the results of any significant concentrations of archaeological remains (defined by the other archaeological surveys) (para. 560). We acknowledge a more comprehensive (onshore project wide) approach to trial trenching is anticipated to take place in the post-consent stages (para. 560).	The Project has carried out two phases of evaluation trenching at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58)
Historic England	12/08/2021, Scoping Opinion	We would also recommend specialist palaeoenvironmental assessment is undertaken where the DBA, and other surveys, indicate there is potential for the survival of palaeoenvironmental remains. This will enable the nature, extent and survival of subsurface archaeological and geoarchaeological remains to be adequately established and presented in the ES. This will ensure that a detailed and informed archaeological mitigation strategy can be prepared and agreed. We would recommend that geoarchaeological considerations and requirements are built into any geotechnical investigations that are carried out to ensure that opportunities are maximised where possible. This should include providing the geoarchaeologist with direct access to the core material rather than just to the logs or to extruded samples.	The updated GDBA included as ES Appendix 25.6 (Document Reference: 3.3.53) provides consideration and understanding of baseline palaeoenvironmental conditions as well as the potential for Pleistocene and Holocene deposits of archaeological significance. The DBA has been updated and reissued with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).

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Historic England	12/08/2021, Scoping Opinion	The onshore scoping area also has potential for encountering potential for Pleistocene and Holocene deposits of archaeological significance. Consequently, we recommend that a Palaeolithic Desk-Based Assessment is also prepared. The nature and scope of specialist Palaeolithic survey and assessment should be devised through consultation with the archaeological advisors at Essex Place Services. This information may not be adequately represented in the Essex HER by shallow geophysics or even by shallow evaluation trenches.	Noted, as above.
Historic England	12/08/2021, Scoping Opinion	An effective method for identifying the potential depth and character of Palaeolithic archaeology would be to undertake a preliminary deposit model as part of the desk- based assessment. This should be prepared by a geoarchaeologist based on any available stratigraphic information, including archaeological and geotechnical data.	Noted, as above, the GDBA included as ES Appendix 25.6 (Document Reference: 3.3.53) includes a preliminary deposit model which will be updated and reissued as further geoarchaeological evaluation is undertaken in agreement with the relevant Historic Environment ETG.
Historic England	12/08/2021, Scoping Opinion	The deposit model will help to illustrate the depth, characteristics and potential of the deposits of archaeological interest and should inform any subsequent evaluation trenching, borehole sampling and / or geophysical survey. The deposit model will also help to guide elements of the proposed mitigation strategy, such as the choice of geophysical techniques that are utilised. For example, techniques that investigate deeper deposits of archaeological interest should be considered, such as electromagnetic induction or electrical resistivity.	Noted, as above the GDBA included as ES Appendix 25.6 (Document Reference: 3.3.53) includes recommendations for areas where it may be appropriate to consider alternative methods of geophysical survey.
Historic England	12/08/2021, Scoping Opinion	It is stated that Horizontal Directional Drilling (HDD) will be used for the onshore cable works (para. 471). If this technique is to be used, the potential issues associated with bentonite slurry outbreak will need to be considered in terms of the impact (both direct and indirect) that this may have on any buried archaeological remains. This needs to be considered in the ES, and mitigation included in the Written Scheme of Investigation for archaeological mitigation.	Addressed in Section 25.6 of this chapter with reference to embedded project mitigation discussed in ES Chapter 21 Water Resources and Flood Risk, (Document Reference: 3.1.23).

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Historic England	12/08/2021, Scoping Opinion	It is noted that several sections within the scoping report contain information that may also aid the assessment of the archaeological potential of the development area, for example, information about the geology and hydrology (Section 3.1) and water resources (Section 3.3). In particular, it is important to understand how changes to the groundwater levels, water quality or the movement of water through deposits may impact the historic environment. For example, changes to groundwater levels or the mobilisation of contaminants along different pathways may impact the preservation of archaeological structures, features or remains, including palaeoenvironmental remains. In addition, soil erosion may supply fine sediments into watercourse, which could impact on channel morphology (Section 3.3.3.1). This in turn may alter bed and bank scour patterns within the channel which could potentially expose deposits/remains of archaeological interest (paragraphs 472 & 474).	Addressed in Section 25.6 of this chapter with respect to impacts 2,3 and 4.
Historic England	12/08/2021, Scoping Opinion	Additional works are planned to investigate the geology and hydrology / hydrogeology (section 3.1.4) of the development area; we would recommend that the value of this information to inform the assessment of the historic environment should be considered and discussed with the project archaeological team. This will allow any opportunities to be maximised where possible, and it will also hopefully reduce any duplication of effort. For example, any intrusive works such as boreholes that are collected for ground investigation works, and the conceptual model (paras. 436 and 438) will potentially add to the understanding of the historic environment, as well as the likely preservation conditions that may be present on the site. The conceptual model will also add to the understanding of how the proposed development may impact the historic environment. We would therefore recommend that Onshore Archaeology and Cultural Heritage is added into Table 3.32 in the 'Inter-relationships' column for the 'Water Resources and Flood Risk' topic.	The approach to Inter-relationships is given in Section 25.11 of this chapter.
Historic England	12/08/2021, Scoping Opinion	The nature and scope of the archaeological evaluation should be devised through consultation with the archaeological advisors at Essex Place	Noted.

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		Services (para. 591). We would be pleased to provide any further advice, and comment on the proposed methodology, as well as advising on the significance of the results. In our view, this will provide the Examining Authority with the appropriate level of information to determine the application, confident that the historic environment has been adequately assessed and that the proposed mitigation measures will be effective and proportionate to the significance of heritage assets.	
Historic England	12/08/2021, Scoping Opinion	Considering the amount of evaluation fieldwork that is likely to be required, we strongly recommend that discussions about this fieldwork commence at the earliest opportunity. We also advise that a timetable is agreed for each stage of the assessment process, especially because onshore transmission substation location for North Falls yet to be confirmed by National Grid.	Noted, consultation with the relevant members of the Historic Environment ETG is underway.
Historic England	12/08/2021, Scoping Opinion	Some of the work associated with the proposed Project may impact on the groundwater levels or movement of water though deposits. For example, the need for foundations for the substation, compression of deposits through the construction of elements or the movement of vehicles, the reduction in recharge values, or the need to dewater areas during construction. The impact that this work may have on the historic environment needs to be considered as any changes may affect preservation conditions within the area of the proposed Project or in nearby deposits, which in turn may result in the damage and / or loss of archaeological remains (para. 572). For example, the potential impact of dewatering on any well-preserved, waterlogged archaeological and palaeoenvironmental remains needs to be investigated along the onshore cable corridor.	Addressed in Section 25.6 of this chapter with respect to impacts 2,3 and 4
Historic England	12/08/2021, Scoping Opinion	We would recommend that the Historic England document Preserving Archaeological Remains (2016) is referred to aid the discussions of the potential impacts to the historic environment as well as the approaches used to investigate them:	Noted, will be referenced within the onshore OWSI (Document Reference: 7.12) as appropriate.

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		https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/.	
Historic England	12/08/2021, Scoping Opinion	The Historic England document Piling and Archaeology (2019) should be also referred to as some of the elements of the development will involve piling: https://historicengland.org.uk/images-books/publications/piling-and-archaeology/	Noted, will be referenced within the onshore OWSI (Document Reference: 7.12) as appropriate.
Historic England	12/08/2021, Scoping Opinion	Historic England's Regional Science Advisor will be pleased to provide technical advice and guidance concerning the appropriate techniques for archaeological and palaeoenvironmental assessment.	Noted. Historic England's Science Advisor is a member of the Historic Environment ETG.
Historic England	12/08/2021, Scoping Opinion	We appreciate that attention will be given to assessment of the setting of heritage assets and will be addressed within respective chapters of the ES for onshore and offshore archaeology and cultural heritage.	Noted. Setting Assessments are presented in ES Appendix 25.3 (onshore) and ES Appendix 25.4 (offshore) (Document Reference: 3.3.50 and 3.3.51). These will be built upon and updated as the Project is refined and presented at ES.
Historic England	12/08/2021, Scoping Opinion	We note the initial proposed Seascape, Landscape and Visual Impact Assessment (SLVIA) assessment (Section 4.1 and Table 4.1, and also paras. 589 and 738) and recommend the SLVIA is supplemented with heritage specific viewpoints (photographs, photomontages and wirelines) that illustrate the ES and support the results of the heritage assessment. If these are to be presented in the seascape, landscape and visual chapter, the assessment needs to be clearly set out and cross-referenced with the heritage chapter. We look forward to constructive engagement with the applicant, at an early stage, to agree the proposed key viewpoints for visualisations to assess the impact of offshore infrastructure on designated heritage assets.	A Setting Assessment of offshore infrastructure is presented in ES Appendix 25.4 (Document Reference: 3.3.51) and will be updated at ES.

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Historic England	12/08/2021, Scoping Opinion	We note the proposed 50km search radius (para. 711 and Figure 4.1) around the array areas. Given the estimated maximum rotor tip height of 397m, which is very high, we would recommend that the search radius for cultural heritage is extended to 70km, and should include highly-graded heritage assets, for example, on the Dengie Peninsula.	The study area for the SLVIA has been increased to 60km, and this has been agreed through follow on consultation (SLVIA Topic Group Meeting – 7th December 2022).
Historic England	12/08/2021, Scoping Opinion	We note that para. 713 mentions the seascape character assessment published by the Marine Management Organisation (MMO) and we add that the MMO seascape data does include Historic Seascape Characterisation (HSC) data as a means to derive a sense of character. However, it is important to add that the effectiveness of HSC as a means to understand how seascape can accommodate change will depend on how the available methodology is used, as mentioned in Table 2.26.	Noted. The Historic Seascape Characterisation is considered as part of ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document reference: 3.1.18).
Historic England	12/08/2021, Scoping Opinion	It is likely that the proposed onshore substation will have an impact on the significance of designated and non-designated heritage assets, in terms of the changes to their settings and their relationships to the wider landscape.	Noted. A Setting Assessment of the onshore substation is presented in ES Appendix 25.3 (Document Reference: 3.3.50).
Historic England	12/08/2021, Scoping Opinion	A Zone of Theoretical Visibility (ZTV) should be produced in relation to the designated heritage assets, and any significant historic landscape elements, and used to inform the selection of potential viewpoints to assess the impact of the proposed substation on the setting of heritage assets. The assessment should define a study area according to the sensitivity of the receiving environment and the potential impacts of the project.	The ZTVs are provided in ES Chapter 30 Landscape and Visual Impact Assessment (Document Reference: 3.1.32) and have been used to inform early consultation with the relevant Historic Environment ETG (who were jointly consulted with the Landscape and Visual Impact Assessment (LVIA) ETG) and the Onshore Infrastructure Setting Assessment (ES Appendix 25.3, Document Reference: 3.3.50).
Historic England	12/08/2021, Scoping Opinion	In terms of the location of the proposed substation, we would be pleased to advise on the area of study for designated heritage assets, and the extent of ZTV, once the scoping area has been narrowed down. We note that a 5km project boundary has been proposed (para. 589) but the ZTV	The ZTVs are provided in ES Chapter 30 Landscape and Visual Impact Assessment and have been used to inform early consultation with the relevant Historic Environment ETG (who were jointly consulted with the LVIA ETG) and the Onshore

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		could be considerably larger – and this cannot be agreed until the location of the proposed substation has been published. We also look forward to constructive engagement with the applicant to agree the proposed key viewpoints for visualisations.	Infrastructure Setting Assessment (ES Appendix 25.3 of the ES, Document Reference: 3.3.50). The Setting Assessment includes viewpoints agreed with the relevant members of the Historic Environment ETG following the refinement of the onshore substation location.
Historic England	12/08/2021, Scoping Opinion	The setting of heritage assets is not just restricted to visual impacts and other factors should be considered, in particular noise, vibration, light, odour, traffic assessments, during construction and operation. Where relevant, the cultural heritage chapter should also be cross-referenced to other relevant chapters, and we advise that all supporting technical heritage information is included as appendices.	The approach to inter-relationships is given in Section 25.11 of this chapter.
Historic England	12/08/2021, Scoping Opinion	In terms of the assessment of setting, we consider the analysis of setting (and the impact upon it) as a matter of qualitative and expert judgement which cannot be achieved solely by use of systematic matrices or scoring systems. Historic England, therefore, recommends these should be in an appendix and seen only as material to support a clearly expressed and non-technical narrative argument within the cultural heritage chapter. The EIA should use the ideas of benefit, harm and loss to set out 'what matters and why' in terms of the heritage assets' significance and setting, together with the effects of the development upon them.	Noted. A setting assessment of the onshore substation is presented in ES Appendix 25.3 (Document Reference: 3.3.50) and an offshore setting assessment is presented in ES Appendix 25.4 (Document Reference: 3.3.51)
Historic England	12/08/2021, Scoping Opinion	In addition, the appreciation of the value of the historic environment should not rely solely on an appreciation of the location of designated heritage assets but consider the interactions with the wider landscape.	Noted.
Historic England	12/08/2021, Scoping Opinion	The assessment should be prepared and submitted following the approach set out in Historic Environment Good Practice Advice in Planning Note 3, The Setting of Heritage Assets (2017):	Noted, both onshore and offshore setting assessments have been prepared in accordance with this advice

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		https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage- assets/	
Historic England	12/08/2021, Scoping Opinion	We note the proposed cumulative impact assessment (paras. 102-10, 580-2, 731 and 736). It is quite possible there will be projects within the onshore substation study area that will need to be considered in terms of cultural heritage once the study area has been narrowed down. This work should not, therefore, be scoped out at this stage (paras. 732 and 737). We look forward to constructive engagement with the applicant, at an early stage, to agree the proposed key viewpoints for visualisations to assess the cumulative impact of the Project on designated heritage Assets.	Noted, the approach to cumulative effects is presented in Section 25.8 of this chapter.
Historic England	12/08/2021, Scoping Opinion	By following planning policy and guidance we would expect the project to be creative in how it might offer opportunities for the enhancement of heritage assets, and how the project might deliver public (heritage) benefit. The ES should aim to make clear public heritage benefits and outreach as part of planned mitigation.	Opportunities for enhancements of heritage assets will be detailed in the onshore OWSI (Document Reference: 7.12) submitted as part of the DCO application.
Historic England	12/08/2021, Scoping Opinion	We would advise the ES should put forward proposals for the use, display and interpretation of archaeological evidence that will be revealed by the development and to provide enhancement to heritage assets and secure wide heritage benefits as part of the Project and we would be pleased to provide advice about potential heritage schemes.	Opportunities for enhancements of heritage assets will be detailed in the onshore OWSI (Document Reference: 7.12) submitted as part of the DCO application.
Historic England	12/08/2021, Scoping Opinion	We have serious concerns about the proposed strategy for assessment of onshore archaeology in the Scoping Report. In our opinion, this strategy could fail to adequately assess the full extent and significance of archaeological remains within the DCO application area. There is a considerable risk that nationally important heritage assets, in the form of	The EIA strategy for onshore archaeology and cultural heritage has been agreed with the relevant members of the Historic Environment ETG. Consultation with the ETG will be ongoing through the DCO application and through post-consenting mitigation to ensure that nationally, regionally or locally important heritage assets will not be missed.

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		previously unknown buried archaeological deposits, could be missed by the proposed strategy.	
Historic England	12/08/2021, Scoping Opinion	We strongly recommend that the geophysical survey should be undertaken across the whole DCO application area, rather than targeted or priority areas. This should be followed by trial-trenched evaluation in the area of the proposed substation and in the areas of construction compounds, as well as in pinch-point locations along the corridor route. Palaeoenvironmental assessment should be undertaken where the DBA, and other surveys, indicate there is potential for the survival of palaeoenvironmental remains.	The EIA strategy for onshore archaeology and cultural heritage has been agreed with the relevant members of the Historic Environment ETG. The approach to geophysical survey and evaluation trenching is being agreed through Written Schemes of Investigation in consultation with the relevant members of the Historic Environment ETG. The strategy takes an integrated approach with Geoarchaeology.
Historic England	12/08/2021, Scoping Opinion	We also have serious concerns about the prematurity of the submission in terms of the onshore scoping area, covering more than half the Tendring peninsula. No cable corridor has been defined and no substation location has been identified in the Scoping Report. We have, therefore, been unable to provide any specific comments at this stage. We would recommend that the scoping exercise for onshore work is repeated once the grid access has been determined in January 2022.	Noted, since scoping the onshore project area and its design have undergone refinement. The Project Description is included in ES Chapter 5 of the ES (Document Reference: 3.1.7). The study areas for onshore archaeology and cultural are set out in Section 25.3.1 of this chapter and have been agreed with the relevant members of the Historic Environment ETG.
Historic England	12/08/2021, Scoping Opinion	We should like to stress that this response is based on the information provided in this consultation. For the avoidance of doubt, this does not affect our obligation to provide further advice and, potentially, to object to specific proposals which may subsequently arise where we consider that the scale, massing and detailed design would have an adverse effect upon the immediate and wider historic environment.	Noted, consultation with the Historic Environment ETG is ongoing.
Essex County Council (ECC) Place	06/07/2021, ETG Meeting 1 and Evidence Plan Agreement Log	It was agreed that the list of baseline data sources set out in Section 3 of the Archaeology and Cultural Heritage was sufficient to inform the onshore EIA, following the provision of further information regarding the nature of the walkover surveys. It was advised that emphasis should be	The results of the heritage walkover survey are provided in ES Appendix 25.5 (Document Reference: 3.3.52).

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Services/Historic England		placed on identifying non-designated heritage assets in the absence of an adopted local list within the Tendring District. It was also recommended by ECC that the Portable Antiquities Scheme (PAS) be consulted, particularly for areas with little or no HER or other data. These sources would need to be supplemented with an appropriate level of fieldwork.	The PAS data was reviewed and included as part of the high level baseline assessments presented in Appendices 25.1 and 25.2 (Document Reference: 3.3.48 and 3.3.49).
ECC Place Services/Historic England	06/07/2021, ETG Meeting 1 and Evidence Plan Agreement Log	For the intertidal areas, ECC recommended that a walkover survey would be beneficial for the recording of any archaeological / historical remains that may be visible at low tide.	The results of the heritage walkover survey are provided in ES Appendix 25.5 (Document Reference: 3.3.52).
ECC Place Services/Historic England	22/03/2022, ETG Meeting 2 and Evidence Plan Agreement Log,	Agreement was sought on whether the proposed use of a Geoarchaeological Desk-Based Assessment (GDBA)is sufficient to define the geoarchaeological, palaeoenvironmental and palaeolithic baseline for EIA. ECC commented that further information will be required which may be obtained prior to the submission of the application from site investigation works which could be combined with geoarchaeological investigations. Historic England is of the view that the GDBA is not, by itself, sufficient to define the baseline for EIA. It should be supported by field assessment and deposit modelling.	An updated GDBA is included as ES Appendix 25.6 (Document Reference: 3.3.53) of the ES. It includes an initial deposit model and makes recommendations for further evaluation. The DBA has been updated and reissued with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
ECC Place Services/Historic England ECC Place Services/Historic England	22/03/2022, ETG Meeting 2 and Evidence Plan Agreement Log	Agreement was sought on the proposed approach to pre-consent geophysical surveys, in seeking to target sensitive areas (areas of key project infrastructure and archaeological sensitivity) first and then to collect as much further data as possible. Agreement was sought as to whether this approach was sufficient to inform the baseline for EIA. ECC commented that the geophysical survey should aim to provide full coverage of the project area once the route has been finalised. This	Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. The results collected to date are presented in ES Appendix 25.8 (Document Reference: 3.3.55). The programme for targeted evaluation trenching will be agreed through a separate survey-specific Written Scheme of Investigation which will include a trenching plan. The GDBA (ES Appendix 25.6, Document Reference: 3.3.53) has included

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		would then inform on the areas required for targeted trial trenching prior to the submission of the application and to inform the EIA. Historic England would recommend that geophysical survey should be carried out across the whole DCO application area, rather than targeting sensitive areas. The geophysical survey should be tested using (and supported by) targeted trial trenching and geoarchaeological assessment, to establish the significance of any buried archaeological and geoarchaeological remains.	recommendations to include deeper test pits during the evaluation trenching as well as other potential evaluation methods.
ECC Place Services/Historic England	13/07/2022, ETG Site Visit in July 2022 and Evidence Plan Agreement Log	The Historic Environment ETG agreed to the proposed heritage viewpoints in relation to the project onshore substation (CH01, CH02, CH03). An additional heritage viewpoint was added (CH04) from the non-designated henge site (Little Bromley Hall, EHER 2460) located at TM 274 089, south of the Church of St Mary's (NHLE 1337175), as this asset is likely to become scheduled prior to DCO submission and visibility of the substation is likely.	The Onshore Infrastructure Setting Assessment, including these viewpoints, is included in ES Appendix 25.3 (Document Reference: 3.3.50).
ECC Place Services / Historic England	13/07/2022, ETG Site Visit in July 2022 and Evidence Plan Agreement Log	It was agreed that there is no requirement for a heritage viewpoint from the Scheduled settlement site of a Neolithic enclosure (NLHE 1002157), located north-northeast of Lawford House, as the onshore substation is unlikely to be visible given the intervening vegetation buildings and topography.	The rationale for this is included in ES Appendix 25.3 (Document Reference: 3.3.50).
ECC Place Services / Historic England	02/08/2022, ETG Meeting 3 and Evidence Plan Agreement Log	It was agreed that a single Written Scheme of Investigation will be drafted detailing the geophysical survey methodology for the project but will remain a live document and be updated with Phase 2 survey locations via submission of new figures and an update to the survey rationale table. Any alternative geophysical survey requirements (such as GPR or EM) will be detailed in a separate survey-specific Written Scheme of Investigation.	The Written Scheme of Investigation for Phase 1 Geophysical Survey was approved by the Historic Environment ETG on 23rd September 2022 and has been subsequently updated with the Phase 2 survey areas.

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		On the basis of feedback from the Historic Environment ETG a selection of areas which appear archaeologically 'blank' were included within the Phase 1 geophysical survey.	
ECC Place Services/Historic England	07/02/2023, ETG Meeting 4 and Evidence Plan Agreement Log	The proposals for joint pre-consent archaeological evaluation (trial trenching) by NFOW and Five Estuaries Offshore Wind Farm Limited for the Projects' onshore substation zones was discussed, and suggested amendments to proposed trench locations and the evaluation methodology were raised by Historic England and ECC Places Services.	Two phases of evaluation trenching have since been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58).
Essex County Council	14/07/2023, Consultation Response Letter	Historic Environment The proposed offshore wind farm is likely to have considerable impact on the historic environment and especially the archaeological deposits, both onshore and offshore. The proposed cable route(s) passes through extensive areas of known archaeological deposits many recorded from aerial photographic research. To date, little archaeological fieldwork has taken place within the area of the proposed development to inform on the nature, extent and significance of the known heritage assets. The proposed cable route will run across 24km of land (with a disturbed area 60m in width) within the Tendring District and c.80km of seabed. There is a high potential for previously unidentified archaeological remains and geoarchaeological deposits to be located within the areas of the cable route and associated works.	Noted. The baseline environment is presented in Section 25.5. Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. In addition, two phases of evaluation trenching have since been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). This work has informed the assessment presented in section 25.6.
Essex County Council	14/07/2023, Consultation Response Letter	Following consultations and discussions with the Applicant a number of desk-based reports have been completed. A walkover survey and a programme of geophysical survey(s) has been undertaken on targeted areas of the development area, both onshore and offshore. The reports submitted in relation to onshore archaeology include: • Cable Landfall Search Area: Historic Environment Desk-Based (Baseline) Assessment (25.1);	Noted.

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		• Onshore Cable Corridor(s) and onshore Substation Zone. Historic Environment Desk-Based (Baseline) Assessment (25.2); • Heritage Walkover Survey (25.5); GDBA (25.6); • Onshore Historic Environment Gazetteers (25.7); • Archaeological Geophysical Survey Report (25.8) and; • Five Estuaries Archaeological and Geoarchaeological Monitoring of Ground Investigation Works report (25.9). Supporting documents for offshore archaeology include North falls Offshore Wind Farm and Offshore cable Corridor Archaeological Assessment of Geophysical Data (16.1)	
Essex County Council	14/07/2023, Consultation Response Letter	The work carried out so far has provided a reasonable account of the known archaeological and geoarchaeological remains within the proposed development area. Aerial photographic assessment and geophysical survey have identified further archaeological features and sites. This includes potential prehistoric ritual and settlement evidence, Roman roads and associated activity and later activity. The GDBA has also identified the potential for the presence of deposits which may contain Palaeolithic archaeological and geoarchaeological evidence that would contribute to national and regional research themes and priorities due to their rarity. The GDBA also includes an archaeological assessment of marine geophysical data. This identifies potential for the presence of offshore submerged prehistoric land surfaces and relict channels which may contain archaeological and palaeoenvironmental evidence.	Noted.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	The Phase 1 onshore geophysical survey is ongoing and therefore the information presented as part of the PEIR is incomplete. Further Phase 1 onshore geophysical survey is proposed prior to the submission of a DCO. The combination of geophysics and aerial photography allow a greater understanding of the nature and significance of any potential	Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. The results are presented in ES Appendix 25.8 (Document Reference: 3.3.55). Evaluation trenching (Appendices 25.10 and 25.11,

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		archaeological remains, however, these methods, by their nature, can only provide confidence in larger and long-lived archaeological features and the proportion of unidentified archaeological remains within the area could be significant. These methods are also not suitable on all soils and areas where cropmarks may not be visible due to the nature of the vegetation cover.	Document Reference: 3.3.57 and 3.3.58) undertaken at the onshore substation works area demonstrated that the previous geophysical and aerial photography survey analysis correlate closely, the implications of this are considered in more detail in Sections 25.5 and 25.6.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Geophysical survey across the whole development area and a programme of targeted archaeological trial trenching has been previously recommended to be completed in advance of the DCO application to inform on the extent, complexity and significance of any archaeological deposits and to allow for appropriate consideration to be given to the impact of the scheme on the historic environment. An archaeological trial trench evaluation has recently been completed across part of the proposed substation site, the results of the which will need to be included in the DCO application. Geophysical survey across the whole development site has not been completed and is not proposed to be completed prior to the DCO application.	The results of the geophysical survey undertaken to date is reported in ES Appendix 25.8 (Document Reference: 3.3.55). Two phases of evaluation trenching evaluation have since been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58).
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	In relation to both onshore and offshore archaeology, the assessment of significance is largely based on desk-based research and non-intrusive evaluation survey, and therefore the potential adverse effect remains difficult to state with confidence. Direct effects to archaeological remains from physical damage or disturbance will be incurred within the footprint of the proposed development and associated enabling works. Any adverse impact to buried archaeological features as a result of the implementation of the project would be permanent and irreversible in nature. An assessment of effects on any heritage asset involves an understanding of the heritage significance of an asset, with regard to subsurface archaeological remains this can only be confidently achieved through intrusive investigation such as the programme of trial trenching recommended.	Two phases of evaluation trenching have since been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58).

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Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	At present the details of the proposed development retain a degree of flexibility within the Rochdale Envelope approach and will not be finalised until the detailed design phase, post consent. The primary mitigation approach, both onshore and offshore, is avoidance and therefore should entail preservation in situ of any significant archaeological remains. However, the extent, nature and significance of the archaeological remains, both onshore and offshore, has not yet been fully established or identified and it is uncertain that avoidance will be a practical option given the engineering requirements of the proposed works.	A summary of embedded mitigation measures is detailed in the ES Section 25.3.3. Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. The results are presented in ES Appendix 25.8 (Document Reference: 3.3.55). The GDBA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59). Programmes of geophysical survey and intrusive evaluation will continue post consent ongoing and will inform subsequent mitigation.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	The Tendring District is particularly rich in prehistoric ritual remains which range from single monuments to extensive cemetery areas. One example is the Scheduled Monument site at Ardleigh, which lies c.1.5km directly west of the proposed substation site, the scheduled area covers a site nearly 900m long by 600m wide and provides a good illustration of a well preserved extensive prehistoric landscape within the Tendring peninsula. There is potential for further extensive archaeological sites to be present within the development area which may not be able to be avoided within the cable corridor and so would be difficult to mitigate by design.	Scheme design has sought to avoid the most significant archaeological remains where they were known or identified in pre-application investigation. Where disturbance cannot be avoided, significant effects upon sub-surface archaeological remains will be offset by the application of appropriate alternative mitigation measures which serve to preserve archaeological remains, where present, by record (e.g., following intrusive evaluation and subsequent excavation, where required). This is detailed in Section 25.6.1.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	The Applicant would be required to conclusively demonstrate that there is potential to avoid impact on any significant concentrations of archaeological remains where preservation would be the most appropriate mitigation strategy. Prior to the DCO application we would expect the results of all DBA s and geophysical surveys to be combined in order to identify any concentrations of archaeology which may be difficult to avoid through design. Any areas where there is little or no opportunity to avoid these archaeologically or geoarchaeological sensitive areas through design would need to be evaluated through a	A programme of evaluation trenching and geoarchaeological evaluation is ongoing and will continue post-consent. The results will provide a better understanding of the sub-surface archaeological remains present to ensure suitable mitigation strategies can be proposed prior to the commencement of development works. Two phases of evaluation trenching have since been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in

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		programme of trial trenching / test pitting and / or borehole survey prior to the submission of the DCO to ensure that a suitable mitigation strategy, including preservation can be proposed.	Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58).
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	In addition, there may be cumulative direct effects with the Five Estuaries OWF. The Five Estuaries OWF is likely to follow the same cable route. It is unclear how much flexibility in design there will be, with both wind farms following similar designs, with regard to avoiding archaeological remains of high significance when no intrusive archaeological fieldwork has been undertaken. This would be of significance for any Palaeolithic sites which are rare and highly significant.	A summary and assessment of cumulative effects is presented in Section 25.8.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	At present there are also no proposals for outreach and enhanced public understanding as part of the mitigation beyond appropriate publication of the results of archaeological investigations and archiving. It is considered there would be scope to demonstrate a commitment to delivering enhanced public understanding / benefit and legacy as part of the mitigation considering the significant size of the scheme and the interest in the heritage of the area. The details of outreach should be included within an OWSI for both onshore and offshore archaeology.	Details of appropriate public outreach / engagement are included within the onshore OWSI (Document Reference: 7.12) submitted with this application.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Onshore Archaeology and Cultural Heritage - Chapter 25 • Production of report on archaeological trial trenching and geoarchaeological test pits within the SSA West Area. To be submitted as an Appendix and results of geoarchaeological test pits to inform on site deposit model and GDBA which should be updated with any relevant information. • Illustrative plan of archaeological evidence including geophysics, Air Photo Services Limited (APS) and HER overlaid and identification of any archaeological sensitive areas (where mitigation by design may not be possible).	Details of appropriate public outreach / engagement will be included within the onshore OWSI (Document Reference: 7.12) submitted with this application. Two phases of evaluation trenching evaluation and Palaeolithic assessment have since been carried out at the onshore substation works area, these are summarised in Section 25.5 with the full reporting included in Appendices 25.10 - 25.12 (Document Reference: 3.3.57 – 3.3.59).

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		• Production of OWSI to set out approach to assessment and mitigation- This will need to include opportunities for the enhancement of heritage assets, and how the project might deliver public (heritage) benefit. The ES should aim to make clear public heritage benefits and outreach as part of planned mitigation	
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Five Estuaries Archaeological and Geoarchaeological Monitoring of Ground Investigation Works Report - Appendix 25.9 • Only three boreholes were monitored, and 2 historic borehole records used to create a stratigraphic model. This would not be considered robust enough to make conclusions across the whole scheme. The borehole records used for the GDBA should have been incorporated and some may have been more suitable for the creation of a deposit model. • The report states that the gravel deposits are deeply buried and conventional archaeological evaluation of this buried land surface is unlikely to be practical. • This is based on one borehole record, the GDBA notes that the Kesgrave gravels are present at much shallower depths across the scheme. The report needs amending to clarify this and should be updated as new information becomes available. A site deposit model across the entire scheme would be beneficial.	The GDBA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	GDBA - Appendix 25.6 • The GDBA has presented a very high-level assessment based on existing BGS borehole data and desk-based research. It has created a basic deposit model and zoned the route into Geoarchaeological Characterisation Zones (GCZs). • This approach is considered appropriate however the interpretation is based on a limited number of borehole records	Additional ground investigation works have since been completed as part of the evaluation works and can be viewed in ES Appendix 25.12 (Document Reference: 3.3.59). An updated GDBA incorporating these results has been produced and is presented in ES Appendix 25.6 (Document Reference: 3.3.53).

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		and should be supplemented with purposive borehole data which includes analysis and interpretation of the sediments from the borehole cores. • Any geotechnical boreholes taken prior to DCO submission should be monitored by a geoarchaeological specialist in order to refine and update the model. • The potential for geophysical survey, Electrical Resistivity Tomography (ERT), should be explored prior to DCO submission to enable a more detailed deposit model and identify any areas which have potential to preserve early prehistoric sites. • The DBA has identified that the Kesgrave deposits lie at depths that may be impacted upon, in places, by the cable trenches. The discovery and identification of any Palaeolithic and Mesolithic sites within the development area would be considered of high importance, although any adverse effect would be localised within a much more extensive deposit sequence.	
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Historic Buildings Place Services on behalf of the Joint Councils have been involved in the consultation process for the selection of potential proposal sites for the North Falls Offshore Windfarm, including the location of the offshore section, the area of landfall, cable corridor and onshore substation. The selection process included the creation of a ZTV related to the location of the Onshore substation which identified a number of designated heritage assets which could potentially be affected by the development. A further site visit narrowed the selection of designated heritage assets which are likely to be affected by the construction of the onshore substation in the proposed location through the change of their wider setting.	Noted.
Essex County Council	14/07/2023, Consultation	An initial assessment of the impact of the proposal on the setting of the heritage assets identified during the consultation process has now been submitted and would be further developed, where appropriate, once the	The initial selection of heritage assets for assessment has been reviewed to ensure it remains appropriate and the assessment is

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	Response Letter, Appendix One	detailed layout for the offshore section, area of landfall, cable corridor and onshore substation has been finalised.	set out at Appendices 25.3 and 25.4 (Document Reference: 3.3.50 and 3.3.51) and summarised as Section 25.5.8.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Offshore Project section: The initial heritage assessment is only limited to the designated heritage assets which fall within a closer distance from the area of landfall. Further assessment of the assets identified in Table 1 of Appendix 25.4 would be required. The required additional turbines and offshore substations are likely to affect some of the views from Conservation Areas and heritage assets along the coastline towards the sea. The introduction of permanent offshore infrastructure has the potential to affect the significance of the identified heritage assets as a result of change in their setting. These include: • Grade II Listed and Scheduled Monument Martello Tower K and associated battery south west of Walton Mere; • Grade II Listed Martello tower and brick lined moat; • Grade II Listed Martello tower adjacent to sea wall;	An assessment of the effects to the setting of coastal heritage assets is presented in ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18). An appraisal has been carried out to respond to the Historic England (HE) and ECC request to consider a larger study area from the initial heritage assessment. This is detailed in ES Appendix 25.4 (Document Reference: 3.3.51), Annex 25.4.2.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Martello Towers draw their significance from their architectural and historic interest as well as from their relationship with the seafront which forms part of their setting and highly contributes to the understanding of the significance of these assets and their historic function as defensive structures. As such, the introduction of the proposed offshore within the setting of the Towers would result in less than substantial harm to the significance of these designated heritage assets.	Assessment of the Martello towers between Slaughden and St Osyth has considered the specific aspects of the varied settings of these heritage assets as well as seeking to better understand how views to the seaward contribute to significance (ES Appendix 25.4 (Document Reference: 3.3.51)).
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Due to the distance of the development from the coastline and the limited visibility, the harm to the significance of the Tower is considered at the low end than less than substantial. As the setting of Martello Tower K has been permanently changed and urbanised and there is limited	Noted. See appraisal detailed in ES Appendix 25.4 (Document Reference: 3.3.51), Annex 25.4.2.

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		intervisibility with the proposed offshore infrastructures, the impact is considered neutral.	
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	- Grade II Listed Old Lifeboat House The Old Lifeboat House draws its significance from its architectural and historic interest, and its community value for its role as an important provision in the coastal town of Walton. The maritime setting, therefore, highly contributes to the significance of the building as designated heritage asset and contributes to our understanding of its historic function and relationship with the sea. As such, the introduction of the proposed offshore within the setting of the Towers would result in less than substantial harm to the significance of the Old Lifeboat House. This harm can be assessed at the lower end of less than substantial due to the increased distance of the development from the designated heritage asset and the limited intervisibility of the proposed infrastructure.	The assessment set out at ES Appendix 25.4 (Document Reference: 3.3.51) considers the specific townscape context of this asset as well as the contribution of views to the seaward to its significance.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	• Grade II Listed 40-44, The Parade • Grade II Listed Seaspan • Frinton and Walton Conservation Area; • Clacton Seafront Conservation Area. The maritime setting contributes to the significance of these designated heritage assets and enhance our appreciation and understanding of Frinton, Walton and Clacton as seaside towns. The introduction of the proposed offshore within the setting of these designated heritage assets would result in less than substantial harm. This harm can be assessed at the lower end of less than substantial due to the increased distance of the development and the limited intervisibility of the proposed infrastructure.	An appraisal has been carried out to respond to the Historic England and Essex County Council request to consider is detailed in ES Appendix 25.4 (Document Reference: 3.3.51), Annex 25.4.2.

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Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	- Grade II* Listed Church of St Mary; The church draws its significance from its architectural and historic interest. The churchyard forms its immediate setting and is mostly secluded in character, retaining a sense of isolation and seclusion despite the erosion and urbanisation of the wider setting. The development is not considered to affect the wider setting of St Mary's Church or prevent from an appreciation of its significance as an ecclesiastical building.	A detailed assessment of the predicted effects on the significance of onshore heritage assets is presented in ES Appendix 25.3 (Document Reference: 3.3.50).
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Onshore Section: At this stage, a high-level assessment of the predicted impacts from the onshore infrastructure on the significance of onshore heritage assets resulting from changes in their setting has been submitted. A further detailed assessment would be required once the refined layout would be finalised.	A detailed assessment of the predicted effects on the significance of onshore heritage assets is presented in ES Appendix 25.3 (Document Reference: 3.3.50). A summary is provided in Section 25.5.8.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Landfall Section: The potential wider area for landfall has been allocated between Frinton on Sea and Holland on Sea and includes a portion of the Frinton and Walton Conservation Area. As no permanent above-ground building is required at landfall, the proposed development is expected to have a temporary impact on the setting of these designated heritage at Construction stage and at dismissal only.	Noted.
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	Onshore Cable Corridor Section: The selection process has established a wider area for the onshore cable corridor connecting the landfall site to the proposed onshore substation. As no permanent above-ground building is required following the installation of the connecting cables, the proposed development is	A detailed assessment of the predicted effects on the significance of onshore heritage assets is presented in ES Appendix 25.3 (Document Reference: 3.3.50). A summary is provided in Section 25.5.8.

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		expected to have a temporary impact on the setting of any designated heritage assets in close proximity to the building site at Construction stage and at dismissal only.	
Essex County Council	14/07/2023, Consultation Response Letter, Appendix One	• Onshore Substation section • Grade II Listed Building Jennings Farm; • Grade II* Listed Building St Marys Church; These designated heritage assets draw their significance from their architectural and historic interest as well as the open agricultural landscape which forms part of their setting. The required above ground infrastructures within the offshore substation are likely to affect the views from the designated heritage asset into the wider rural landscape. The introduction of permanent offshore infrastructure has the potential to affect the significance of the identified heritage asset as a result of a change in the character of its setting, which will result in less than substantial harm to the significance of Jennings Farm. Due to distance from the site and intervening buildings and vegetation, this harm can be assessed at the lower end of less than substantial, however, a more detailed assessment would be required once the refined layout would be finalised.	A detailed assessment of the predicted effects on the significance of onshore heritage assets is presented in ES Appendix 25.3 (Document Reference: 3.3.50).
East Suffolk Council	06/07/2023, Consultation Response Letter	**Heritage considerations** Within the PEIR Non-Technical Summary, Section 3.2.7 sets out the onshore archaeology and cultural heritage findings. As set out in ESC's non-statutory consultation response, there are various built heritage assets located on the East Suffolk coastline which could potentially be affected by the North Falls proposal including those that derive some of their significance from their visual, working and historic relationship to the sea, as part of their coastal location and maritime history. The latter would include the history of fishing, coastal protection, military defence and resort tourism, for example. The viewpoints previously set out in the EIA Scoping response cover most of these key areas of heritage significance for our District. Consideration should also be given to some of our coastal Conservation Areas, these are designated heritage assets and, as they are area-based, may sustain	A detailed assessment of the predicted effects on the significance of heritage assets arising from visibility of the offshore development (following the decision to remove the Northern cluster of turbines from the proposed development) is presented in ES Appendix 25.4 (Document Reference: 3.3.51).

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		wider-ranging impacts from the proposals than specified individual sites. The military chain of early 19th century Martello Towers is the most pre-eminent of our military coastal defence features, all of which are listed buildings and scheduled monuments, having a high level of designation. If the North Sea is regarded as part of the setting of these heritage assets and which partly contributes to their significance, then there is a statutory obligation to include them for the effect of the impacts arising from the proposed offshore development. This would include the separate and combined impacts arising from the northern and southern arrays, although it is acknowledged that combination effect will be smaller further north along the coastline.	
Historic England	14/07/2023, Consultation Response Letter	Historic England's response is limited to our statutory remit for the historic environment. Our advice is given in relation to the information currently available and may be subject to change as our understanding of the impact on heritage assets changes. In relation to Listed Buildings, the remit for detailed comments and advice on Grade II Listed Buildings lies with the relevant Local Authority Conservation Officers. For onshore archaeology, the remit for detailed comments and advice on non-designated archaeological remains lies with the relevant Local Authority Archaeological Advisors. Our advice, however, includes comments on the submitted documents relating to the archaeological assessments and mitigation proposals. Our advice includes comments from our regional Science Advisor and includes suggestions of further detail we would expect to see presented in the Archaeological Mitigation Strategy.	Noted.
Historic England	14/07/2023, Consultation Response Letter	We welcome the use of LiDAR data to inform assessment (Appendix 25.1 and 25.2, Annex D). We would recommend this data is presented in the supporting appendix for the DCO application.	The LiDAR assessment is included in Appendices 25.1 and 25.2 (Document Reference: 3.3.48 and 3.3.49) of this ES.

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Historic England	14/07/2023, Consultation Response Letter	As part of the Scoping Response (12 August 2021), we have advised previously that resolution of 1m is the basic minimum needed for archaeological assessments using LiDAR, but where greater detail is required, higher resolution is preferable. This is in line with Historic England's document, Using Airborne LIDAR in Archaeological Surveys, 2018.	The LiDAR resolution used was agreed in ETG PEIR Feedback on the 03/08/2023. It was presented that while 2m resolution may be below the minimum of Historic England's requirements, this dataset is one of the earliest LiDAR datasets available and still provides microtopographic earthwork evidence, particularly in Simple Local Relief Modelling, which may have been eroded in later datasets and therefore is not discarded from this investigation but included alongside datasets of higher resolution to provide context. Given that most of the features are no longer present, or are visible as cropmarks, from APSs experience, obtaining a higher resolution dataset would not provide sufficiently valuable additional context, and with the extant NLP full site coverage of 1m resolution, when taken as a whole, this investigation meets and exceeds Historic England's minimum requirements.
Historic England	14/07/2023, Consultation Response Letter	We would expect the onshore cable corridor and onshore substation zone options to demonstrate there is sufficiently high LiDAR resolution for the identification of archaeological earthworks. In particular, we note Table 5 of Appendix 25.2, Annex D, shows that half of the LiDAR tiles along the onshore cable corridor have a resolution of 2m. We would, therefore, recommend higher resolution drone LiDAR is obtained and presented, and discussed in the DCO application.	Addressed in comment above
Historic England	14/07/2023, Consultation Response Letter	We note the historic mapping presented for the cable landfall DBA is presented in Annex D of Volume 3.3, Appendix 25.1. We would recommend the historic mapping is also presented for the entirety of the onshore cable route. We would recommend the historic mapping is reproduced for the DCO application as complete maps, to provide context for the onshore cable route. We would also recommend an insert map is provided for each illustration, to show the location of each figure in relation to the wider scheme.	The reduction of the onshore project area for ES means that the extent of the mapping provided supplies ample context for the assessment purposes.

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Historic England	14/07/2023, Consultation Response Letter	In terms of the presentation of Figure 25.2, to avoid confusion in the DCO application, we would recommend the Palaeolithic and unknown monument polygons and Iron Age and unknown monument points are better distinguished in the chapter, i.e. shaded in different colours on Figure 25.2 (and reproduced in the DCO application). This is because it is currently difficult to distinguish each one.	Noted. ES Figure 25.2 (Document Reference: 3.2.21) has been to reflect the recommended changes.
Historic England	14/07/2023, Consultation Response Letter	The direct and indirect impacts that the proposed development could have on the historic environment have been summarised in Section 25.4.3, Paragraph 41. It should be noted that we consider dewatering and any resulting changes to the preservation conditions of an archaeological site a direct impact. We would also recommend issues such as compression are considered in areas where deposits such as peat may be impacted, as this could result in physical damage as well as changing the preservation conditions.	The GDBA has outlined the areas where the presence of peats and waterlogged deposits may become a concern (ES Appendix 25.6, Document Reference: 3.3.53).
Historic England	14/07/2023, Consultation Response Letter	We note the discussion of previous archaeological investigations (Section 25.5.3.12) that this is focused on archaeological remains / artefacts only and not on the palaeoenvironmental evidence.	This section is based on data of past investigations held in the Essex HER only. The GBDA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Historic England	14/07/2023, Consultation Response Letter	We note, and welcome, the statement that 'the preferred and optimum mitigation measure is preservation in situ, wherever possible' (Paragraph 305). We would recommend the principles presented in the Historic England document 'Preserving Archaeological Remains' (2015) are referred to where preservation is being considered for a site: https://historicengland.org.uk/imagesbooks/publications/preserving-archaeological-remains/. It is important to consider each site on a case-	HE principles for preservation of archaeological remains in situ are referenced in Section 25.7.

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		by-case basis to ensure preservation is the right choice for the given site and the archaeological remains.	
Historic England	14/07/2023, Consultation Response Letter	Where avoidance is not possible, it is stated, 'direct (physical) impacts would be offset or reduced through either preservation in situ or archaeological fieldwork and reporting' (Section 25.8, Paragraph 348, see also Section 25.7.1.2.3, Paragraph 306).	Noted.
Historic England	14/07/2023, Consultation Response Letter	We note it is the intention to submit an OWSI (Onshore) alongside the DCO application, to be further developed and agreed with stakeholders prior to construction taking account of the final detailed design (Section 25.8, Paragraph 347).	Noted. The onshore OWSI (Document Reference: 7.12) has been submitted as part of the DCO application.
Historic England	14/07/2023, Consultation Response Letter	We note also it is the intention to determine the site-specific measures post-consent 'in response to the combination of onshore archaeological and cultural heritage assessment' (Section 25.7.1.2.3, Paragraph 304).	Noted.
Historic England	14/07/2023, Consultation Response Letter	It is stated in Section 25.7.1.2.4, Paragraph 308 that 'the residual magnitude and significance of effect will be reduced or offset to levels considered non-significant in EIA terms (i.e., anticipated to be no worse than a minor adverse significance of effect for Impact 2)'. At this stage, however, no trial-trenching evaluation has been undertaken to test the results of the aerial photography, LiDAR analysis and potential archaeological assets identified as geophysical anomalies, as well as other potential archaeological remains recorded in the HER (for example, indicated by the PAS) – and to assess the significance of these archaeological remains. It should be noted that geophysical technique applied to date (magnetometry) will not identify all types of archaeological features and remains that may be present, such as organic structures / remains made from wood.	A programme of evaluation trenching is ongoing and will continue post-consent. The results will provide a better understanding of the sub-surface archaeological remains present to ensure suitable mitigation strategies can be proposed prior to the commencement of development works. Results from the Phase 1 and Phase 2 evaluation trenching surveys are presented in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58).

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Historic England	14/07/2023, Consultation Response Letter	The survey work to date has identified a number of features / sites across the onshore cable corridor and onshore substation zone, some of which have the potential to be of high heritage significance. Similarly, no palaeoenvironmental or geoarchaeological assessment has been carried out. We find this disappointing. We would recommend these techniques should be used as soon as possible to assess significance and potential of the deposits present, and to provide the evidence-base from which the mitigation measures would be produced and agreed.	Phase 1 and 2 of evaluation trenching has since taken place, the results of which are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). The GBDA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Historic England	14/07/2023, Consultation Response Letter	We note there is potential for unknown buried archaeological remains, geoarchaeological / palaeoenvironmental remains, and above ground heritage assets, to be affected as a result of construction works (Section 25.7.1.2, Paragraph 261). It is stated, 'in the absence of further data regarding the 'potential' archaeological resource, such assets must be considered as potentially having a high perceived heritage significance' (Section 25.7.1.2, Paragraph 261). In Section 25.4.3.1, Paragraph 46, however, it is stated the level of detail provided in the PEIR, 'sufficiently characterises these assets so that potential impacts upon their significance can be understood for the purposes of EIA'.	The GBDA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).
Historic England	14/07/2023, Consultation Response Letter	We note Table 25.11 assigns 'perceived heritage importance' to potential archaeological remains identified to date. The criteria for determining heritage importance are listed in Table 25.7. It is, however, caveated in Paragraph 60. We also note it is stated that, 'for assets of an uncertain heritage importance, where uncertainty occurs, the precautionary approach is to assign the highest likely level of importance' (Section 25.4.3.3, Paragraph 61, also 25.5.7, 208-9). We would add that, in the absence of intrusive evaluation, i.e. archaeological trial trenching and peoarchaeological / palaeoenvironmental surveys, it is problematical to assign importance or significance to archaeological remains.	The applicant notes this response. The assessments of heritage importance have been reviewed and amended within the ES where appropriate in the light of emerging information from the evaluation trenching at the onshore substation works area.

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Historic England	14/07/2023, Consultation Response Letter	We note in Table 25.11 that a large number of potential archaeological remains have been assigned as low perceived heritage importance. Fourteen recorded sites in Table 25.11 are perceived as 'Low-High;' in effect, this means the significance has not been established at this stage. We also note it is stated 'many of these assets are not yet fully understood' (Section 25.4.3.1, Paragraph 46).	Archaeological work to date has sought to develop an understanding of the value of identified and potential archaeological remains present along the onshore cable route. Assessment has taken a worst-case approach, considering the highest perceived value. Further programmes of intrusive evaluation will seek to better define the sub-surface archaeological remains present to allow development mitigation proposals. Details of surveys carried out to date are outlined in Section 25.5.4.
Historic England	14/07/2023, Consultation Response Letter	There is also a large number of assets of unknown date within the study area (Section 25.5.3.11, Paragraphs 142-7). We would, therefore, question the further assertion in Paragraph 46 that the level of detail provided in the PEIR 'sufficiently characterises these assets. In our view, the only way to adequately establish the significance of archaeological remains is through pre-determination evaluation.	The assessments of heritage importance have been reviewed and amended within the ES where appropriate in the light of emerging information from the evaluation trenching at the onshore substation works area. A programme of evaluation trenching is ongoing and will continue post-consent. The results will provide a better understanding of the sub-surface archaeological remains present to ensure suitable mitigation strategies can be proposed prior to the commencement of development works.
Historic England	14/07/2023, Consultation Response Letter	In our view, the ES chapter submitted as part of the DCO application will need to be supported by sufficient evidence. The significance of all archaeological remains needs to be established and presented in the ES and the impact of the proposals on the significance needs to be presented.	An analysis of the significance of effects on heritage assets is presented in Section 25.6. This is supported by sufficient and robust evidence
Historic England	14/07/2023, Consultation Response Letter	We also note the geophysical survey is ongoing (Section 25.4.7, Paragraph 81). Consequently, the information presented within the PEIR is incomplete. The findings from this ongoing survey will be presented within the ES chapter submitted as part of the final DCO application (Section 25.4.7, Paragraph 81; 25.5.4, 161 and 25.6.1, 240).	Results from the geophysical surveys are presented in ES Appendix 25.8 (Document Reference: 3.3.55).

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Historic England	14/07/2023, Consultation Response Letter	We are concerned to ensure the significance of all archaeological remains is adequately established within the proposed development. We would strongly recommend the onshore cable corridor, landfall search area and onshore substation zone are also assessed by systematic trial-trenching evaluation, test-pitting and, where appropriate, geoarchaeological/palaeoenvironmental coring. This is to ensure archaeological remains of high heritage significance are identified and preserved in situ.	The programme of evaluation trenching works is ongoing and the results of Phase 1 and Phase 2 evaluations at the Onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). The updated GDBA takes account of more recent geoarchaeological and palaeoenvironmental assessments carried out within the onshore project area.
Historic England	14/07/2023, Consultation Response Letter	We consider the evaluation is especially important for parts of the scheme with limited flexibility to relocate works, and thus avoid (and preserve in situ) any archaeological remains of high heritage significance. We would recommend targeted trial-trenching evaluation is carried out prior to DCO submission, and the results submitted for examination.	The programme of evaluation trenching works is ongoing and the results of Phase 1 and Phase 2 evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). Evaluation trenching has targeted areas where design flexibility is limited, at the onshore substation and at pinch points along the onshore cable route.
Historic England	14/07/2023, Consultation Response Letter	We consider trial-trenching evaluation should be carried out prior to DCO submission, as a minimum, at the location(s) of the proposed onshore substation zone, as well as at the landfall location, construction compounds and pinch points along the route, for example, at directional drill access points. We also consider any areas of the onshore cable corridor where 'hot spots' of archaeological remains have been defined should be also evaluated with trial-trenching if they cannot be avoided and preserved in situ by the scheme. This would aid the project design and reduce the risks of unexpected discoveries impacting the completion of the proposed scheme if consented.	The programme of evaluation trenching works at the onshore substation works area have been completed (Phase 1 and Phase 2) and are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). These form part of an ongoing programme of works that will inform detailed design.
Historic England	14/07/2023, Consultation Response Letter	In our view, this approach is proportionate and justified to ensure the significance of any archaeological remains have been adequately assessed. It is best practice in terms of the assessment of archaeological remains to identify, in advance, whether any important remains are present that could preclude or modify the proposed development. This is	Noted.

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		consistent with our response to the Scoping Report (dated 12 August 2021).	
Historic England	14/07/2023, Consultation Response Letter	We consider it premature to assign 'perceived heritage importance' for archaeological remains that have not been fully assessed (Table 25.11). We also consider it problematic, therefore, to assign 'magnitude of impact' to deposits that, we consider, have not been adequately assessed. This is because no archaeological trial-trenching, test-pitting or palaeoenvironmental coring has been undertaken at this stage to establish the significance of archaeological remains	The results of Phase 1 and Phase 2 archaeological and geoarchaeological evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58) and in the ES. These set out an understanding of the value of these heritage assets for assessment purposes, but also form part of an ongoing programme of evaluation works that will inform development of mitigation strategies.
Historic England	14/07/2023, Consultation Response Letter	The results of the geophysical survey should be tested with trial-trenching evaluation and, in particular, because the geophysics has not defined some of the archaeological remains already recorded by other survey techniques.	The programme of evaluation trenching works is ongoing. The results of Phase 1 and Phase 2 evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). The trench locations targeted known anomalies identified from National Mapping Programme (NMP), aerial imagery and geophysical survey techniques.
Historic England	14/07/2023, Consultation Response Letter	Furthermore, it is possible that further, previously unknown, remains might be defined by further assessment and, in particular, by trial-trenching. Section 25.4.7, Paragraph 80, for example, states the information used to compile the PEIR chapter 'is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown'.	The geophysical survey and settings assessments have been completed and are presented in Appendices 25.3, 25.4 and 25.8 (Document Reference: 3.3.50, 3.3.51 and 3.3.55). A programme of evaluation trenching is ongoing.
Historic England	14/07/2023, Consultation Response Letter	It is stated further investigation and data gathering would be progressed postconsent, 'including any outstanding geophysical surveys and trial trenching, alongside additional mitigation requirements as set out in the OWSI (Onshore) to be submitted alongside the DCO application' (Section 25.4.3.1, Paragraph 47, also 25.6.1, 242). We note, however, Section	The applicant notes this response. Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available; this information has been combined with desk-based and aerial photographic information to

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		25.7.1.2.3, Paragraph 300 states, additional investigation 'may include' any outstanding geophysical survey and a scheme-wide programme of trial-trenching. In our view, these surveys must be undertaken. The survey and evaluation work will enable the archaeological resource 'to be appropriately addressed by means of mitigating any impacts in a manner that is proportionate to the significance of the remains present' (Section 25.7.1.2.3, Paragraph 300). It is critical, therefore, that the survey and evaluation adequately establish the significance of archaeological remains as well as the impact of the proposed scheme on that significance. It is also critical this work is carried out at the appropriate stage to inform the decision-making process.	allow inferences drawn from different techniques to be compared and any discrepancies or apparent shortfalls to be better understood. A programme of evaluation trenching is ongoing and will continue post-consent. The results will provide a better understanding of the sub-surface archaeological remains present to ensure suitable mitigation strategies can be proposed prior to the commencement of development works.
Historic England	14/07/2023, Consultation Response Letter	Archaeological work at this stage would help to ensure the DCO application is well informed and appropriately designed. It would also significantly reduce the risk of additional unexpected costs and delays at a later stage. If archaeological evaluation is not undertaken, as recommended, the applicant should provide clear justification in the DCO application for this, i.e. as to why it has not been, or cannot be, undertaken at this stage in the process. The applicant should also factor any risks into the ongoing project timetables to ensure any unexpected discoveries are managed appropriately.	The results of Phase 1 and Phase 2 evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). These evaluations have contributed to a well-informed and appropriately designed scheme.
Historic England	14/07/2023, Consultation Response Letter	For areas of the proposed development where trial-trenching evaluation would not be undertaken in advance of DCO, we would recommend the DCO should be worded appropriately to secure preservation in situ of any archaeological remains of high heritage significance defined post consent, should the circumstances be considered necessary by Essex County Council and also Historic England. The potential impact to buried archaeological remains would be mitigated through preservation by record and through an approved programme of archaeological investigation, although we note remains will be preserved in situ, wherever possible. The approaches used to mitigate the impacts would be presented in the OWSI.	This archaeological investigation and mitigation is set out in the onshore OWSI (Document Reference: 7.12).

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Historic England	14/07/2023, Consultation Response Letter	The approaches that may be used for archaeological mitigation are summarised in Section 25.7.1.2.3, Paragraph 301. In addition to preservation in situ, these would include archaeological excavation, archaeological monitoring and watching brief and also earthwork condition surveys. The approaches listed are what we would expect but we need to comment on the detail of the OWSI when it has been produced.	Noted, this will be detailed within the onshore OWSI (Document Reference: 7.12).
Historic England	14/07/2023, Consultation Response Letter	It is stated in Section 25.7.1.3.1, Paragraph 315 that 'the presence / absence, nature and extent of deposits of geoarchaeological and palaeoenvironmental interest is currently unknown (or not fully established) within the onshore project area, [and] it is not possible to identify potential impacts according to the various elements of construction'. This points to a clear area of investigation that is needed for the ES so the impacts of the proposed scheme can be understood and mitigated. We do not agree, therefore, with Section 25.7.1.3.4, Paragraph 321 which states that magnitudes of impacts can be reduced through mitigation.	Further assessment of geoarchaeological and palaeoenvironmental remains has since been completed and is presented in ES Appendix 25.12 (Document Reference: 3.3.59), allowing appropriate and effective mitigation to be defined. The results of which are summarised in Section 25.5.4 and carried through to the impact assessment in Section 25.6.
Historic England	14/07/2023, Consultation Response Letter	It is noted there is moderate to high geoarchaeological and palaeoenvironmental potential within the onshore study area (Section 25.5.11). It is also noted that peat was recorded in all three boreholes monitored at the landfall location (Section 25.5.11, Paragraph 231 and Volume 3, Appendix 25.9) which could be of high archaeological and / or palaeoenvironmental interest. It is also stated, further evaluation of potential geoarchaeological / palaeoenvironmental remains 'is likely to include a programme of geoarchaeological monitoring of engineering-led GI works to inform mitigation approaches such as geoarchaeological assessment and palaeoenvironmental survey' (Section 25.7.1.2.3, Paragraph 301). We would recommend a systematic geoarchaeological assessment is carried out, informed by the GDBA (Volume 3, Appendix 25.6). It should not be based solely on the monitoring of engineering-led works as these do not always targeted areas of archaeological interest. Again, we would recommend this assessment is carried out in advance of	The geoarchaeological monitoring of ground investigation works has been carried out and is presented in ES Appendix 25.9 (Document Reference: 3.3.56).

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		the DCO, and the results submitted, along with mitigation measures, for examination. If engineering-led GI are to be monitored as well, we would recommend that additional detail is provided in a method statement about how the deposits will be sampled and assessed. We would also recommend the geoarchaeologists are allowed direct access to, and able to retain when necessary, the geotechnical cores. This is because it is better to record and assess continuous core sequences rather than isolated deposits as this allows for greater reliability and confidence in the resulting conclusions. We would be pleased to review the method statement for this work.	
Historic England	14/07/2023, Consultation Response Letter	We would recommend the application of scientific dating is considered carefully before the cores are recovered as some of the deposits discussed in this section exceed the upper limit of some dating techniques, such as radiocarbon dating. For these deposits, alternative techniques would be required, such as optically stimulated luminescence dating. As this technique provides a date for the last time mineral grains were exposed to light, the collection and storage of sampled cores needs to be carefully considered and may require the use of light-proof sleeves on cores when they are being collected.	Storage and processing of samples for scientific dating techniques and other analyses will be planned as appropriate and as required in future stages of mitigation, drawing on information recovered from the archaeological evaluation trenching and geoarchaeological survey to date. Details will be provided within the onshore OWSI (Document Reference: 7.12).
Historic England	14/07/2023, Consultation Response Letter	We are pleased the potential indirect impacts to archaeological remains during construction have been discussed in Section 25.7.1.3, including the potential for dewatering that would lead to the degradation to any remains of interest from changes to ground conditions (Section 25.7.1, Paragraph 250 and 25.7.1.3, 311). It should be noted that changes to the water environment could impact the preservation conditions of nearby archaeological remains / deposits outside of the red-line boundary.	Assessment of potential changes in ground conditions is presented in Section 25.6.
Historic England	14/07/2023, Consultation Response Letter	Section 25.7.1.3, Paragraph 311 states, 'construction activities undertaken as part of the Project have the potential to effect below ground deposits of archaeological and geoarchaeological interest over a wider area than that of the footprint of the Project, for example, through	A detailed approach to mitigating the potential impact of the development on below ground deposits of archaeological and geoarchaeological remains is specified in the onshore OWSI submitted as part of the DCO application.

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		hydrological changes that may cause desiccation and drying out of wetland deposits and associated preserved waterlogged archaeological or geoarchaeological remains. We agree with this statement but it is unclear from the PEIR how this will be assessed or established. We assume it would be established post-consent, and this work would be specified in the OWSI (Onshore) referred to in Section 25.7.1.3.3, Paragraph 320. We recommend this is carried out in advance of the DCO, and the results submitted, along with mitigation measures, for examination. In terms of the timetable for this work, it should be noted that some of the approaches used to investigate the water environment can take at least several weeks to complete. If the proposed development has the potential to dewater areas we would need to understand the extent of the impact on deposits / remains of archaeological and palaeoenvironmental interest (horizontal and vertical) and if the effects would be permanent. Some impacts may be mitigated through engineering / design options, but we would need to understand how any impacts would be managed and the effects this would have on any remains of interest. The preparation of the OWSI (Onshore) will need to detail how organic deposits will be sampled and investigated, the sort of remains that will be assessed and the techniques that will be applied.	
Historic England	14/07/2023, Consultation Response Letter	We note the archaeological mitigation requirements would be set out in the OWSI (Onshore) to be submitted alongside the DCO application. We have provided some further comments, below, to inform the production of this document. We would be pleased to provide more detailed advice and guidance in due course. The Written Scheme of Investigation for each stage of archaeological work should be approved by Essex County Council and Historic England, as the statutory historic body. We would recommend, therefore, that Historic England is also a named party in the DCO to ensure subsequent documentation relating to archaeological investigation are also approved by Historic England post DCO being granted. The OWSI (Onshore) should outline the work that will be carried out as well as the approaches the utilised and the remains that will be investigated. The document should be clear how this work will proceed. It should also outline what is expected of the contracting unit(s) responsible	The onshore OWSI (Document Reference: 7.12) sets out the scope and methods of further archaeological investigation, allowing the appointed archaeological advisor / contractor to set out site-specific WSIs (secured by DCO Requirement). It will also set out broad opportunities for archaeological engagement and outreach.

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		for excavating the sites. We would recommend the OWSI (Onshore) should be supplemented by a detailed WSI (Written Scheme of Investigation) prepared for each stage of archaeological investigation by the archaeological organisation commissioned to undertake the work. This should be included in the DCO to ensure the detailed scope for each stage of investigation is approved by Essex County Council and Historic England prior to commencement of the archaeological investigation. We would be pleased to review these WSIs. If the evaluation (archaeological trial-trenching, test-pitting and palaeoenvironmental coring) is not undertaken in advance, we also consider that the detailed WSIs for evaluation of the onshore infrastructure should be also submitted for DCO examination, along with the OWSI. A timetable for each stage of archaeological investigation, including fieldwork, assessment, analysis, reporting, publication and archiving, as well as display and presentation and community engagement, should be submitted to and approved by Essex County Council and Historic England. This should be included in the DCO to provide clarity to all parties as to when the approval of the detailed written scheme of archaeological investigation or detailed method statement, by the competent authority, will occur. As well as publication and deposition of the project archive in a suitable museum or archive repository, we would recommend there should be provision for public engagement and outreach activities during the investigation as well as provision for the museum-quality display of artefacts and presentation of discoveries revealed by the proposed development. We consider this would help to mitigate the impact of the development on archaeological remains.	
Historic England	14/07/2023, Consultation Response Letter	We note the consideration of heritage setting in Section 25.5.8 as well as in Volume 3, Appendix 25.3 for the onshore substation. The heritage assets considered as part of the initial setting assessment for the onshore infrastructure are listed in Section 25.5.8, Paragraph 212. We are satisfied with selection of the highly-graded heritage assets (Scheduled Monuments and Grade I and II* Listed Buildings) for assessment. We can also confirm we are satisfied the Scheduled	The applicant notes the response which has been used to inform the scope of the assessment of effects arising from change to setting of heritage assets within ES Appendix 25.3 (Document Reference: 3.3.50) and Section 25.6.

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		'Settlement site NNE of Lawford House' (List Entry Number 1002157) has been discounted, as stated in Section 25.5.8, Paragraph 213.	
Historic England	14/07/2023, Consultation Response Letter	'Crop mark site S of Ardleigh' (LEN 1002146) We welcome the inclusion of this Scheduled Monument within the assessment (Appendix 25.3, Section 6.1). This Monument is currently on the Heritage at Risk Register: https://historicengland.org.uk/images-books/publications/har-2022-registers/We have concerns in terms of the assessment of setting and the impact of the proposed onshore substation on this Scheduled Monument. It is stated in Appendix 25.3, Paragraph 41, that 'views of the cropmark site are not considered to contribute to the appreciation of the asset and / or its setting'. We disagree with this assessment. We consider the rural, agricultural setting makes a positive contribution to the significance of this Monument. This asset therefore needs to be re-assessed and amended It is stated that there are no views of the onshore substation zone from this Monument (Appendix 25.3, Paragraph 41). We also note Cultural Heritage Viewpoint 2, Figures 25.3.3a-c. These visualisations need to be reproduced with winter images, to shore the same viewpoints without foliage, and to demonstrate the worst-case scenario. This is because we consider the proposed development has the potential to result in a change to the setting. The visualisations must be reproduced to assess the cumulative impact of the proposed onshore substation for the Five Estuaries OWF as well as the proposed National Grid East Anglia Connection Node. This is because we consider the proposed developments, together, have the potential to result in a change to the setting, resulting in harm to the significance of the Scheduled Monument.	The assessment has been updated to reflect the comment and is presented in ES Appendix 25.3 (Document Reference: 3.3.50). Reference is made to summer and winter viewpoint photography in the assessment presented at ES Appendix 25.3 (Document Reference: 3.3.50) and Section 25.7 and cumulative effects have been considered at Section 25.9 of the ES.
Historic England	14/07/2023, Consultation Response Letter	'Church of St Mary, Little Bromley' (LEN 1337175) We welcome the inclusion of this Grade II* Listed church within the assessment (Appendix 25.3, Section 6.3). We have concerns in terms of the assessment of setting and the impact of the proposed onshore substation on this highly-graded designated heritage asset. We consider the rural, agricultural setting makes a positive contribution to the	The assessment has been updated to reflect the comment and is presented in ES Appendix 25.3 (Document Reference: 3.3.50). Reference is made to summer and winter viewpoint photography in the assessment presented at ES Appendix 25.3 (Document Reference: 3.3.50) and Section 25.6 and cumulative effects have been considered at Section 25.8 of the ES. ES Appendix 25.3

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		significance of this Church. We note, however, it is stated in Appendix 25.3, Paragraph 61, 'views from the church into the landscape are not considered to be such a key component to its appreciation and setting'. It is also stated, 'while the setting of the church is considered to be an important contributor to its significance, long range views from the church towards the wider landscape are not considered to be a key factor to its setting' (Appendix 25.3, Paragraph 62). It is stated that the farmhouse and farm buildings limit the views achievable in the direction towards the onshore substation zone (Appendix 25.3, Paragraph 41). We also note Cultural Heritage Viewpoint 3, Figures 25.3.4a-c. We would suggest this viewpoint is reviewed and revisited. We recommend a proxy location should be considered for this asset and would be pleased to provide further advice. We also note it is stated, the onshore substation zone 'will alter the view of the Church from Little Bromley. This Change is likely to affect the appreciation of the parish Church from the village, however, it is not considered to impact the heritage significance of the Church' (Appendix 25.3, Paragraph 85). This asset will be revisited once the substation design is further progressed (Appendix 25.3, Paragraph 66), which is welcomed. This is because the setting makes a positive contribution to the significance of this monument and because, in our view, the proposed development has the potential to result in a change to the setting. We would recommend that proposals should be put forward by the applicant to mitigate the impact of the onshore substation on the significance of this heritage asset. We would also recommend this visualisation needs to be reproduced with a winter image, to show the same viewpoint without foliage, and to demonstrate the worst case scenario. This is because we consider the proposed development has the potential to result in a change to the setting. The visualisations must be reproduced to assess the cumulative impact of the proposed onshore substation for the Five Estuaries OWF as well as the proposed National Grid East Anglia Connection Node. This is because we consider the proposed developments, together, have the potential to result in a change to the setting, resulting in harm to the significance of the Grade II* Listed church.	(Document Reference: 3.3.50) also includes visualisations from the cultural heritage viewpoints.

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Historic England	14/07/2023, Consultation Response Letter	Cropmark site south and west of Little Bromley Hall (EHER 2460) We welcome the inclusion of this non-designated heritage asset within the assessment (Appendix 25.3, Section 6.5). As previously stated, in our view, the probable henge should be considered to be of equivalent significance to a Scheduled Monument. We have concerns in terms of the assessment of setting and the impact of the proposed onshore substation on this non-designated asset. It is stated in Appendix 25.3, Paragraph 81, that 'views of the henge are not considered to contribute to the appreciation of the asset and / or its setting'. We disagree with this assessment. We consider the rural, agricultural setting makes a positive contribution to the significance of this asset and it draws a considerable amount of significance from how it is experienced in the landscape. It is noted that views of the tallest structures within the onshore substation zone will be achievable above the existing tree line (Appendix 25.3, Paragraph 83). We also note Cultural Heritage Viewpoint 4, Figures 25.3.5a-c. It is, however, concluded that this 'slight change…is not considered to change the existing setting of the henge and / or its heritage significance' (Appendix 25.3, Paragraph 83). We would also recommend this visualisation needs to be reproduced with a winter image, to show the same viewpoint without foliage, and to demonstrate the worst case scenario. This is because we consider the proposed development has the potential to result in a change to the setting. Again, we would recommend proposals should be put forward by the applicant to mitigate the impact of the onshore substation on the significance of this heritage asset.	The assessment has been updated to reflect the comment and is presented in ES Appendix 25.3 (Document Reference: 3.3.50). Reference is made to summer and winter viewpoint photography in the assessment presented at ES Appendix 25.3 (Document Reference: 3.3.50) and Section 25.6 and cumulative effects have been considered at Section 25.8 of the ES. Mitigation is outlined in Section 25.6.
Historic England	14/07/2023, Consultation Response Letter	We note Section 25.9 and Tables 25.13-16 relating to cumulative effects. Three developments have been scoped into the cumulative effects assessment for the ES (Section 25.9.3, Paragraph 354): • Five Estuaries Offshore Wind Farm ('Five Estuaries'); • East Anglia GREEN; and • Land adjacent to Lawford Grid Substation Ardleigh Road Little Bromley Essex	The impact upon heritage setting from onshore and offshore infrastructure are detailed in ES Appendix 25.3 and 25.4 (Document Reference: 3.3.50 and 3.3.51) respectively and summarised in Section 25.6.1.4 and 25.6.2.1. Cumulative visualisation from the viewpoints agreed with Historic England through the Evidence Plan Process (EPP) are provided in ES Appendix 25.3 (Document Reference: 3.3.50).

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		CO11 2QB (for construction and operation of a 50MW Battery Energy Storage System ('Little Bromley BESS'). We consider it is critical that cumulative, heritage-specific visualisations are provided for examination, given the potential combined scale of the proposed developments adjacent to the proposed North Falls. In terms of the cumulative effects for onshore infrastructure relating to permanent change in the setting of heritage assets that might affect significance, we recommend cumulative visualisations should be prepared for both the Grade II* listed Church of St Mary, Little Bromley (LEN 1337175) and the Scheduled 'Crop mark site S of Ardleigh' (LEN 1002146). We would also recommend the non-designated Cropmark site south and west of Little Bromley Hall (MONUID ref. MEX8620), under consideration as a possible Scheduled Monument, is similarly assessed for cumulative effects. We would be pleased to provide further advice and guidance in due course, as the detailed assessment progresses – and about the identification of assets for cumulative effects assessment with other projects. In terms of the cumulative effects for the offshore infrastructure, we would recommend that the coastal heritage assets identified for the Historic Environment Settings Analysis form the basis of the cumulative effects assessment with the proposed Five Estuaries OWF.	
Historic England	14/07/2023, Consultation Response Letter	We note the consideration of heritage setting in Chapter 25, Section 25.5.8, Paragraph 215, as well as in Volume 3, Appendix 25.4 for the offshore infrastructure. We note the coastal heritage assets considered with respect to the offshore infrastructure, listed in Section 25.5.8, Paragraph 215. We are concerned these are limited to the Tendring coastline, but we note that further assessment will be undertaken to inform the final ES, which is likely to include a larger study area extending northwards towards Aldeburgh in Suffolk (Section 25.5.8, Paragraph 216). We would strongly recommend a larger study area is included in the assessment, to ensure all the highly-graded heritage assets potentially impacted by the offshore infrastructure are adequately assessed. We note that a full assessment for both onshore and offshore infrastructure will be reported on at the ES stage (Section 25.5.8, Paragraph 217). We would be pleased to provide further advice and	The applicant notes the response. The scope of the assessment of change to setting has been updated to reflect this advice and is presented in ES Appendix 25.4 (Document Reference: 3.3.51) and Section 25.6. It was agreed at ETG that a rooftop viewpoint would not be appropriate as this view does not represent the key view of or from the tower in terms of contribution to significance. Reference has been made to relevant cumulative visualisations in producing the assessment.

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		guidance in due course about the identification of highly-graded heritage assets in due course. We would recommend there are additional assets that should be included along the Tendring coastline, including, for example, the Grade II* Listed 'Naze Tower' (List Entry Number 1165846) and Scheduled Martello Tower D (List Entry Number 1016553). The viewpoints and visualisations must be heritage-specific to enable the visual impact of the scheme on the setting of key highly-graded designated heritage assets to be adequately assessed. For example, we consider the critical viewpoint for coastal Martello Towers to be from the gun platform. The viewpoint for the Grade II* Listed The Naze Tower, Walton-on the-Naze should be taken from the top of the tower, which is 26m high. This is because the impact is potentially quite different from a viewpoint at ground level, and this is, therefore, the location that should be used for the heritage assessment visualisation. We consider the setting assessment should be carried out in accordance with the approach set out in Historic Environment Good Practice Advice in Planning Note 3, The Setting of Heritage Assets (GPA3). In terms of access GPA3 states, because the contribution of setting to significance does not depend on public rights or ability to access it, significance is not dependent on numbers of people visiting it'. The visualisations must be reproduced to assess the cumulative impact of the proposed offshore infrastructure for the Five Estuaries OWF.	
Historic England	14/07/2023, Consultation Response Letter, Conclusion	Comments in relation to the GDBA This document presents the findings of the desk-based geoarchaeological assessment, describing the main deposits present within the Scheme area. The transects shown in Figures 7 to 9 highlight where there are gaps in our current understanding that need to be targeted during subsequent phases of evaluation. We are pleased to see the limitations of the existing data were noted, in particular the apparent absence of alluvial deposits in the existing BGS boreholes (Section 6.1.7).	Noted. The GBDA has been updated and reissued (ES Appendix 25.6, Document Reference: 3.3.53) with the results of new data obtained from recent geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).

Consultee	Date / Document	Comment	Response / where addressed in the ES
Historic England	14/07/2023, Consultation Response Letter	The limitations in the information available has meant that the archaeological and palaeoenvironmental potential of several of the key units is not currently known (Table 6).	Additional ground investigation works have since been completed as part of the evaluation works and can be viewed in ES Appendix 25.12 (Document Reference: 3.3.59).
Historic England	14/07/2023, Consultation Response Letter	We are pleased to see that geophysical survey techniques, such as Electrical Resistivity Tomography have been considered to investigate subsurface structures and lithological changes (Section 8.2.4). This work will add valuable information to the deposit model being developed for the site.	Noted.
Historic England	14/07/2023, Consultation Response Letter	It is stated in Section 8.1.3 that 'Should GI works be undertaken within the Scheme, monitoring of these GI works may address some aims of the evaluation and may negate the need for further purposive geoarchaeological evaluation.' It should be noted that GI works may not always target areas of archaeological or palaeoenvironmental interest and so would recommend that purposive geoarchaeological works are carried out as well as GI works.	Additional ground investigation works have since been completed as part of the evaluation works and can be viewed in ES Appendix 25.12 (Document Reference: 3.3.59). While GI work does not always target areas of archaeological or palaeoenvironmental interest, it does target areas of potential disturbance, and consequently provides a strong basis for the blended approach set out in the PEIR.
Historic England	14/07/2023, Consultation Response Letter	Table 7 summarises the recommended methods of evaluation for each of the GCZs and includes deep boreholes and test pits up to 4m below ground level (bgl).	Noted.
Historic England	14/07/2023, Consultation Response Letter	Comments in relation to the Archaeological Geophysical Survey We welcome the geophysical survey that is currently being undertaken over the onshore substation area and onshore cable route, and presented in Volume 3, Appendix 25.8. We recognise the geophysical survey is a major piece of work, comprising a magnetometer survey of 580 hectares. We welcome the data sharing agreement for the collection of this data. The results of the geophysical data collected to date, are presented in Volume 3, Appendix 25.8: Archaeological Geophysical Survey Report and summarised in 25.5.4 of Volume 1, Chapter 25. We	Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. The results are summarised in Section 25.5.4.1 and presented in full in ES Appendix 25.8 (Document Reference: 3.3.55).

Consultee	Date / Document	Comment	Response / where addressed in the ES
		note the geophysical survey presented as part of the PEIR is incomplete. Following the completion of the geophysical survey the outstanding survey results will be incorporated into the ES submitted with the final DCO application (Paragraph 160 of Volume 1, Chapter 25). The geophysical survey was carried out across a range of environments and deposit types, which may include waterlogged deposits near water channels or in marshes. It would be useful for the completed survey report to state if any areas would benefit from the use of alternative geophysical approaches.	
Historic England	14/07/2023, Consultation Response Letter	The results of the geophysical survey should be tested with trial-trenching evaluation. We note, for example, that the geophysical survey has, in a number of locations, failed to define potential archaeological features recorded as cropmarks by air photography. For example, EHER no. 3162, is the remains of a possible barrow in Tendring parish (Chapter 25, Table 25.12; Appendix 25.2, Annex D, APS_09), detected as a ring ditch cropmark (and depicted as a tumulus on early maps). It was not, however, detected by geophysical survey (area EOT 1). Similarly, EHER no. 3189, two double ditched oval enclosures recorded as cropmarks, also in Tendring parish, were not detected by geophysical survey (TGN_01). We would recommend that other geophysical techniques should be also undertaken, for example, resistivity survey and ground penetrating radar, where appropriate, to produce greater clarity where subsurface features are indicated that might be better defined using others survey techniques. The results of these surveys should be also presented in the DCO application.	The results of Phase 1 and Phase 2 evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). Additional survey methods will be implemented if required following detailed design. The evaluation at the onshore substation works area demonstrated that the previous geophysical and aerial photography survey were largely accurate, with the majority of features recorded by the non-intrusive surveys identified during the evaluation. The National Mapping Programme (NMP) data was shown to be inaccurate. However, if the NMP data was relocated to align with the geophysical and aerial photography surveys it is far more accurate, suggesting that the inaccuracy is due to the errors in georectification of the NMP data rather than any insufficiency in more recent field survey.
Historic England	14/07/2023, Consultation Response Letter	Thank you for consulting Historic England on this PEIR for the North Falls Offshore Windfarm Project. We welcome the work that has been undertaken to assess the impact of the scheme on the historic environment, and the ongoing discussion with stakeholders. We acknowledge the proposed scheme preliminary design is ongoing and will continue to be influenced by environmental factors to avoid or reduce effects. As set out in our detailed advice above, we have made a number	The applicant notes the response and thanks Historic England for their ongoing engagement throughout the pre-application and consultation processes.

Consultee	Date / Document	Comment	Response / where addressed in the ES
		of comments and recommendations about various aspects of the project, and the chapters and annexes relating to the historic environment. We would like to see these recommendations addressed and we would be pleased to provide further, and continuing, advice in future meetings and in advance of the submission of the ES.	
North Falls / Five Estuaries Joint Onshore Historic Environment ETG Meeting	03/08/2023	The key findings from trial trenching Phase 1 (May 2023) were presented along with feedback from ECC on delivery of trial trenching (and lessons learned). The proposed trench layout for trial trenching Phase 2 (September 2023) was discussed along with the rationale for the locations of trial trenches and geoarchaeological test pits. The coverage of LiDAR data was discussed, it was agreed that a plan was to be circulated for APS data where 2m resolution, which includes the refined route corridor (proposed order limits), to inform which areas have been subjected to high resolution LiDAR assessment. OWSI to be provided to the ETG for comment.	The results of Phase 1 and Phase 2 evaluations at the onshore substation works area are presented in ES Appendix 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). The onshore OWSI (Document Reference: 7.12) is provided as part of the DCO application.
North Falls / Five Estuaries Joint Onshore Historic Environment ETG Meeting	09/11/2023	Review of relevant PEIR responses and that there was an agreement in the scope of assessment of onshore effects. Common themes from ETG included: • the request for winter visualisations. • more detailed understanding of how the rural landscape contributes to significance; and • to understand / illustrate cumulative impacts. It was proposed that viewpoints need to reflect the setting and experience of the assets, rather than necessarily trying to get the clearest view from it.	A detailed scope of assessment has been provided for offshore setting assessment considering the removal of the northern array (Annex 25.4.2, ES Appendix 25.4, Document Reference: 3.3.51). The onshore setting assessment has been updated in light of the comments received (ES Appendix 25.3, Document Reference: 3.3.50).

Consultee	Date / Document	Comment	Response / where addressed in the ES
		The ETG agreed that the initial list of cumulative impact assessments seemed to have selected the right projects around the area. The ETG response to PEI noted that the scope presented did not reflect the proximity of the northern array to the Suffolk coast. These design changes have moved it further away, making a big difference in terms of prominence.	
Historic England	18/04/2024, PEIR Addendum Targeted Consultation Response	We have read the additional material and the addendum to the onshore heritage assessment provided in this Targeted Consultation. We therefore confirm we have no additional comment to make at this time, and with regards to the changes indicated and within our remit for the historic environment.	Noted.
Ardleigh Parish Council	18/04/2024, PEIR Addendum Targeted Consultation Response	Ardleigh Parish Council remains concerned about the proposals including the cumulative effects of multiple infrastructure projects. We would refer you to our earlier response to statutory consultation and concerns about impact on our residents, loss of agricultural land etc. In addition, we are currently preparing our response to the current National Grid consultation and will include additional information on the impact on heritage and historic assets including the setting of a scheduled monument close to the substation sites. Ardleigh has been continuously settled since Neolithic times between 4000-200BC. Within our Parish there is a Scheduled Monument which consists of crop circles showing bronze age burial sites, ditches and trackways. We believe that these extended proposals are closer to this Scheduled Monument. This specific area has produced a huge number of archaeological finds from the earliest Neolithic finds through the Bronze Age, Roman period, Iron Age and Saxon period. It is inconceivable that the settlements were limited strictly to the site of the Scheduled Monument. Indeed, it is highly likely that the archaeology extends to the North of Little Bromley Road / Ardleigh Road. Therefore, construction work in this area could damage, or destroy,	A full assessment of the impacts to archaeology and cultural heritage has been carried out in this chapter in consultation with Historic England and Essex County Council. We acknowledge the archaeological and historical potential of the area and Section 25.5 provides an overview of the existing environment. Two phases of evaluation trenching have been carried out at the onshore substation works area, these are summarised in Section 25.5.4 with the full reporting included in Appendices 25.10 and 25.11 (Document Reference: 3.3.57 and 3.3.58). A full and detailed setting assessment has been produced in support of the ES and is presented in ES Appendix 25.3 (Document Reference: 3.3.50). An assessment of cumulative effects is provided in Section 25.8.

Consultee	Date / Document	Comment	Response / where addressed in the ES
		important archaeology. A Roman road from Hythe Quay, Colchester to Mistley Quay, crossed our Parish and the route of another Roman road intersects the proposed North Fall and Five Estuaries sites. As there is clear evidence of crop marks showing signs of settlement boundaries and potential for below-ground archaeological deposits etc. there would need to be a programme of archaeological investigation before any development, including preliminary groundworks	

25.3 Scope

25.3.1 Study area

7. The onshore project area includes the following elements:

   - Landfall;
   - Onshore cables and associated link boxes;
   - Onshore substation; and
   - Connection to the National Grid.

8. All elements of the Project which fall within the intertidal area below Mean High Water Springs (MHWS) are assessed within ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18).

9. Two study areas have been agreed with the Historic Environment ETG for onshore archaeology and cultural heritage on the basis of:

   - Non-Designated Heritage Assets Study Area – known non-designated heritage assets, potential buried archaeological remains and previously unrecorded above ground heritage assets within 500m of the onshore project area (ES Figures 25.2a-g, Document Reference: 3.2.21); and
   - Designated Heritage Assets Study Area – designated heritage assets within 1km of the onshore project area and 5km of the onshore substation, to inform a setting assessment of heritage assets identified as potentially being affected by the development through a change in their setting (ES Figures 25.1a-h, Document Reference: 3.2.21).

10. Designated heritage assets along the coast which could be affected by the presence of offshore infrastructure will be included in the assessment. This assessment will be based on professional judgement and use of available LVIA toolkits, e.g., ZTVs developed by SLVIA consultants, and will use the study areas applied during the SLVIA assessment (ES Figure 29.1.2, Document Reference: 3.2.25).

25.3.2 Realistic worst-case scenario

11. The final design of North Falls will be confirmed through detailed engineering design studies that will be undertaken post-consent. In order to provide a precautionary but robust impact assessment at this stage of the development process, realistic worst-case scenarios have been defined in terms of the potential effects that may arise. This approach to EIA, referred to as the Rochdale Envelope, is common practice for developments of this nature, as set out in PINS Advice Note Nine (2018). The Rochdale Envelope for a project outlines the realistic worst-case scenario for each individual impact, so that it can be safely assumed that all other scenarios within the design envelope will have less impact. Further details are provided in ES Chapter 6 EIA Methodology (Document Reference: 3.1.8).

12. The realistic worst-case scenarios for the likely significant effects scoped into the EIA for the onshore archaeology and cultural heritage assessment are summarised in Table 25.2. These are based on North Falls parameters

described in ES Chapter 5 Project Description (Document reference: 3.1.7), which provides further details regarding specific activities and their durations.

13. The main grid connection options considered in the ES are outlined below:

- Option 1: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, with a project alone onshore cable route and onshore substation infrastructure;
- Option 2: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, sharing an onshore cable route and onshore duct installation (but with separate onshore export cables) and co-locating separate project onshore substation infrastructure with Five Estuaries Offshore Wind Farm ('Five Estuaries'); or
- Option 3: Offshore electrical connection, supplied by a third party

14. Grid connection Option 2 is considered the realistic worst case scenario for the onshore archaeology and cultural heritage assessment because the build out requires four sets of cable ducts and associated joint bays to be installed, impacting upon the largest footprint of the three grid connection options.

15. Under Option 2, the Project's onshore infrastructure comprises the following elements:

- Landfall, where the offshore export cables are brought ashore;
- Onshore cable route, which includes space for temporary works for the installation of cable ducts and buried onshore export cables, including areas for temporary construction compounds, construction and operation and maintenance accesses (including Bentley Road improvement works);
- Onshore substation, proposed to be located west of Little Bromley;
- Onshore substation works area, which includes land required for temporary construction, export cables, means of access, drainage, landscaping and environmental mitigation for the onshore substation;
- The search area for the East Anglia Connection Node (the Project's National Grid connection point), within which will be located the Project's National Grid substation connection works.

16. Collectively, the footprint of the Project's onshore infrastructure is referred to herein as the 'onshore project area,' and is shown on ES Figure 5.2 (Document Reference: 3.2.3). The Project's onshore infrastructure outlined above is proposed to be located entirely within the Tendring peninsula of Essex.

Table 25.2 Realistic worst case scenario of effects arising from development of North Falls - Option 2 (installation of ducts for a second project)

Potential impact	Parameter	Notes
Construction		
Impact 1: Direct Physical Impact on (permanent change to) Designated Heritage Assets Impact 2: Direct Physical Impact on (permanent change to) Non-designated Heritage Assets	<u>Landfall HDD (temporary works) physical parameters:</u> Landfall construction compound = 150 x 75m Transition joint bay size = 4 x 15m Maximum no. of transition joint bays = 2 Maximum HDD depth = 20m Maximum length of HDD = 1.1km	The worst case scenario represents the maximum footprint and ground disturbance within the onshore project area in which potential direct physical disturbance to designated and non-designated heritage assets could occur.
	<u>Onshore cable route construction physical parameters:</u> Indicative cable route width = 72m (open cut trenching), 90m (trenchless crossings), 130m (complex trenchless crossings) Cable route length = Up to 24km Cable trench width (max.) = 3.5m (at top) No. of trenches = 4 Maximum cable trench depth = 2m Haul road width = 6 to 10m (allowable within the cable swathe for passing places and drainage) Jointing bays = Maximum of 192 (approximately every 500m) buried below ground Jointing bay construction footprint (per bay) = 15 x 4m Jointing bay depth = 2m Temporary construction compound footprint = 150 x 150m (main) to 100 x 100m (satellite). No. of compounds (est.) = 11	

Potential impact	Parameter	Notes
	Replanting restrictions = shrubs max 5m high within 6m of each cable centre i.e. 37m swathe in which only shrubs (growth up to max. 5m height) can be planted. <u>Trenchless crossings physical parameters:</u> Maximum width of buried cable = 130m Maximum trenchless crossing depth = 20m Trenchless crossing compound dimensions = 75m x 150m	
	<u>Onshore substation construction physical parameters:</u> Maximum platform footprint = 280 x 210m Indicative construction compound dimensions 150 x 250m	
Impact 3: Indirect Physical Impact on (permanent change to) Designated Heritage Assets Impact 4: Indirect Physical Impact on (permanent change to) Non-designated Heritage Assets	<u>Landfall HDD (temporary works) physical parameters:</u> Landfall construction compound = 150 x 75m Transition joint bay size = 4 x 15m Maximum no. of transition joint bays = 2 Maximum HDD depth = 20m Maximum length of HDD = 1.1km	The worst-case scenario represents the maximum potential for changes in ground conditions within the Onshore project area in which the potential disturbance to designated and non-designated heritage assets could occur.
	<u>Onshore cable route construction physical parameters:</u> Indicative cable route width = 72m (open cut trenching), 90m (trenchless crossings), 130m (complex trenchless crossings) Corridor length = Up to 24km Cable trench width (max.) = 3.5m (at top) No. of trenches = 4 Maximum cable trench depth = 2m	

Potential impact	Parameter	Notes
	Haul road width = 6 to 10m (allowable within the cable swathe) Jointing bays = Maximum of 192 (approximately every 500m) buried below ground Jointing bay construction footprint (per bay) = 15 x 4m Jointing bay depth = 2m Temporary construction compound footprint = 150 x 150m (main) to 100 x 100m (satellite). No. of compounds (est.) = 11 Replanting restrictions = shrubs max 5m high within 6m of each cable centre i.e. 37m swathe in which only shrubs (growth up to max. 5m height) can be planted. <u>Trenchless crossings physical parameters:</u> Maximum width of buried cable = 130m Maximum trenchless crossing depth = 20m Trenchless crossing compound dimensions = 75m x 150m	
	<u>Onshore substation construction physical parameters:</u> Maximum platform footprint = 280 x 210m Indicative construction compound dimensions 150 x 250m	
Impact 5: Temporary Change to the Setting of Designated Heritage Assets which could affect their Heritage Significance Impact 6: Temporary Change to the Setting of Non-designated Heritage Assets which could affect their Heritage Significance	<u>Offshore infrastructure construction duration:</u> Construction duration = 3 years	The worst case scenario represents the maximum duration in which temporary change to the setting of designated and non-designated heritage assets could occur.
	<u>Landfall duration:</u> 13 months (of which HDD = 6 months) HDD to include 24 hour / 7 days working where required	

Potential impact	Parameter	Notes
	Onshore cable route duration: Overall duration = 18 – 27 months Major HDD (each location) = 8 months (of which HDD = 4 months) Minor HDD crossings = 2 months Major HDD crossings to include 24 hour / 7 days working where required.	
	Onshore substation durations: Construction duration = 21 – 27 months	
Operation		
Impact 7: Permanent Change to the Setting of Designated Heritage Assets which could affect their Heritage Significance Impact 8: Permanent Change to the Setting of Non-designated Heritage Assets which could affect their Heritage Significance	Offshore infrastructure parameters: Up to 57 wind turbines Array areas = 95km^2 Closest distance to shore = 40km Two offshore substation platforms Maximum rotor tip height = 377.4m above MHWS Operational lifetime expected to be 30 years	The worst case scenario represents the maximum intrusive effect of the permanent above ground structures (i.e., maximum height and massing) in which a permanent change to the setting of designated and non-designated heritage assets could occur.
	Onshore substation parameters: Permanent substation footprint = 280 x 210m Maximum equipment height (lightning masts) = 18m Operational lifetime expected to be 30 years	

Potential impact	Parameter	Notes
Decommissioning		
No final decision has yet been made regarding the final decommissioning policy for the onshore project infrastructure including landfall, onshore cable route, 400kV cable route and onshore substation. It is also recognised that legislation and industry best practice change over time. However, it is likely that the onshore project equipment, including the cable, will be removed, reused, or recycled where practicable and the transition bays and cable ducts being left in place. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning, in consultation with the regulator. It is anticipated that for the purposes of a reasonable worst case scenario, the impacts will be no greater than those identified for the construction phase. Assuming that provision is made for methods of removal which reduce further impact to the wider area, it is reasonable to assume that any potential damage upon designated and non-designated heritage assets would have already occurred as part of construction activities. The demolition of buildings and infrastructure can additional impacts e.g., if grubbing out of foundations or remediation of contaminants is required, however these are expected to be in line with the effects assessed for onshore substation construction. Changes to setting may be present as a result of visual and audible impacts associated with decommissioning activities. Changes to the setting of heritage assets are considered to be temporary in duration, occurring in association with the decommissioning phase. As such, the worst case scenario as outlined for the construction phase in relation to temporary changes to the setting of heritage assets is unlikely to be exceeded as a result of decommissioning activities.		

25.3.3 Summary of mitigation embedded in the design

17. This section outlines the embedded mitigation relevant to onshore archaeology and cultural heritage assessment, which has been incorporated into the design of North Falls (Table 25.3). Where other mitigation measures are proposed, these are detailed in the impact assessment (Section 25.6), where applicable.

Table 25.3 Embedded mitigation measures

Parameter	Mitigation measures embedded into North Falls design
Mitigation by site selection	The onshore project area and onshore substation works area have been defined following an extensive site selection process, which has accounted for environmental, engineering, planning and land requirements to identify an optimal project location. The site selection process is described in detail in ES Chapter 4 Site Selection and Assessment of Alternatives (Document Reference: 3.1.6). The site selection process has included consideration of all designated heritage assets and has avoided direct physical impacts upon designated heritage assets as part of the site selection process. The site selection process has also sought to avoid all direct physical impacts on known non-designated heritage assets, potential heritage assets and areas of higher archaeological potential, wherever practicable, using the datasets available at the time of assessment.
Mitigation by design	The onshore substation will be designed to reduce the overall height and massing of associated structures and other elements as far as practicable. Landscape proposals will include measures for the enhancement of local biodiversity during the operational phase of the onshore substation. This will include landscape screening of the onshore substation through hedgerow and woodland planting. Once matured, this will help to integrate the onshore substation into the existing landscape of arable fields and boundary trees / hedgerows. Further detail on the principles of mitigation are set out in ES Chapter 30 Landscape and Visual Impact Assessment (Document Reference: 3.1.32). The layout of the offshore wind turbines will be designed appropriately to reduce visual effects, taking into account other constraints such as ecological effects, safety reasons or engineering and design parameters. The final design of North Falls will be confirmed through detailed engineering design studies that will be undertaken post-consent based on the findings of pre-construction surveys (ES Chapter 29 Offshore Seascape, Landscape and Visual Impact Assessment, Document Reference: 3.1.31).
Onshore OWSI	The Project has submitted an onshore OWSI to accompany the Project's DCO application. This document outlines the strategy to undertake additional programmes of survey and evaluation post-consent and includes a range of likely mitigation options and responses to be utilised under various scenarios. The onshore OWSI has been prepared in accordance with industry good practice guidance provided by the Chartered Institute for Archaeology (CIfA). The onshore OWSI will form the basis of the WSI produced post-consent, which will be secured by DCO Requirement.

18. During ongoing design prior to construction, further route refinement and micro-siting will be carried out, informed directly by the results of ongoing archaeological surveys i.e. geophysical survey, to ensure areas of high archaeological potential are avoided wherever practicable within the confines of engineering and other environmental constraints.

25.4 Assessment methodology

25.4.1 Legislation, guidance and policy

25.4.1.1 National Policy Statements

19. The assessment of potential impacts upon onshore archaeology and cultural heritage has been made with specific reference to the relevant legislation and guidance, of which the principal policy documents with respect to the NSIPs are the NPS.

20. Those relevant to the Project are:

- Overarching NPS for Energy (EN-1) (Department for Energy Security and Net Zero (DESNZ), 2023a)
- NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b)
- NPS for Electricity Networks Infrastructure (EN-5) (DESNZ, 2023c)

21. The specific assessment requirements for onshore archaeology and cultural heritage, as detailed in the NPS, are summarised in Table 25.4 together with an indication of the section of the ES chapter where each is addressed.

Table 25.4 NPS assessment requirements

NPS requirement	NPS reference	ES reference
Overarching NPS for Energy (EN-1)		
'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 HER (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.'	Section 5.9.10	The significance and value of the heritage assets considered in this chapter have been detailed in Section 25.5. An setting assessment and screening exercise has been undertaken for the onshore infrastructure (ES Appendix 25.3 (Document Reference: 3.3.50)) and the offshore infrastructure (ES Appendix 25.4 (Document Reference: 3.3.51)), the results of which have informed Sections 25.5 and 25.6. Issues relating to the setting of offshore and intertidal heritage assets have been considered as part of ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage (Document Reference: 3.1.18).
'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 DBA 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.'	Paragraph 5.9.11	Section 25.5 of this chapter has been informed by the Cable Landfall Archaeological Desk-Based Assessment (ADBA) (ES Appendix 25.1, Document Reference: 3.3.48), the Cable and Substation ADBA (ES Appendix 25.2, Document Reference: 3.3.49), initial Setting Assessments (ES Appendix 25.3 and ES Appendix 25.4 (Document Reference: 3.3.50 and 3.3.51), a Heritage Walkover Survey (ES Appendix 25.5, Document Reference: 3.3.52), a GDBA (ES Appendix 23.6, Document Reference: 3.3.53), Geophysical Survey (ES Appendix 25.8, Document Reference: 3.3.55) Archaeological and

NPS requirement	NPS reference	ES reference
		geoarchaeological monitoring of GI works (ES Appendix 25.9, Document Reference: 3.3.56), Archaeological Evaluation (Appendices 25.10 and 25.11, Document Reference: 3.3.57 and 3.3.58)) and Palaeolithic Evaluation (ES Appendix 25.12, Document Reference: 3.3.59).
'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.'	Section 5.9.12	This ES chapter provides an assessment of the potential impact of the Project upon heritage assets and their significance (Section 25.5 and Section 25.6).
'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 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'	Section 5.9.13	This ES chapter provides an assessment of potential impacts, both positive and negative in Section 25.5. Embedded mitigation as part of the Project is outlined in Section 25.3.3.
'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.'	Section 5.9.14	This ES chapter provides an assessment of potential impacts, including direct, indirect, temporary or permanent in Section 25.6.
NPS for Electricity Networks Infrastructure (EN-5)		
'… applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks	Paragraph 2.2.10	Potential impacts upon sites and objects of archaeological interest onshore are assessed in Section 25.6 along with a proposed approach to mitigation.

NPS requirement	NPS reference	ES reference
infrastructure, to "have regard to the desirability of… protecting sites, buildings and objects of architectural, historic or archaeological interest; and …do what [they] reasonably can to mitigate any effect which the proposals would have on the… sites, buildings or objects."		

25.4.1.2 Other legislation, policy and guidance

22. In addition to the NPS, there are a number of pieces of legislation, policy and guidance applicable to the assessment of onshore archaeology and cultural heritage. Further detail is provided in ES Chapter 3 Policy and Legislative Context (Document Reference: 3.1.5).

25.4.1.2.1 Legislation

23. Works affecting Listed Buildings and Conservation Areas are subject to the Planning (Listed Buildings and Conservation Areas) Act 1990, while those affecting Scheduled Monuments and Archaeological Areas of Importance must consider the Ancient Monuments and Archaeological Areas Act 1979 (as amended). Additionally, certain hedgerows may be deemed to be historically important under the criteria set out in the Hedgerow Regulations 1997, as amended.

24. In the context of listed buildings, Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010 (the 'Decisions Regulations') sets out that it is necessary for the Secretary of State to "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". This provision extends to the full range of terrestrial heritage assets, rather than section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990, which relates only to listed buildings and requires the decision maker to have "…special 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 Decisions Regulations have been taken into account in the preparation of this chapter.

25.4.1.2.2 Policy

25. This assessment has also been undertaken in a manner consistent with the National Planning Policy Framework (NPPF), updated in 2023 by the Department for Levelling Up, Housing and Communities (DLUHC). This replaced the revised version published by the Ministry of Housing, Communities and Local Government (MHCLG) in July 2021, replacing the original policy from March 2012. Provision for the historic environment is principally given in section 16: 'Conserving and enhancing the historic environment' of the NPPF, which directs local authorities to set out at paragraph 196 "*a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats*". Local planning authorities should recognise that heritage assets are "*an irreplaceable resource and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations*" (para. 195) (DLUHC, 2023).

26. The aim of NPPF section 16 is to ensure that local authorities, developers and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them.

27. To summarise, the above guidance provides a framework which:

- Recognises that heritage assets are an irreplaceable resource;
- Requires applicants to provide a level of detail that is proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance;
- Takes into account the desirability of sustaining and enhancing the significance of heritage assets, including any contribution made by their setting, and putting them to viable uses consistent with their conservation;
- Places weight on the conservation of designated heritage assets (which include world heritage sites, scheduled monuments, listed buildings, protected wreck sites, registered parks and gardens, registered battlefields or conservation areas), with any anticipated substantial harm weighed against the public benefits of the proposal;
- Requires applicants to include a consideration of the effect of an application on the significance of non-designated heritage assets, giving regard to the scale of any harm or loss and the significance of the heritage asset;
- Regards proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) favourably; and
- Requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible.

28. The NPPF's associated Planning Practice Guidance (PPG) 'Conserving and enhancing the historic environment,' published in 2014 and updated 2019, (MHCLG, 2019) includes further information and guidance on how national planning policy is to be interpreted and applied locally. Although the PPG is an important and relevant consideration with respect to North Falls, EN-1 (the Overarching NPS for Energy) is the key decision-making document.

29. This chapter also takes into account regional and local guidance relevant to the study area and the Project.

30. The regional policy relevant to the study area comprises the Tendring Local Plan. Due to strategic cross-boundary policies and allocations, Tendring, Braintree and Colchester's Local Plan share an identical Section 1. Tendring specific policies and allocations can be found within Section 2 of the Local Plan.

31. Section 1 of the local plan (Tendring District Local Plan 2013-2033 and Beyond: North Essex Authorities, 2021) details the direction that the North Essex Authorities, including Tendring District Council wish to take their policies and allocations.

32. Section 2 of the Local Plan used for planning decisions was adopted on 25th January 2022 (Tendring District Local Plan 2013-2033 and Beyond, 2022).

33. Objective 7 Historic Environment is “to conserve and enhance Tendring District’s historic environment, including: heritage; respecting historic buildings and their settings; heritage assets; landscapes; links; and views”. Policy SPL3 gives the requirements for Sustainable Design and states with particular relation to heritage that “the design and layout of the development maintains or enhances important existing site features of landscape, ecological, heritage or amenity value”.

25.4.1.2.3 Standards and guidance

34. Standards and guidance are given by the Government on how the historic environment can be enhanced and conserved through the planning process and a number of standard and guidance documents have been produced by Historic England and CIfA regarding assessing the Historic Environment and implementing a best practice approach.

Table 25.5 Standards and guidance documents relevant to assessment of the historic environment

Guidance	Relevant to assessment
Conserving and enhancing the historic environment (Ministry of Housing, Communities & Local Government (2014, updated 2019)	Sets out advice to ensure the Government’s policies on protecting and enhancing the historic environment are understood and followed when making planning decisions. The advice details the main legislative framework for planning and the historic environment, followed by details on how planning decisions should consider the historic environment.
The Historic Environment in Local Plans: Historic Environment Good Practice Advice in Planning 1 (Historic England, 2015a)	Details the processes involved in the decision-making process for the historic environment at a local planning level, providing guidance in implementing the NPPF requirements. Guidance within the document is relevant to ensuring data and documentation for the historic environment is of the standard required.
Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning 2 (Historic England, 2015b)	Provides advice and guidance on assessing the significance of heritage assets, and how to understand the nature, extent and level of significance. It provides guidance on how to understand the impact of a proposed development on the heritage significance of an asset and how to identify ways to avoid, minimise or mitigate that impact which meets the objectives of the NPPF.
The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning 3 (Historic England, 2017a)	Provides guidance on establishing the setting of a heritage asset, how that setting contributes to the asset’s significance, and to what extent a proposed development might impact upon an asset’s significance.
Standard and guidance for historic environment DBA (CIfA, 2020)	Provides guidance for the compilation and assessment of baseline historic environment data. It includes guidance on what should and should not be included in a DBA.
Code of Conduct (CIfA, 2014)	Promotes the standards of conduct and self-discipline required of a member in the interests of the public and in pursuit of the study and care of the physical evidence of the human past.

Guidance	Relevant to assessment
Principles of Cultural Heritage Impact Assessment in the UK (Institute of Environmental Management & Assessment (IEMA), Institute of Historic Building Conservation (IHBC) and CIfA, 2021)	Authoritative set of principles that promotes good practice in Cultural Heritage Impact Assessment (CHIA).
Commercial Renewable Energy Development and the Historic Environment (Historic England, 2021)	Describes the potential impacts on the historic environment of commercial renewable energy proposals, including NSIPs. It is written for all of those involved in commercial renewable energy development, helping them to give appropriate consideration to heritage issues.

25.4.2 Data sources

25.4.2.1 Site specific

35. In order to provide site specific and up to date information on which to base the impact assessment, a historic environment walkover survey and GDBA were undertaken. Similarly, a route wide archaeological geophysical survey was carried out along with archaeological evaluation trenching at the onshore substation works area.

36. The historic environment walkover survey was undertaken to confirm the presence / absence of heritage assets identified on the Essex HER and through desk-based review of aerial imagery and historic maps, to assess their preservation, extent and setting, and to identify any previously unrecorded heritage assets. A total of 31 locations containing known heritage assets were visited between 5th and 6th October 2022, the results from which are presented within ES Appendix 25.1 (Document Reference: 3.3.48).

37. The aims of the historic environment walkover survey were to:

- Assess the condition of upstanding / above ground archaeological remains within identified sites (i.e., earthworks or structures);
- Identify any currently unrecorded heritage assets (i.e., earthworks or structures);
- Establish the potential for currently unknown heritage assets (e.g., buried archaeology) to be present within the onshore project area;
- Assess the potential impact from other modern developments within the study areas which may have reduced the significance / preservation of known heritage assets; and
- Undertake initial setting assessment site visits of and in the vicinity of identified designated heritage assets.

38. The aim of the archaeological geophysical survey was to locate, record and characterise any surviving sub-surface archaeological remains that would enhance current understanding of the archaeological resource at targeted locations within the onshore project area. The targeted geophysical survey has been termed as a priority (phase1) survey, which has been followed by a second phase of archaeological geophysical survey to cover as much of the onshore project boundary as practicable.

39. Approximately 85% of the onshore project area has been subject to geophysical survey. Gaps in the data relate to areas where survey was not suitable or where access was not available. Due to poor weather conditions and access constraints, 14.5ha of surveyable area remains to be complete. The outstanding areas will be investigated prior to detailed design. The results are presented in ES Appendix 25.8 (Document Reference: 3.3.55).

25.4.2.2 Other available sources

40. Other sources that have been used to inform the assessment are listed in Table 25.6 and further detailed in Appendices 25.1 and 25.2 (Document Reference: 3.3.48 and 3.3.49).

Table 25.6 Other available data and information sources

Data set	Spatial coverage	Notes
National Heritage List for England (NHLE)	England	Official, up to date, register of all nationally protected historic buildings and sites in England - listed buildings, scheduled monuments, registered parks and gardens, and battlefields.
Essex Historic Environment Record (HER)	Essex County	HERs are information services that provide access to comprehensive and dynamic resources relating to the archaeology and historic built environment of a defined geographic area. HERs contain details on local archaeological sites and finds, historic buildings and historic landscapes and are regularly updated.
Conservation Areas	Essex County	Essex County Council holds information on Conservation Areas including locally listed buildings.
Relevant Regional, Local and Period Archaeological Studies and Journals	UK	Historic and archaeological data consulted to inform the wider baseline context. The studies / journals consulted do not constitute an exhaustive account of all historical / archaeological data identified within the study area.
The Archaeology Data Service (ADS)	UK	A non-exhaustive directory of archaeological research consulted to inform the wider baseline context and previous archaeological investigations in the study area.
Cartographic sources (the EHER, Essex County Council Record Office, Essex National Mapping Programme and Envirocheck Report)	Essex County	Historic mapping for the study area including 19th century Enclosure and Tithe maps, and 1st, 2nd and later edition Ordnance Survey (OS) maps. Some cartographic data is fragmentary for the study area. This chapter integrates the results of the Map Regression analysis undertaken by APS. The full report is included in ES Appendix 25.1 and ES Appendix 25.2 (Document Reference: 3.3.48 and 3.3.49).
Aerial Photographic Data (Historic England Archive and the EHER, and ortho-rectified mosaics of	Essex County	Aerial photographic data for the study area. This chapter integrates the results of the Aerial Photographic assessment undertaken by APS. The full report is included in

Data set	Spatial coverage	Notes
vertical aerial photographs at Google Earth)		ES Appendix 25.1 and ES Appendix 25.2 (Document Reference: 3.3.48 and 3.3.49).
Light Detection and Ranging (LiDAR) survey data	Essex County	Available LiDAR data for the study area. This chapter integrates the results of the LiDAR assessment undertaken by APS. The full report is included in ES Appendix 25.1 and ES Appendix 25.2 (Document Reference: 3.3.48 and 3.3.49).
British Geological Survey (BGS) data (surface geology)	UK	Historic borehole logs and wider geological background for the study area.
Zone of Theoretical Visibility (ZTV)	Study Area	ZTVs for the permanent above ground infrastructure required by North Falls to inform the setting assessments – details of the ZTVs are provided in ES Chapter 30 Landscape and Visual Impact Assessment and ES Chapter 29 Seascape, Landscape and Visual Impact Assessment (Document Reference: 3.1.31).

25.4.3 Impact assessment methodology

41. ES Chapter 6 EIA Methodology (Document Reference: 3.1.8) explains the general impact assessment methodology applied to North Falls. The following sections confirm the methodology used to assess the likely significant effects on onshore archaeology and cultural heritage.

42. The impact assessment methodology adopted for onshore archaeology and cultural heritage will define heritage assets and their settings likely to be impacted by the Project and will assess the level of any resulting benefit, harm or loss to their significance. The assessment is not limited to direct (physical) impacts, but also assesses possible indirect (physical) impacts upon heritage assets which may arise as a result of changes to hydrological processes and changes to the setting of heritage assets, whether visually, or in the form of noise, dust and vibration, spatial associations and a consideration of historic relationships between places which may impact their significance.

43. As set out in Principles of CHIA in the UK (IEMA, IHBC and CIfA, 2021), CHIA is concerned with "*understanding the consequences of change to cultural significance*". The principles of assessment are:

    A. Understanding cultural heritage assets; and

    B. Evaluating the consequences of change.

44. Understanding cultural heritage assets distinguishes between:

    - Describing the asset (what it is and what is known about it);
    - Ascribing cultural significance (a description of what is valued about it); and

- Attributing importance (a scaled measure of the degree to which the cultural significance of that asset should be protected).

45. Evaluating the consequences of change also distinguishes between three separate analytical stages:

- Understanding change (a factual statement of how a proposal would change a cultural heritage asset or its setting, including how it is experienced);
- Assessing impact (a scaled measure of the degree to which any change would impact on cultural significance); and
- Weighting the effect (the measure that brings together the magnitude of the impact and the cultural heritage asset's importance).

46. The relationship between these principles and the general approach to EIA ES Chapter 6 EIA Methodology (Document Reference: 3.1.8) is described below.

25.4.3.1 Understanding cultural heritage assets

47. A description of the assets, and their cultural significance, relevant to the assessment of onshore archaeology and cultural heritage is provided in Section 25.5. At this stage of the Project, many of these assets are not yet fully understood. However, as set out in the Principles, as well as in national planning guidance including the NPS (see Table 25.4) and NPPF (see Section 25.4.1.2 above), proportionality is key and applicants must provide a level of detail that is proportionate to the asset's importance and no more than is sufficient to understand the potential impact of the proposal on their significance. The level of detail provided in Section 25.5, therefore, sufficiently characterises these assets so that potential impacts upon their significance can be understood for the purposes of EIA.

48. Further investigation and data gathering would be progressed post-consent, including any outstanding geophysical surveys and evaluation trenching, alongside additional mitigation requirements as set out in the onshore OWSI (Document Reference: 7.12) submitted alongside the DCO application. This is in line with the Principles (IEMA, IHBC and CIfA, 2021) which describe how, "*an understanding of the cultural heritage asset is likely to be an iterative process which regularly reappraises the consequential impact on cultural significance as a proposal evolves or as more evidence emerges from research and investigations*". Section 25.5, therefore, also highlights where there is a need to acquire additional information, and when this would be progressed, as part of an ongoing iterative design process.

49. As defined in the NPPF (MHCLG, 2021, Annex 2) cultural (or heritage) significance is the sum of the heritage values or interests that we, as a society, recognise in a heritage asset and seek to protect or enhance for future generations. A statement of significance should explain why we value a heritage asset. Understanding the significance of an asset should not be confused with a description of that asset which does not articulate 'what matters and why.' Historic England (2015b) further defines the term significance as encompassed by archaeological, architectural / artistic and historic interest. These terms are used in articulating the cultural significance of heritage assets for the purposes of this impact assessment.

50. As defined in the Principles (IEMA, IHBC and CIfA, 2021), cultural significance does not have a scale associated with it and it is therefore not appropriate to refer to 'high' or 'low' significance. This scaling is addressed through the separate consideration of a heritage asset's importance. Cultural significance is not directly related to designation status, nor is it defined in law. However, the reasons for designation may articulate aspects of heritage significance.

51. In describing the cultural significance of heritage assets, reference will also be made to the contribution of setting to that significance. The setting of a heritage asset is described as the surroundings in which a heritage asset is experienced (Historic England, 2017a). Elements of an asset's setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

52. The importance of a heritage asset is a measure of the degree to which we seek to protect and preserve the cultural significance of that asset through, for example, legislation and planning policy. Determining the importance of an asset is a key decision in impact assessment as it will affect judgements regarding the relative weight to be given to protecting different assets during the design of a proposal.

53. Importance is scaled (unlike cultural significance) and requires the assessor to make a judgement regarding the merits of different heritage assets. It is therefore appropriate to refer to 'high' or 'low' importance for example. The statutory designation of heritage assets provides examples of how assets can be assigned a level of importance against explicit criteria. Some designated assets are judged to be of national importance, for example Scheduled Monuments, and World Heritage Sites are, again by definition, sites of international importance.

54. In determining the significance of effect for the purposes of EIA, this last analytical stage (attributing importance) broadly equates to 'sensitivity' as described in Section 25.4.3.3 below.

25.4.3.2 Evaluating the consequences of change

55. The Principles (IEMA, IHBC and CIfA, 2021) describe change as, "both the act and the result of making something different from how it was before, whether directly or indirectly, temporarily or permanently, reversibly or irreversibly". It is also important to note that change may or may not lead to an impact on cultural significance. Before a scaled measure of this change can be determined it is necessary to describe the potential change to a heritage asset or its setting. To this end, a narrative approach describing the nature of potential changes is provided for each impact assessed in Section 25.6.

56. This is followed by the determination of a scaled measure of the degree to which any change would impact cultural significance, which broadly equates to the 'magnitude of impact' as described in Section 25.4.3.3 below. This change could have a positive (beneficial) or negative (adverse) outcome. It is not a measure of the reach or extent of the proposal but rather the change to 'what matters' about a heritage asset.

57. The final stage is weighting the effect, which brings together the magnitude of the impact and the cultural heritage asset's importance. For the Project, this is articulated

through the significance of effect matrix presented in Table 25.9. Following on from the previous stages of the assessment, which draw out the narrative regarding the importance of a cultural heritage asset, its cultural significance, and how the proposal will impact this significance, this measure is indicative of the weight that should be given to the matter in influencing the design of the proposal or, ultimately, in influencing whether the proposal would be acceptable and permitted.

58. Definitions for this weighted measure of significance of effect (in EIA terms) are provided in Table 25.10.

25.4.3.3 Definitions of sensitivity and magnitude

59. The sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. However, while impacts to a heritage asset's setting or character can be temporary, impacts which result in damage or destruction of the assets themselves, or their relationship with their wider environment and context, are permanent. Once destroyed an asset cannot recover. On this basis, the assessment of the significance of effect of any identified impact is largely a product of the importance of an asset (rather than its sensitivity) and the degree to which any change would impact on cultural significance.

60. For the purposes of this EIA, the criteria for determining the heritage importance of any relevant heritage assets are described in Table 25.7.

61. The categories and definitions of heritage importance do not necessarily reflect a definitive level of importance of an asset. They are intended to provide a provisional guide to the assessment of perceived heritage importance, which is to be based upon professional judgement incorporating the evidential, archaeological, historical, aesthetic, architectural and communal heritage values of the asset or assets. It is important to note that the importance and cultural significance of an asset can be amended or revised as more information comes to light (i.e., as part of further investigations planned post-consent).

62. Table 25.7 includes heritage assets of uncertain heritage importance i.e., where the importance, existence and / or level of survival of an asset has not been ascertained (or fully understood) from available evidence. Although Table 25.7 provides a definition for assets of an uncertain heritage importance, where uncertainty occurs, the precautionary approach is to assign the highest likely level of importance. This precautionary approach represents good practice in CHIA and reduces the potential for impacts to be under-estimated.

Table 25.7 Criteria for determining heritage importance

Importance	Definition
High (perceived international/national importance)	• World Heritage Sites • Scheduled Monuments • Grade I and II* Listed Buildings or structures • Protected wrecks • Designated historic landscapes of outstanding interest

Importance	Definition
	• Conservation Areas containing buildings or structures with high heritage importance, or high concentrations of listed buildings • Assets of acknowledged international / national importance • Assets that can contribute significantly to acknowledged international / national research objectives
Medium (perceived regional importance)	• Grade II Listed Buildings or structures • Designated special historic landscapes • Other types and character of Conservation Areas • Assets that contribute to regional research objectives • Assets with regional value, educational interest or cultural appreciation
Low (perceived local importance)	• 'Locally Listed' buildings or structures • Assets that contribute to local research objectives • Assets with local value, educational interest or cultural appreciation • Assets compromised by poor preservation and / or poor contextual associations
Negligible	• Assets with no significant value or archaeological / historical interest
Uncertain/Unknown	• The importance / existence / level of survival of the asset has not been ascertained (or fully ascertained / understood) from available evidence

63. Magnitude broadly equates as the degree to which cultural significance is positively or negatively changed by the proposal.

64. Direct physical impacts, indirect physical impacts and impacts from a change in setting on the significance of heritage assets are considered relevant. Impacts may be adverse or beneficial. Depending on the nature of the impact and the duration of development, impacts can also be temporary and / or reversible or permanent and / or irreversible.

65. The finite nature of archaeological remains means that physical impacts are almost always permanent and irreversible as the 'fabric' of the asset and, hence, its potential to inform our historical understanding, would be removed. By contrast, impacts resulting from the change in the setting of heritage assets will depend upon the longevity of construction and operation of the Project and the sensitivity with which the landscape / seascape is re-instated subsequent to decommissioning / demolition, if applicable

66. The magnitude of adverse impact with respect to onshore archaeology and cultural heritage directly relates to the extent of harm to, or loss of, key elements of the asset's cultural significance, which may include its setting.

67. The magnitude of beneficial impact with respect to onshore archaeology and cultural heritage directly relates to the level of public benefit associated with an individual impact. Benefits may correspond directly to the project itself where a project will

enhance the historic environment (e.g., through measures which will improve the setting of a heritage asset or public access to it).

68. The criteria used for assessing the magnitude of impact with regard to onshore archaeology and cultural heritage are presented in Table 25.8.

Table 25.8 Definition of magnitude of impact to heritage assets

Magnitude	Definition
High Adverse	Key elements of the asset's fabric and / or setting are lost or fundamentally altered, such that the asset's cultural significance is lost or severely compromised.
Medium Adverse	Elements of the asset's fabric and / or setting which contribute to its significance are affected, but to a more limited extent, resulting in an appreciable but partial loss of the asset's cultural significance.
Low Adverse	Elements of the asset's fabric and / or setting which contribute to its cultural significance are affected, resulting in a slight loss of cultural significance.
Negligible	The asset's fabric and / or setting is changed in ways which do not materially affect its cultural significance.
Low Beneficial	Elements of the asset's physical fabric which would otherwise be lost, leading to a slight loss of cultural significance, are preserved *in situ*; or Elements of the asset's setting are improved, slightly enhancing its cultural significance; or Research and recording leads to a slight enhancement to the archaeological or historical interest of the asset. This only applies in situations where the asset would not be otherwise harmed i.e., it is not recording in advance of loss.
Medium Beneficial	Elements of the asset's physical fabric which would otherwise be lost, leading to an appreciable but partial loss of cultural significance, are preserved *in situ*; or Elements of the asset's setting are considerably improved, appreciably enhancing its cultural significance; or Research and recording leads to a considerable enhancement to the archaeological or historical interest of the asset. This only applies in situations where the asset would not be otherwise harmed i.e., it is not recording in advance of loss.
High Beneficial	Elements of the asset's physical fabric which would otherwise be lost, severely compromising its cultural significance, are preserved *in situ*; or Elements of the asset's setting, which were previously lost or unintelligible, are restored, greatly enhancing its cultural significance.
No impact	No change to the assets fabric or setting which affects its cultural significance.

25.4.3.4 Significance of effect

69. In basic terms, the likely significance of effect is a function of the sensitivity of the receptor and the magnitude of the impact (see ES Chapter 6 EIA Methodology (Document Reference: 3.1.8) for further details). As described above, for onshore

archaeology and cultural heritage this equates to the importance of a heritage asset weighed against the magnitude of change to its cultural significance. The determination of significance is guided by the use of a significance of effect matrix, as shown in Table 25.9. Definitions of each level of significance are provided in Table 25.10.

70. Effects identified within the assessment as major or moderate are regarded within this chapter as likely significant effects. Appropriate mitigation has been identified, where practicable, in consultation with the regulatory authorities and relevant stakeholders. The aim of mitigation measures is to avoid or reduce the overall significance of effect in order to determine a residual effect upon a given receptor.

Table 25.9 Significance of effect matrix

		Adverse magnitude				Beneficial magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	*Major*	*Major*	*Moderate*	*Minor*	*Minor*	*Moderate*	*Major*	*Major*
	Medium	*Major*	*Moderate*	*Minor*	*Minor*	*Minor*	*Minor*	*Moderate*	*Major*
	Low	*Moderate*	*Minor*	*Negligible*	*Negligible*	*Negligible*	*Minor*	*Minor*	*Moderate*
	Negligible	*Minor*	*Negligible*	*Negligible*	*Negligible*	*Negligible*	*Negligible*	*Negligible*	*Minor*

Table 25.10 Definition of significance of effect

Significance	Definition
Major	Change in cultural significance, both adverse or beneficial, which are likely to be important considerations at a national or regional level because they contribute to achieving national or regional objectives. Effective / acceptable mitigation options may still be possible, to offset and / or reduce residual impacts to satisfactory levels.
Moderate	Change in cultural significance, both adverse and beneficial, which are likely to be important considerations at a local level. Effective / acceptable mitigation options may still be possible, to offset and / or reduce residual impacts to satisfactory levels.
Minor	Change in cultural significance, both adverse and beneficial, which may be raised as local issues but are unlikely to be material considerations in the decision-making process. Industry standard mitigation measures may still apply.

Significance	Definition
Negligible	No material change to cultural significance.
No change	No impact, therefore, no change to cultural significance.

25.4.4 Historic landscape character

71. The approach to the assessment of HLC differs to that outlined above for heritage assets.

72. The historic character of the landscape is described in terms of ability to accommodate change. For this reason, an approach is required which recognises the dynamic nature of landscape and how all aspects of the landscape, no matter how modern or fragmentary, can form part of the character of that landscape.

73. It is not meaningful, therefore, to assign a level of importance to these aspects of landscape character. Individual elements which contribute towards the HLC of an area (e.g. hedgerows, field boundaries) may, however, be assigned a heritage importance based on the criteria outlined in Table 25.7 (where relevant).

74. As the HLC is described in terms of ability to accommodate change, it is also not meaningful to assign a measure of magnitude in order to understand the nature of the potential changes. Rather, this change is expressed as a narrative description of the landscape character and how it might be affected by North Falls.

75. With regard to the HLC, in terms of assessing the effect, it is the alteration arising as a result of North Falls to the baseline HLC as assessed in this chapter (see Sections 25.5.8 and 25.5.10 and Appendices 25.1 and 25.3, Document Reference: 3.3.48 and 3.3.50) that is the key focus. In the absence of attributing heritage importance, effects upon the HLC cannot be assessed using the significance matrix presented in Table 25.9 but are rather expressed in terms of the ability of the HLC to accommodate any change arising as a result of a project. In this respect, while damage to, or destruction of, a heritage asset is considered permanent and irreversible, effects to HLC are dynamic and may be temporary and reversible. Certain elements / features that may be considered to contribute to the HLC of an area (e.g. hedgerows, field / parish boundaries) may nonetheless be considered in relation to the process outlined above, as and where relevant.

25.4.5 Cumulative effects assessment methodology

76. The CEA considers other plans, projects and activities that may result in cumulative effects with North Falls. ES Chapter 6 EIA Methodology (Document Reference 3.1.8) provides further details of the general framework and approach to the CEA.

77. For onshore archaeology and cultural heritage, cumulative effects may occur where developments acting in combination can have a cumulative effect on an archaeological resource which overlaps or intersects more than one development as well as affecting the nature of the wider archaeological landscape. In combination effects of a development's construction and / or operation phases could result in a

cumulative effect through a change in heritage setting to both designated and non-designated heritage assets.

25.4.6 Transboundary effects assessment methodology

78. There are no transboundary effects anticipated as a result of North Falls with respect to onshore archaeology and cultural heritage and therefore these are screened out of further assessment.

25.4.7 Assumptions and limitations

79. Data used to compile this ES chapter primarily consist of secondary information derived from a variety of sources. The assumption is made that the secondary data, as well as those derived from other secondary sources, are sufficiently accurate to inform the assessment.

80. The records held by the sources used in this assessment are not a record of all surviving heritage assets, rather a record of the discovery of a range of archaeological and historical components of the historic environment for the study areas. The information held within these sources is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown. Comparison of different sources allows for inferences to be drawn on the accuracy of individual sources and for judgements to be made on the meaning and relevance of any data gaps, informing the baseline set out at Section 25.5.

25.5 Existing environment

25.5.1 Introduction

81. The following section provides a summary of the known and potential onshore archaeological and cultural heritage resource within the defined study areas.

82. The baseline environment as presented below has been, to date, informed by the baseline data and information gathering exercise and assessment undertaken as part of the Cable Landfall ADBA (ES Appendix 25.1, Document Reference: 3.3.48), the Cable and Substation ADBA (ES Appendix 25.2, Document Reference: 3.3.49), both of which include the Aerial Photographic, LiDAR and Map Regression Analysis (Annex 25.1.1 and 25.2.1).

83. Site visits have been undertaken to inform the heritage setting assessment exercise and establish the condition of extant historic earthworks and structures (ES Appendix 25.3, ES Appendix 25.4 and ES Appendix 25.5, Document Reference: 3.3.50, 3.3.51. 3.3.52). In addition, a GDBA (ES Appendix 25.6, Document Reference: 3.3.53), including details from monitoring of ground investigations works at the landfall (ES Appendix 25.9, Document Reference: 3.3.56), the results of the Geophysical Survey of available areas of the onshore project area (ES Appendix 25.8, Document Reference: 3.3.55) and the ongoing Field Evaluation (Trial Trenching) results also inform this baseline section (ES Appendix 25.10 and ES Appendix 25.11, Document Reference: 3.3.57 and 3.3.58).

84. The archaeological periods referred to in this chapter are broadly defined by the following date ranges:

- Palaeolithic: 960,000 BC – 8,500 BC;
- Mesolithic: 8,500 – 4,000 BC;
- Neolithic: 4,000 – 2,200 BC;
- Bronze Age: 2,200 – 700 BC;
- Iron Age: 700 BC – AD 43;
- Romano-British: AD 43 – 410;
- Early medieval (Saxon): AD 410 – 1066;
- Medieval: AD 1066 – 1499;
- Post-medieval: AD 1500 – 1899; and
- Modern: AD 1900 – present day.

25.5.2 Designated heritage assets

85. There are 449 designated heritage assets within the study area, comprising:
    - Seven Scheduled Monuments;
    - Two Registered Parks and Gardens;
    - 432 Listed Buildings; and
    - Eight Conservation Areas.
86. Details of the designated assets within the designated heritage assets study area, are presented in a gazetteer (ES Appendix 25.7 (Document Reference: 3.3.54) and on ES Figures 25.1a-h (Document Reference: 3.2.21)).
87. At present, one designated heritage assets is partly located within the onshore project area: the Great Holland Conservation Area. Operation and maintenance access routes to service the landfall located within the onshore project area currently extend into the southern half of Frinton Conservation Area.
88. Within the Conservation Area Appraisal (CAA), Frinton is described alongside its neighbouring Conservation Area, Walton, as occupying approximately 5km of coastline south westwards from the Naze, a natural headland dividing Hamford Water from the North Sea. Frinton-on-Sea (Frinton) and Walton-on-the-Naze (Walton) are both coastal towns being medieval in origin, however, both developed in the mid to late 19th century as seaside resorts. The two towns are individual in their historical development and subsequent character (Place Services, 2022). Frinton as a planned resort dates from the end of the 19th century, with its heyday some 30 years later. It contains many fine examples of English domestic architecture of the period, set in a spacious residential suburb, and linked to a famous main street and an important open space on the sea front. The extensive Conservation Area includes these important locations and much of their general setting.
89. There are no other designated heritage assets located within the onshore project area.

25.5.2.1 Heritage Importance

90. Based on the criteria shown in Table 25.7, the designated heritage assets outlined in Section 25.5.2 (and ES Appendix 25.3 and ES Appendix 25.4, Document Reference: 3.3.50 and 3.3.51) are considered to be assets of medium or high heritage importance with perceived regional or national importance.

25.5.3 Non-designated heritage assets

91. The details of the historic baseline of the Project have been summarised below from the Cable Landfall ADBA (ES Appendix 25.1, (Document Reference: 3.3.48)) and the Cable and Substation ADBA (ES Appendix 25.2, (Document Reference: 3.3.49)).

92. All HER data has been compiled into a gazetteer (see ES Appendix 25.7 (Document Reference: 3.3.44) and ES Figures 25.2a-g (Document Reference: 3.2.21)) and the sub-sections below identify the known remains most relevant to the study area with additional information provided where available from archaeological reports, HER event record data, data held on the Archaeology Data Service and results from The Tendring District Historic Environment Characterisation Project (Tendring District Council and Essex County Council 2008) and the National Mapping Programme Essex: Management Report (Essex County Council and EH 2003).

93. There are 240 non-designated heritage assets within the non-designated heritage assets study area based on the ES onshore project area (ES Appendix 25.1, ES Appendix 25.2, and ES Appendix 25.7 (Document Reference: 3.3.48, 3.3.49 and 3.3.54). The full gazetteer is presented in ES Appendix 25.7 (Document Reference: 3.3.54) and shown on ES Figures 25.2a-g (Document Reference: 3.2.21).

94. Of these records, 52 fall within the onshore project area. Eight of those located within the onshore project area are findspots or finds recorded by the PAS.

95. Non-designated heritage assets potentially subject to direct physical impacts are confined to the onshore project area and may comprise potential subsurface archaeological remains and above ground heritage assets (e.g., earthworks or structures).

96. Non-designated heritage assets which may be subject to indirect physical or non-physical impacts (associated with change in setting) as a result of North Falls may be either within or beyond the parameters of the onshore project area.

97. Unless specified otherwise the references in brackets in the following sections relate to a unique reference number assigned to the asset from the HER, as found in ES Appendix 25.7 (Document Reference: 3.3.54) and ES Figures 25.2a-g (Document Reference: 3.2.21).

25.5.3.1 Palaeolithic

98. There are no records dated to the Palaeolithic period recorded in the HER within the onshore project area. Within the wider non-designated heritage asset study area, the Palaeolithic evidence can generally be characterised by flint tools (1917 & 1919), some of which are broadly dated to the Palaeolithic to Bronze Age.

99. Some of the HER records include sites where archaeological features and finds recovered have been dated between the Palaeolithic and later periods. Approximately 370m south-west of the onshore project area, a field north of Carrington's Farm (2457) containing cropmarks dating from at least the prehistoric

period underwent trial trenching in 2011 (30 trenches) (ES Figures 25.2a-g, (Document Reference: 3.2.21)). The cropmarks comprised a small sub-rectangular enclosure (possibly prehistoric). Three pits were excavated and produced prehistoric pottery and flints. One pot sherd was Late Iron Age in date and two other sherds were more tentatively assigned the same date. A further 21 features were identified and comprised field ditches (mostly undated) which share a southwest-northeast alignment in line with the present-day field boundaries, these were also undated but presumed to be Post-medieval.

100. Other cropmark features within the wider study area have been broadly dated to the prehistoric to Roman periods, though sometimes these are described as being masked in part by underlying geological conditions. Similarly, a series of cropmarks west of Horsleycross Street (3127) are masked in part by underlying geological conditions and have been broadly dated to the Palaeolithic to Post-medieval periods (ES Figures 25.2a-g, (Document Reference: 3.2.21)). Of these cropmarks, the sub-rectangular enclosure was presumed to be prehistoric in origin and the remainder of features included pits, trackways and field boundaries dating from the prehistoric to the Post-medieval periods.

25.5.3.2 Mesolithic

101. There is one record relating to the Mesolithic period within the onshore study area. The sea levels began to rise during this period due to glacial melt and by the Mesolithic period there was probably a tidal estuary (48658, ES Figures 25.2.a-d, Document Reference: 3.2.21) at landfall, which occupied the area of low, flat, marshy land in the vicinity of the current Holland Brook (former Holland River). The estuary was known as the Gunfleet estuary from the Medieval period onwards. The estuary extended broadly along the line of the Holland Brook and surrounding marshlands and narrowed as it stretched northwest inland. It probably extended well beyond the present location of Fan Bridge on the road between Great Holland Common and Cook's Green (Little Clacton) and may have been tidal as far as Weeley and navigable to smaller boats up to Thorpe-le-Soken further north.

102. Evidence from the Mesolithic period can largely be characterised by significant assemblages of microlith stone tools, particularly around the coast at Walton-on-the-Naze, which attest to the presence of transient groups relying on wild game and fishing for subsistence. Within the study area, records of Mesolithic finds include one tranchet axe (1918), Adze (53618), and a flint tool (53625). Other tranchet axes, maceheads and a perforated stone objects have also been found in the vicinity.

25.5.3.3 Neolithic

103. Within the onshore project area there are no records pertaining to the Neolithic period. Neolithic activity is well attested across the wider Tendring District and is evidenced by cropmarks of a monumental causewayed enclosure at St Osyth and ring ditch at Brightlingsea, which together have yielded one of the largest collections of early Neolithic ceramics of the East of England. Evidence suggests that during this period the population begins to move to a more settled agricultural existence.

104. Within the study area, Neolithic evidence comprises two findspots of axe heads: one at Great Hall Farm (2812) approximately 256m north-east of the onshore project area and another at Great Holland (2814) 42m north of the onshore project area towards the landfall. Both are characteristic of this period, indicating at least, a presence in the area during this period.

105. Over 1km north of the study area near Lawford, a scheduled Neolithic settlement site (NHLE List Entry 1002157) initially identified as a cropmark and has since been variously excavated. Earthworks and a domestic structure have been identified, along with finds such as Neolithic pottery, flint tools, bone pins and animal bones (ES Figure 25.1a-h, Document Reference: 3.2.21).

106. A Neolithic beaker burial was also recorded and scheduled (NHLE List Entry 1002146) near Ardleigh, approximately 1km outside the study area (ES Figure 25.1a-h, Document Reference: 3.2.21). The burial was found in a rectangular pit, with no other grave goods.

25.5.3.4 Bronze Age

107. There is one HER record which lies within the onshore project area dating from the Middle to Late Bronze Age Period. The PAS records a findspot of a Bronze Age hoard (51070) within the centre of the onshore substation works area however the exact location of the discovery is unknown. In the wider area near Beaumont-cum-Moze, the HER records the site of another hoard (51086) dating to the same period. Further find spots within the study area consist of three axe heads (51077 near Horsley Cross; 51089, 6560; both near Great Holland). Within the study area, near to the landfall, other findspots within Great Holland demonstrate Bronze Age activity and include a vessel (51130) and a mace head (3362).

108. A number of possible ring ditches (possible Bronze Age barrows) have been identified at Great Holland (2975) which lies within the onshore project area. The HER records them as undated, as they have not been excavated and sit within a landscape that contains various cropmarks, some of which are attributable to underlying geological conditions. However, the ring ditch cropmarks are usually a fair indication of underlying Bronze Age barrows and given the nature of the findspots at Great Holland, their presence is likely.

109. A concentration of potential Bronze Age features has been identified around Carrington's Farm at the north of the study area. Two possible ring ditches both measuring 11m in diameter (17485 and 2640). The latter ring ditch (2640) is situated within a complex series of undated cropmarks (likely field boundaries, pit and trackway) (ES Figure 25.2a-g, Document Reference: 3.2.21).

110. Evidence for the Bronze Age in the wider Tendring area can be characterised by Beaker pottery, barrows and cremation cemeteries. A locally distinctive form of pottery and funerary tradition has been recovered from cremation cemeteries at Ardleigh, Brightlingsea, Lodge Farm and Little Bromley (all outside the study area), with cremations being placed between barrows in large straight sided elaborately decorated Bucket Urns (evident as ring ditches). Bronze Age burials have also been found eroding from modern cliff faces north of Walton, which would have still been a distance from the coastline during the Bronze Age.

25.5.3.5 Iron Age

111. There is one HER record that dates to the Iron Age period which lies within the onshore project area in the intertidal zone at landfall. The site of a red hill is recorded on the HER (2915, ES Figure 25.2a, Document Reference: 3.2.21), however there is no further information or details on the HER and there was no evidence of a red hill identified during the heritage walkover survey (ES Appendix 25.5, Document

Reference: 3.3.52). A comprehensive account of Essex red hills is given in The Red Hills of Essex: Salt-making in antiquity, published by Colchester Archaeological Group. Two additional red hills are recorded within the wider area at Beaumont Quay (3016 and 3017) along with sherds of Iron age and Roman pottery found on the mound (ES Figure 25.2a-g, Document Reference: 3.2.21).

112. The majority of recorded Iron Age evidence within the study area are finds of coins (56322, 56331, 51858, 56325, 56332 and 56387) and brooches (56322, 51861, 51862 and 56330). There is a particular concentration to the south of Little Bromley, which is a common theme across the periods. This could be due to it being an area used for metal detecting, where finds have been properly recorded through the PAS and subsequently the HER. However, there is a very notable concentration from the Iron Age through to the Post-medieval, suggesting this could be an area of particular sensitivity, consistent with multiperiod settlement and / or activity.

113. Evidence for Iron Age activity in the wider area is characterised by dispersed domestic and agricultural settlements, field systems, cremation burials and red hills (salt production). Evidence from sites such as St Osyth (over 5km to the west of the study area) suggest arable and pastoral farming were practiced, with the lower lying salt marshes being used for grazing. Wool production likely also formed part of the local economy, which was probably heavily influenced by the Trinovantes tribe, whose capital was located in the nearby nationally significant Iron Age settlement of Camulodunum (near modern Colchester over 16km to the north-west).

114. Towards the landfall end of the study area, within the wider landscape, recorded Iron Age evidence comes in the form of an Iron Age ditch (containing daub, prehistoric pottery and slag) and a residual loom weight; the latter found in the context of a Medieval structure. The features were identified during an archaeological watching brief and excavation near Cook's Green during the EDF Energy Networks cable route groundwork in Little Clacton. It was noted that the Iron Age ditch had already been identified on the NMP and was in line with modern field boundaries, suggesting that there is some potential for undated cropmarks and some modern field boundaries to have origins in the Iron Age.

115. There are no HER records dated to the broader prehistoric period within the onshore project area or the study area. In the wider area, however, there are various concentrations of cropmarks including curvilinear enclosures, trackways and field boundaries have also been broadly recorded as prehistoric in date. HER records in the wider area note that several enclosures show signs of irregular morphology and have been broadly dated to the prehistoric period.

25.5.3.6 Romano-British

116. There are seven Roman period records in the HER which are situated within the onshore project area. Six of these records consist of various Roman roads with a particular concentration at the northern extent of the study area, which is reflective of the influence of the Roman town at Colchester. Sections of the Roman road connecting Colchester to Manningtree cross this area (2573, ES Figure 25.2g, Document Reference: 3.2.21) and have been identified partly by aerial photography and extant roads with probable Roman (or earlier) origins, such as Bromley Road. Two other Roman roads are recorded in this area north of Little Bromley (3168, ES Figures 25.2a-g, Document Reference: 3.2.21). Further southeast, the suggested line of a Roman road (3073) transects the onshore project area at the B1035 Thorpe

Road. Another possible Roman road including field boundaries evidenced as cropmarks (17486) is situated to the north of Cottsgreen Farm. There is an undated cropmark (17110) within the onshore project area containing possible sections of Roman Road (2631) and another (2444) within the study area (ES Figure 25.2a-g, Document Reference: 3.2.21).

117. The remaining record within the onshore project area comprises a findspot of a Roman coin (2468) at the onshore substation works area.

118. There are two other possible Roman roads recorded in the study area. One is located south of Wolves Hall (3138) and the other (3128) is to the west of Horsleycross Street. Record 17486 appears to be a continuation of field boundaries eastwards along road 3168, as well as a section of road 3168 itself (ES Figure 25.2g, Document Reference: 3.2.21). The remaining Roman HER records within the study area are findspots consisting of coins and brooches. There are notable concentrations around Little Bromley (56327, 56333, 56339 and 2316)) and Beaumont-cum-Moze (56367, 56370 and 56373). Two other finds are recorded at the southern extent of the study area and include a tile (3122) and coin (57299).

119. Evidence from the Romano-British period in the wider area suggests a dispersed settlement pattern during this period, with an associated agricultural landscape with localised industries. Evidence of likely roadside settlement is recorded around Grange Road where roads 2573 and 3168 intersect (ES Figure 25.2a-g (Document Reference: 3.2.21)). Record 17110 represents a very high concentration of cropmark features indicative of settlement including a double-ditched rectangular enclosure with entrances, a curvilinear enclosure, the roads themselves and various linear features.

25.5.3.7 Early Medieval

120. Within the onshore project area, there are two Early Medieval records in the HER. These consist of features indicative of early medieval agricultural and industrial activity, including cropmarks of a ditch with associated field boundaries (3089) and other former field boundaries (47285) identified using aerial photography from the NMP and marked on the 1st edition OS mapping just north of Thorpe Cross.

121. The majority of early medieval HER records within the study area are findspots and include items such as horse tack (51331 and 51332), coins (51330 and 51163), a sword (51324) and a brooch (52899). The finds are fairly widely distributed across the study area with a loose concentration between Great Bromley and Little Bromley. The remaining record 3162 comprises cropmarks of linear features, including a short stretch of double-ditched trackway and an extraction pit. The adjacent Ancient Woodland is notably called Gravel Wood and to the north Post-medieval gravel extraction is also evident from historic mapping.

122. Evidence from the early medieval period is generally sparse in the wider area, suggesting either continued occupation or reoccupation of previously abandoned villas and farmsteads, such as those at St Osyth, the name of which derives from the dedication of a minster church to Osgyth, daughter of a Saxon King. Evidence for Middle Saxon domestic settlement and activity has been recovered from the Clacton area. Later Viking evidence is rare in Essex as a whole, but place name evidence at Kirkby-le-Soken and Thorpe-le-Soken near the south of the study area, are Danish in origin suggesting at least a general presence in the area.

25.5.3.8 Medieval

123. There are 52 HER records dating to the Medieval period within the study area. Of these, 11 records are situated within the onshore project area. Four of these records consist of findspots of metal objects found by the PAS, including:

- Finds of an ampulla (flask), harness pendant and tokens (50910), and a harness hook (52869) within the onshore substation works area near Little Bromley;
- Coins (52955) located north of Thorpe-le-Soken; and
- A strainer (52884) found to the south of Little Bromley.

124. The remaining records relate to settlement and agricultural activities, including:

- The cropmarked remains of field boundaries at Lodge Lane (48329);
- An area of grazing marsh along the former tidal reaches of the Holland Brook and Holland Haven, including a mixture of improved grassland and relict salt marsh (48484). Sea walls survive, a single red hill has been recorded, as have preserved timbers;
- HER record (46801) consists of cropmarks of field boundaries at Golden Lane;
- The HER describes cropmarks of field boundaries at New Hall (46798);
- South of Dairy House Farm, a sub-rectangular enclosure with an entrance to the south-east and possible small ring ditches are recorded (2983);
- A single large ring ditch with a trackway to the south running north east to south west is recorded to the south of Great Holland (3627); and
- HER record (17241) consists of a possible moat and the cropmarks of field boundaries which are depicted on the 6 inch 1st edition OS map.

125. Within the study area, additional cropmarks of a possible medieval field boundary were recorded at Landermere Hall (46799) near Thorpe-le-Soken, in addition to cropmarks of a linear feature at Frinton and Walton (16985).

126. Other records within the study area comprise designated structures and places of worship, including the Church of Saint Mary in Little Bentley (Grade II* Listed 1239340/34504/2378), Thatched Cottage (Grade II Listed 1306598 /34294), Grove Farmhouse (Grade II Listed 1337174 /34501), Bakers Farmhouse (Grade II Listed 1322630 /34343), and Ring Cottage (Grade II Listed 1317222 /34744).

127. The remaining records relate to findspots of items such as coins (e.g., 52957, 52885, 52892, etc.), personal adornment (e.g., 2315, 54692, 54707, etc.), ampullae (flasks) (52880 and 52959), tiles (2377), and bells (55180 and 54704). There are notable concentrations between Great Bromley and Little Bromley, and at Beaumont-cum-Moze.

128. Settlement patterns and activities in the wider area remained dispersed during the Medieval period, with villages (centred around churches and greens), hamlets, hall complexes and farmsteads providing settlement foci in an otherwise rural and agricultural landscape. Moated sites are a common small-scale settlement type in Essex, but less so in Tendring. The nearest Medieval moated hall is recorded at

Gutteridge Hall in Weeley, over 3km to the west of the study area. A possible moat was recorded within the study area amongst other undated cropmarks (17241) east of Hannan Hall (ES Figure 25.2a-g, Document Reference: 3.2.21).

129. Central markets for agricultural trade during this period were at Colchester, St Osyth and Manningtree. Coastal trade would have also formed an important aspect of the local economy during the Medieval period. Harwich (over 11km to the north-east) represents the main hub, with smaller sites at St Osyth, Manningtree and Beaumont Quay. The study area is largely located inland, so there are minimal records relating to coastal trade, though the few sites recorded would have fed into the wider economy during this period. There are five presumed landing places recorded along the line of the former Holland River, four of which fall within the study area (48668, 48669, 48659 and 48661). They likely represent lanes that linked the Gunfleet estuary to the farms and villages on the higher land, allowing crops and other local produce to be loaded easily onto boats and carried along the river for trade in the wider area and into London. Remote landing places could also be used to avoid customs control and the isolated marshes at Holland earned a reputation for smuggling which carried on until the 17th century after the estuary had been reclaimed. Likewise, some of the quays along Hamford Water earned a similar reputation.

130. Beaumont Quay (3097) was also a landing place during this period and served the nearby Beaumont Hall (NHLE List Entry 1322628, Grade II* Listed Building). Stories of smuggling do not seem to be attached to Beaumont Quay, probably because it was purpose built to export produce from agricultural activities on the Beaumont Hall estate. Goods were taken by boat from the quay and along Landermere Creek, out to Hamford Water then southwards along the coast to London. There is also a medieval saltern recorded at Beaumont Quay, which would have been a common sight along the marshy coastal fringes of Landermere Creek, representing the continued presence of salt making in this area since the Iron Age.

25.5.3.9 Post-Medieval and 19th century

131. The HER contains 47 records dating to the Post-Medieval period and 19th century. Of these records, four lie within the onshore project area, two of which relate to findspots of metal objects (a buckle 50930 and pendant 54689).

132. One of the key industries along the coastal area was the production of Iron Sulphite which could be used to make dye, ink and sulphuric acid. The HER records one such Copperas Works (48671) at Holland Haven (ES Figure 25.2a, Document Reference: 3.2.21) which is situated within the onshore project area. The works belonged to a Mr Barton and were recorded on a 1783 plan of the Tendring Levels. The process involved gathering copperas stones (iron pyrites) that had washed out of the London Clay onto the shore, stacking them and leaving them to weather until they became copperas (green vitriol) and a toxic liquid leached out into settling ponds where it could be collected. The settling ponds are still visible on Holland Haven on the marsh side of the sea wall, though no Copperas House has been identified; this was further confirmed during the heritage walkover survey (ES Appendix 25.5, (Document Reference: 3.3.52)).

133. The HER records the site of a Martello Tower (46609) which lies within the onshore project area at landfall. The importance of coastal defences increased dramatically during the end of the Post-Medieval period, with the advent of the French Revolution and resultant Napoleonic Wars. In response, a series of Martello Towers were built

along the coastline, two of which, Towers G and H (46610 and 46609, ES Figures 25.2a-b, Document Reference: 3.2.21) were built and subsequently demolished in the early 19th century at landfall. The towers were built to defend Holland Marshes as part of the wider British coastal defences during the Napoleonic Wars. Martello Towers housed a battery of large artillery and a garrison of soldiers, but the development of rifled artillery made the towers obsolete very quicky, hence the abandonment and occasional demolition of these examples within the onshore project area at landfall. Tower G was located on a small hill near Sluice House, and its site is still known as Tower Hill. Tower G was located near what is now the centre of the Frinton Golf Course, with Tower I further up the coastline, closer to Frinton-on-Sea. Tower H was the only one in Essex that did not have a supporting battery.

134. Within the study area, 19 of the HER records consist of Listed Buildings, comprised of timber framed buildings and red brick houses (e.g. 34392, 34626, 34414 etc.), a water pump (34499) and a workhouse which was later used as a hospital (15385).

135. Record 3142 related to a former Church which has now been converted into a house and re-named Green Acre.

136. Two Post-medieval windmills are recorded within the study area representing characteristic features of the Essex landscape during this period, continuing on from the medieval period. Great Holland Hill mill (2853) is a former smock mill, the base of which is still extant. The remaining record marks the possible location of a mill which is no longer standing (3036).

137. Settlement patterns become much denser during the Post-medieval period, particularly at Great Clacton and Walton-on-the-Naze, as a result of growing industries, trade and economy, which is reflected on the HER: a findspot of a trade token (54787) from Sudbury dating to 1669 within the Great Holland area and a silver coin hoard (or dropped purse) deposited in the 17th century (54785).

138. The remaining records relate to various findspots recorded under the PAS and comprise items such as, buttons (e.g., 54701 and 54705), coins (e.g., 54773, 54771, 54785, etc.), various items of personal adornment (e.g., 53744, 54687, 54668, etc.), daggers (e.g., 54700), and a bodkin (54693).

Despite being a small-scale quay, the extant structures at Beaumont Quay (9121) are a rare and interesting example of a 19th century quay which is scheduled (NHLE List Entry 1020688), as both the quay and lime kiln are rare examples of an East Anglian form, that survive in very good condition. The kiln is the only mixed feed (fuel / coal is mixed and burned together with the limestone charge) example surviving in this area. It represents a rare survival of a complex of contemporary features which has been largely unaltered since it was abandoned in the early 20th century. The lime kiln as well as the store building survive relatively intact. Archaeological deposits sealed below ground in the quayside area, and in and around Beaumont Cut generally, contain structural, artefactual and environmental evidence relating to the operations of the quay and the contemporary appearance of its surroundings. The remains of a sailing barge have been preserved in the alluvial deposits. A brick kiln is also recorded near Beaumont Quay within the onshore project area at Thorpe-le-Soken (15467). Beaumont Cut is a channel cut into the marshy estuary to make a reliable navigable route along the tidal Landermere Creek.

25.5.3.10 Modern

139. There are 11 Modern records in the HER which are located within the study area. Of these records, one lies within the onshore project area at the landfall and comprises a pillbox on the sea wall at Sandy Point (10048).

140. Coastal defences continued to be built and decommissioned within the landfall area during the Modern period with the advents of the First and Second World Wars (WWI and WWII). Surviving WWI defences are concentrated along the coastline at Harwich and Felixstowe, with the transition to a coherent tactical scheme of fortified structures (pillboxes) being part of wider efforts to strengthen home defences at the onset of WWII. Throughout the study area, pillboxes are recorded on the HER (e.g., 10049), although most are destroyed. However, three WWII pillboxes (10444, 10046, 10047 and 10048) survive in relatively good condition along the sea wall between Holland and Frinton (ES Figures 25.2a-b, Document Reference: 3.2.21) and ES Appendix 25.5, Document Reference: 3.3.52).

141. An advanced night landing ground (19342) is recorded to the south of Beaumont-cum-Moze. The 43-acre site served the 39 Squadron Royal Flying Corps who were operating anti-Zeppelin patrols from April 1916 as part of WWI air defences. By August 1916 the site had been returned to agricultural use. No buildings were erected on this site. In view of the short duration of this landing ground's use, it is very unlikely that any substantial evidence of the airfield survives on or below ground. The site remains in agricultural use and the original field boundaries defining the landing ground survive. Generally, these sites were intentionally hidden during the night to avoid being bombed by German aircraft. They would only be lit and ready for British aircraft to land when sufficient signal had been reached between operatives on the ground and in the aircraft.

142. Other assets recorded on the HER that relate to the World Wars include anti-aircraft sites and DIVER batteries (10052 and 21357).

143. Two records relate to scattered homes, The Firs (15399) and The Limes (15400) at Tendring Heath. They were part of the Tendring Union Workhouse during the early 20th century (15385) and were used to house groups of children from the workhouse. Scattered homes were used across the UK during this period as a way of integrating children into local schools rather than isolating them within the workhouse system and were administered centrally by the workhouse unions. The Firs is now a private home, and The Limes is a nursing home.

144. A pair of cast iron signposts (40797 and 40801) are recorded on the HER, they both sit along the B1035 road on the entry to Beaumont; one at the junction with Swan Lane and the other opposite Chapel Lane. They date to the 1920s or 1930s and were manufactured by Maldon Iron Works. They consist of a flat semi-circular parish plate finial reading "Parish of Beaumont - E.C.C", along with distances to the nearest towns etc.

25.5.3.11 Undated

145. The HER records a series of undated cropmarks and findspots within the study area. They are evenly distributed along the onshore cable route, evidently in areas that have not been developed and tend to be mainly agricultural. The information presented below is a summary of information held by the HER and NMP.

146. In total, 75 HER records of unknown date are recorded within the study area, with the majority being documented as cropmarks. Of the 77 records, 25 lie within the onshore project area. All but one of these records consist of cropmark remains of linear features, ditches, field boundaries, enclosures, pits, ring-ditches and mounds, many of which are recorded by the NMP (see ES Appendix 25.7 (Document Reference: 3.3.54)).

147. HER record 2460 consists of a large area of cropmarks and what may be a henge to the south and west of Little Bromley Hall (2460) that lies directly within the northern end of the onshore cable route, near to the onshore substation works area (ES Figure 25.2g, Document Reference: 3.2.21). An application has been made to schedule this henge due to it being of national importance, and as such is considered further within this assessment in respect of any potential changes to setting and associated heritage significance (Section 25.6.2.1).

148. Occupying the north-west of the onshore substation works area is another large area of cropmarks near Badley Hall (2607), comprising a complex of field boundaries, field systems, ring-ditches and linear features which lie at right angles to Roman road 2537 (ES Figure 25.2g, Document Reference: 3.2.21).

149. Examples that intersect the onshore cable route include another large area of cropmarks (3143) near Thorpe-le-Soken, that are masked by geological features, but consist of field boundaries, trackways and enclosures (ES Figure 25.2a-g, Document Reference: 3.2.21).

150. One record on the HER is referred to as an archaeological investigation (EEX 49176) and is discussed in Section 25.5.3.12 below.

151. 13 records are related to findspots, many of which were recorded under the PAS. Undated findspots are concentrated in two areas: between Great Bromley and Little Bromley, and Beaumont-cum-Moze. As previously stated, this could be due to these areas being used for metal detecting (although no specific events are recorded on the HER), and the finds have been appropriately recorded through the PAS. Whilst these assets are noted on the HER as ‘a find of unknown date’ when reviewing them on the PAS database online, almost half are Iron Age coin or coin hoard finds (e.g., 51851 and 51932), alongside an Iron Age brooch (51883). The others are noted as a Medieval coin (52978), several Post-medieval finds (e.g., coins – 54775, pins – 54767, thimbles – 54699), a Roman to Medieval copper alloy casting (56451), and a Neolithic axehead (7413).

25.5.3.12 Previous Archaeological Investigations

152. Two archaeological investigations have taken place within the study area, of which a brief summary is provided in this section. The nature and type of assessments / surveys undertaken have informed the known archaeological record and therefore enhanced our understanding of the historic environment in this area.

153. A field observation by Green (EEX 24067) conducted sometime in c. 1955, to the west of Bradfield Heath resulted in the discovery of a Neolithic Axe Head (HER 7413).

154. Approximately 160m east of the onshore substation works area, at Little Bromley, a collection of 27 fragments of burnt flint was found by F.P. Girling (EEX 8730).

25.5.4 Potential sub-surface archaeological remains

155. Heritage assets located within or partly within the onshore project area that are considered to potentially represent surviving below ground archaeological remains have not yet been fully evaluated through intrusive (e.g., trial trenching) evaluation approaches. The phases of evaluation are described below (Sections 25.5.4.1 and 25.5.4.2).

156. Features indicative of sub-surface archaeological remains, as indicated by data available and archaeologically assessed as part of the ADBAs (ES Appendix 25.1 and ES Appendix 25.2, Document Reference: 3.3.48 and 3.3.49) and aerial photographic, LiDAR and historic map analysis (Annexes 25.1.1 and 25.2.1), variously include cropmarks, soil / parch marks, depressions and ditches.

157. Sub-surface archaeological remains may also be indicated by features identified in aerial photographs or historic map data as former buildings, structures or sites, which may no longer be extant as above ground remains but for which below ground remains may still be present (Annexes 25.1.1 and 25.2.1).

158. The assessment of aerial photographic and LiDAR data at landfall confirmed and revealed a series of cropmark sites with particular concentrations in the vicinity of Cooks Green and Great Holland, indicative of a complex multi-period buried archaeological landscape dating from earlier prehistoric through to modern periods (Annex 25.1.1). These cropmark features were more abundant in the northern section of the study area at landfall, due to it being much drier than the marshland surrounding the Holland Brook and former tidal estuary. By comparison, cropmark features are less plentiful in the southern reaches and the vicinity of the marshlands and Holland Brook. However, this does not preclude the potential for buried archaeological remains to survive. In fact, the wet environment is much more favourable for the preservation of natural materials such as timber, fabric and leather etc. The marshier area to the south of landfall is more likely to contain smaller archaeological sites like craft areas, salterns or redhills. In contrast, the drier land to the north is more conducive to substantial and well established archaeological remains which span the wider landscape, such as with field systems and trackways. Outside of the landfall, the assessment of aerial photographic and LiDAR data for the remaining areas of the onshore project area confirmed and revealed particular concentrations to the northwest and southwest of Little Bromley (Annex 25.2.1).

25.5.4.1 Geophysical Survey

159. A programme of priority archaeological geophysical survey (detailed magnetometry) has been carried out over the onshore project area in all areas that were suitable for survey and available for access (ES Figure 1, ES Appendix 25.8, Document Reference: 3.3.55). The survey coverage equates to approximately 85% of the onshore project area. It should be noted that the total area surveyed was 708.8 ha much of which now falls outside the onshore project area. This data was used to inform route refinement and micro-siting of the cable corridor around anomalies of potential archaeological interest.

160. The available results for the geophysical survey across the onshore substation works area near Little Bromley, the onshore cable route (Area 4, Area 5, Area 9, Area 10, Tendring Green North, Area 12, Area 15, East of Tendring, Area 18, Area 20, Kirby Cross West, Little Clacton Road) and the landfall near Holland Haven. The locations

of these areas and results are presented in ES Appendix 25.8 (Document Reference: 3.3.55) and summarised below.

Little Bromley

161. The geophysical survey detected several features that can be identified as archaeological in origin. The clearest feature is the Roman Road which was identified in the northern end of the onshore substation works area (named LB_01) which runs in an east – west alignment and forms a junction with the road that links Mistley with Colchester just north-west of the site. This Roman Road has been identified on the HER via cropmarks (3168/2631).

162. In the southern part of the field there is evidence of an enclosure, likely Romano-British or earlier in chronology. The geophysical survey additionally identified part of a known larger enclosure which was identified in aerial imagery sources. This contributes to the overall interpretation of this area as being intensively occupied from the Romano-British and potential earlier periods.

163. The geophysical survey detected a field system to the south of the Roman Road. This has been interpreted as of likely Roman-British date due to its morphology and relationship to the double ditched enclosure at the road junctions and the possible Romano-British enclosure that is present to the north of the site (outside of the survey area).

164. The majority of the geophysical survey area at Little Bromley is dominated by anomalies deriving from variation in the superficial geology. These features occur when freezing and thawing of ground water happens throughout an extended period of time. They have been identified as water channels likely formed during the last Ice Age.

Area 4

165. Area 4 survey comprises approximately 18 hectares of agricultural land situated 1.7km to the north-east of Great Bromley and 3km north-west of Little Bentley. The area is bounded to the west by Tendring Green, to the north by Stone Green Road, Fairly Farm to the east, with further open agricultural land to the east and south. The survey area is bisected by Wolves Hall Lane.

166. The gradiometer survey has identified anomalies which may be archaeological in origin. These anomalies are consistent with interpretation as a rectilinear enclosure with a possible kiln, located in the north-western portion of the site indicates an area of possible industrial activity.

167. The remains of an older field system, absent from available map sources, have been identified across the majority of the site. In addition, several ring-ditch features, similar to the circular features, identified from aerial photographs in the wider area could indicate further settlement activity.

Area 5

168. Area 5 survey comprises agricultural land distributed over six fields. It is located 2km to the south-east of Little Bromley and 4.5km to the south of Manningtree. The site is bounded by Spratts Lane to the west, Stow Farm Kennels, Payne's Lane, and further fields to the south, west, and north.

169. Geophysical survey has identified areas of archaeological interest. A rectilinear enclosure in the centre of the survey area suggests prehistoric activity within the site, however, this interpretation would have to be confirmed by additional investigation. Two other smaller enclosed areas within the survey extent suggest further settlement activity or animal husbandry within the site.

170. Numerous features that are noted on the 1898 Second Edition OS mapping were identified throughout the survey, most pertaining to former field boundaries. Additionally, two locations of backfilled ponds and a demolished farmhouse have been identified.

171. The remaining anomalies are thought to be modern or natural in origin, including agricultural activities, such as drainage and ploughing. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

Area 9

172. Area 9 survey consists of agricultural land distributed over four areas. It is 3.7km to the west of Wix and 2.2km north-east of Little Bromley. The area is bisected by a farm track oriented north to south heading from the A120 to the farmyard.

173. The gradiometer survey did not detect any anomalies of archaeological origin. Two field boundaries, which are known from 1898 Second Edition OS mapping have been identified.

174. The remaining anomalies are thought to be modern or natural in origin, such as field drains, ploughing, and utilities. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

Area 10

175. Area 10 survey comprises agricultural land distributed across four areas. It is 3.2km to the west of Wix and 1.7km north-east of Little Bentley. The area is bisected by a farm track oriented north to south heading from the A120 to the farmyard at the centre of the survey area.

176. The gradiometer survey has identified the location of a possible Bronze Age round barrow. Similar barrows are recorded in the general vicinity of the site. However, this feature could as well be natural in origin and this interpretation would require additional investigation for confident confirmation.

177. Several field boundaries, as well as a demolished dwelling and a pond, which correspond with features from the 1898 Second Edition OS map have been identified within the survey area.

178. The remaining anomalies are thought to be modern or natural in origin. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

Tendring Green North

179. The gradiometer survey has identified the location of a truncated round ditch that could relate to a Bronze Age round barrow. This interpretation is tentative at best and would require additional investigation to be confirmed. There is no evidence for the barrows identified from cropmarks elsewhere in the survey area.

180. Several field boundaries, as well as a path, which are known from the 1898 Second Edition OS map have been identified within the survey data.

181. The remaining anomalies are thought to be modern or natural in origin. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

Area 12

182. Area 12 comprises agricultural land distributed across three areas. It is 1.25km to the north-east of Tendring and 3.5km south of Wix. The site is bounded to the south-east by the Tendring Brook, to the north by the Wolves Hall Land and Fairley James Farm, and further open agricultural land to the west and east.

183. The gradiometer survey has identified a possible field boundary that predates the available maps. Additionally, five field boundaries that were known from the 1898 Second Edition OS map have been identified as very weak positive responses.

184. The remaining anomalies are thought to be modern or natural in origin. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

East of Tendring

185. The gradiometer survey has successfully identified features that are considered archaeological in origin.

186. Former field boundaries that have been indicated on 1898 OS mapping have been identified across the survey area. The remaining anomalies are thought to be modern or natural in origin. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

187. A possible round barrow with a central pit has been identified which lies outside of the onshore project area. There is an additional known tumulus identifiable on historical maps, LiDAR and aerial imagery (APS_09) located approximately 70 m to the north-west of this. However, this barrow is not evident in the geophysical survey data, suggesting a low level of preservation.

Area 15

188. Area 15 survey comprises agricultural land distributed over two areas. It is 1.8km to the east of Tendring and 2.2km north-west of Thorpe-le-Soken. The site is bounded to the north and east by Thorpe Road B1035, to the south by Whitehall Lane and a farmyard, and further open agricultural land to the west.

189. The gradiometer survey did not identify any anomalies that would be considered archaeological in origin.

190. Indication for modern farming was identified in form of a spread of surface material and land drains.

Area 18

191. The gradiometer survey has identified features that are considered to be possibly archaeological in origin. A roundhouse or a barrow identified in the north-western part of the survey correlates with cropmark evidence recorded in Essex HER.

192. The remaining anomalies indicate former field boundaries, and modern agricultural activities in the form of ploughing and land drains or are thought to be natural or modern in origin

Area 20

193. The gradiometer survey has identified the remains of a possible small enclosure of an unknown date however, it could equally indicate a field boundary that predates available mapping.

194. Several former field boundaries that are known from the 1898 Second Edition OS map have been identified in the area.

195. An area of strong magnetic enhancement has been identified and may relate to extraction or infilling of material. The remaining anomalies are natural or modern in origin, including land drains and services.

Kirby Cross West

196. The gradiometer survey has detected several features, which can be identified as possibly archaeological in origin. A possible rectilinear enclosure has been identified at the eastern part of the site and could represent a livestock enclosure. It could as well be a result of periglacial processes and as such natural in origin. This does not correspond with any of the cropmarks recorded across the area. None of the recorded cropmarks have been identified. It is possible that the cropmarks are a product of natural processes or that sediments across the site are obscuring their detection.

197. A ring ditch feature in the southern part of the survey likely indicates a prehistoric roundhouse or a round barrow and may be associated with the Bronze Age activity noted in the surrounding area.

198. Several pits of unknown origin have been identified. While these have the potential to be archaeological, they could equally be the result of natural undulations in the underlying deposits.

199. The remaining anomalies are thought to be modern or natural in origin. The modern anomaly relates to a service along the north-eastern edge of the area.

Little Clacton Road

200. The gradiometer survey has not identified any anomalies that can confidently be interpreted as archaeology. However, several areas of possible archaeology have been identified.

201. A possible roundhouse or round barrow is located in the north-eastern part of the survey area along with associated pit and ditch features. A small enclosure is also located to the north of this. This may relate to prehistoric settlement activity.

202. A large enclosure has been identified in the north-western part of the survey area. However, it could equally relate to a past channel of the Holland Brook River.

203. The remains of a coaxial field system have likely been identified as a series of possible ditch features. These may be as early as Prehistoric in date and are possibly associated with undated cropmarks of field boundaries noted in the area.

204. The remaining anomalies are thought to be modern or natural in origin. Numerous geological anomalies are thought to be associated with former water channels and alluvial deposits.

Holland Haven

205. The gradiometer survey has detected several features, which can be identified as archaeological in origin. The clearest one is the ring ditch feature in the northern part of the survey. It indicates a prehistoric roundhouse or a ring barrow and may be associated with the limited Bronze Age activity noted in the surrounding area.

206. A possible embankment or water management system has been identified along the western edge of Gunfleet Estuary. This appears to be a ditch and bank feature with angular turns suggesting a manmade rather than natural origin.

207. Towards the northern end, and extending into, the Gunfleet Estuary are two parallel ditch features. The origin of these is unclear from the geophysical data alone. They may represent an archaeological trackway or feature associated with the estuary. However, they could equally relate to modern agricultural activity.

208. The remaining anomalies are thought to be modern or natural in origin. These include land drains and areas of alluvial deposits.

209. A summary of the sub-surface archaeological remains identified within the onshore project area from the desk-based and non-intrusive surveys is presented in Table 25.11 and ES Figures 25.2a-g (Document Reference: 3.2.21).

25.5.4.2 Archaeological Evaluation Trenching

210. A phased programme of archaeological evaluation has been undertaken at the onshore substation works area to further assess the potential for below ground archaeological remains in the area. Phase 1 and Phase 2 of the evaluation have been completed and the results are summarised below. The detailed reports of the evaluation are shown in ES Appendix 25.10 and ES Appendix 25.11 (Document Reference: 3.3.57 and 3.3.58).

211. The earliest dated feature comprised a ditch in the northeast corner of the site which contained the broken remains of a single Late Prehistoric pottery vessel. Unfortunately, this ditch was recorded largely in isolation, and with no corresponding geophysical APS / NMP records and so the potential for a detailed analysis is limited. Additional pottery finds dating to the Late Prehistoric period were recovered from features across the site to the east and north-west, but were not substantial enough to assign the features to this period confidently.

212. In the north-eastern area of the site, the evaluation confirmed the presence of two parallel ditches (geophysical anomaly 4000) aligned west-northwest/east-southeast. The ditches correspond with the alignment and location of the probable Roman Road (HER 3168/2631) which runs through the site, which was identified during the APS and geophysical surveys. However, as no artefactual material was recovered from the ditches, their date remains inconclusive.

213. To the north of the probable Roman Road, Trench 16 targeted a fragmented rectilinear anomaly which was recorded as possible archaeology in the geophysical survey (geophysical anomaly 4001). The northern and southern boundaries of the enclosure were confirmed during the evaluation, the former of which contained a single sherd of medieval pottery and six sherds of Romano-British pottery. A previously unknown third ditch on a north-west/south-east alignment was also revealed within the centre of the enclosure.

214. In the area south of the probable Roman Road, several phases of land management or field boundary systems were identified during the evaluation. The clearest of these field systems was identified by the previous geophysical survey and comprises a roughly north-east/south-west and north-west/south-east aligned linear field system (geophysical survey 4006, 4008, 4009, 4010) which was identified in Trenches 20, 24, 25 and 36, with additional segments not identified by the previous survey in Trenches 29, 30 and 35. Possible continuations of this field system were identified in Trenches 33, 40 and 44, although these were not direct continuations and their association is based on complementary alignments. This field system is also arguably visible in the APS and NMP surveys which are discussed below.

215. A former field boundary aligned north-west to south-east has been identified in the western half of the Phase 1 area. The ditch roughly corresponds to a field boundary identified by the previous APS survey (Figures 1 and 3, ES Appendix 25.11, Document Reference: 3.3.58).

216. In the eastern half of the evaluation area approximately 120m south of the probable Roman road, a sub-circular grave was recorded at the northern end of Trench 22 containing a single un-urned cremation burial deposit. A total of 129.1g of cremated human bone was recovered from the grave, which survived to a depth of 0.2m from the machine stripped surface. The lack of additional burials within the neighbouring trenches may suggest it is an isolated burial, but due to the nature of archaeological evaluations this cannot be confirmed.

217. In the north-western area of the site, field boundary ditches that were recorded on the 1898 OS map were identified, in addition to ditches that corresponded to 'field systems' identified by the previous APS survey in the south-east. A number of previously unknown ditches were also present, likely representing land management features such as field boundaries and drainage ditches.

218. Three pits were identified in the second phase evaluation, two of which contained charcoal and may represent small deposits of burnt material, however due to poor preservation no further information was provided from the environmental analysis.

219. Only one of the ditches recorded in the Phase 1 evaluation to the north was recorded potentially continuing into Phase 2 (ditch 3103 may continue as ditch 12603).

220. Overall, the Phase 1 and 2 evaluations confirmed the presence of multiple field systems or land management features and discrete pits and post-holes, demonstrating the accuracy of the previous geophysical and aerial photography survey. Features dated to the Late Prehistoric and Medieval periods were identified from artefactual evidence, with tentative evidence for Romano-British activity. No definitely dated Romano-British features were identified at the site, although Romano-British material was recovered from a ditch in Trench 16 (1603), which is thought to be residual due to the morphology of the anomalies seen in the geophysical survey and the presence of some limited medieval pottery in an associated feature (1608), although it is unclear if the Romano-British material is residual or the medieval material intrusive. Land use dated to the Post-Medieval period (late-16th to 18th centuries) by artefactual evidence was more abundant towards the southern area of the onshore substation works area. Analysis of the single cremation burial is limited by a lack of dating evidence from both the cremation itself and the wider site.

25.5.4.3 Geoarchaeological and Palaeoenvironmental Remains

221. A summary of the Phase 1 and 2 results of the geoarchaeological / palaeoenvironmental evaluations which was carried out by Wessex Archaeology is presented in ES Appendix 25.12 (Document Reference: 3.3.59) and summarised below.

25.5.4.3.1 Phase 1 – Onshore substation works area

222. The first phase of investigation at the onshore substation works area identified a consistent sequence of Pleistocene deposits within the Evaluation Area, enabling the deposits to be grouped within a single Geoarchaeological Character Zone (GCZ 1) of a Geoarchaeological Landscape Characterisation.

223. The Pleistocene deposits comprised Fluvial Sands and Gravels, likely belong to the Ardleigh Gravels. The surface of these deposits has been incised into by hollows / gullies infilled with basal Sands and overlying slope deposits (Head). These sediments are sealed by Pleistocene Brickearth.

224. No artefacts were recovered from these deposits. Burnt unworked flint clasts were sporadically identified in the Head, which may be indicative of human activity, but could result from natural burning. The lack of chronology for these newly identified deposits provides uncertainty when judging Palaeolithic archaeological potential. Based on this assessment the Palaeolithic archaeological potential has been assessed as Low-Moderate; their palaeoenvironmental potential has been assessed as Low.

25.5.4.3.2 Phase 2 – Onshore substation works area

225. Phase two of the evaluation identified two Palaeolithic GCZs at the onshore substation works area.

226. The evaluation demonstrated that the earliest Pleistocene deposit in the Site as belonging to the Ardleigh Gravels of the River Thames. The upper c. 3.0m of these deposits was investigated and sampled for artefacts, however no archaeology was recovered. The palaeoenvironmental potential of these deposits was assessed as generally low, with the exception that finer-grained silts were locally present in GCZ 2. These have greater potential and samples suitable for palaeoenvironmental assessment where taken.

227. In GCZ 2, a gully was recorded incised into the top of the Ardleigh Gravel and infilled with a basal Sand and overlying Head-Gravel. Although no archaeology was recovered from these deposits, they have not previously been identified in the area, are poorly understood and are undated. This raises some uncertainties regarding the Palaeolithic archaeological potential of these deposits.

25.5.4.3.3 Recommendations from Phase 1 and 2 Evaluations

228. The evaluation has characterised much of the Palaeolithic geoarchaeological resource beneath the onshore substation works area and demonstrated generally low potential for significant Palaeolithic geoarchaeological evidence.

229. The upper c. 3.0 m of the of the Ardleigh Gravels may contain reworked Lower Palaeolithic artefacts of significance to the Palaeolithic settlement history of the region but given their likely low density and the artefact sampling already carried out as part of the evaluation, no further work is recommended.

230. The Ardleigh Gravels below 3.0 m bgl that occur in the substation works area cannot be directly archaeologically evaluated. These are a highly significant Palaeolithic geoarchaeological resource.

231. Should deposits of the Ardleigh Gravels at depths beyond 3.0 m bgl be impacted on by development proposals, it is recommended that they are assessed for the presence of such fine-grained and / or organic sediments. This could be achieved through a geoarchaeological watching brief on any Ground Investigation (GI) boreholes.

232. The Palaeolithic archaeological potential of deposits overlying Ardleigh Gravels in GCZ 1 is limited. However, as deposits infilling hollows / gullies incised into the Ardleigh Gravel have not previously been identified and are undated, there is some uncertainty regarding their Palaeolithic archaeological potential. Should these deposits be impacted on by development proposals, a stepped geoarchaeological test pit in this area is recommended to mitigate against development impacts on these sediments.

Table 25.11 Summary of potential archaeological remains identified to date

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
Landfall				
46609	N/A	N/A	Site of Martello Tower I, Battery Point, Frinton. Built in 1810-12 demolished in 1819.	Medium
2915	N/A	N/A	Site of Iron Age Red Hill at the sea frontage between Holland and Frinton.	Low
48658	N/A	N/A	Site of the former Gunfleet estuary, used as a port and haven in the medieval period, gradually silted up in the post-medieval period.	Medium
48484	N/A	N/A	An area of grazing marsh along the former tidal reaches of the Holland Brook and Holland Haven, including a mixture of improved grassland and relict salt marsh. Sea walls survive, a single red hill has been recorded, as have preserved timbers.	Low-Medium
N/A	N/A	Field HNN_08: 5502	A possible embankment (feature 5502) or water management system was identified during the geophysical survey along the western edge of Gunfleet Estuary. This appears to be a ditch and bank feature with angular turns suggesting a manmade rather than natural origin.	Low-Medium
Onshore route				
N/A	N/A	Field LCR_04: 5403	A large enclosure 5403 was identified in the north-western part of the survey area. However, it could equally relate to a past channel of the Holland Brook River.	Low-Medium

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
N/A	N/A	Field LCR_01: 5405	Former field boundaries identifiable on 1898 OS mapping.	Low
2978	APS_10	N/A	Mainly geological features some possible archaeological features - linear features and pits.	Low-Medium
17224	N/A	N/A	Cropmark of geological marks, Manor Farm.	Low
2975	APS_09a	Fields LCR_06, LCR_07: 5411, 5412	Field System which overlies earlier boundaries, trackways and possible pit alignments visible as cropmarks and soilmarks. Area is heavily disturbed by geological cropmarks which may be masking archaeological features. There are also a large number of pits which may be natural features.	Low-Medium
3627	APS_14a	N/A	Square enclosures visible as cropmarks likely part of a Post Medieval field system. Underlying ditched feature is of unknown origin. Area is heavily disturbed by geological cropmarks which may be masking archaeological features. There is also a small number of pits.	Low-Medium
16986	APS_02	N/A	Cropmarks of linear features - field boundaries.	Low
3570	APS_03	N/A	Field boundaries visible as cropmarks. Birch Hoe Farm: Linear features, field boundaries, trackways running north to south, pits, all masked by periglacial features.	Low-Medium
3143 17231	APS_04	Field KWC_09: 5305	Field boundaries visible as cropmarks.	Low-Medium

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
			East of Thorpe Park: Cropmarks masked by geological features: field boundaries, trackways and enclosures. Grove Fruit Farm: Cropmark of linear features; field boundaries and possible enclosure	
N/A	N/A	KWC_04: 5300	A rectilinear enclosure (feature 5300) was identified during the geophysical survey at the eastern part of the field that could relate to a livestock enclosure.	Low-Medium
3089	N/A	N/A	A wider area of cropmarked linear features which are unlikely to lie within the onshore project area.	Low
N/A	N/A	Field KCW_07: 5304	Former field boundary (5304) illustrated on 1898 Second Edition OS maps.	Low
N/A	N/A	KWC:07: 5301	A ditch-like feature (5301) identified during the geophysical survey with an opening to the north-west. This may relate to prehistoric activity, such as a roundhouse or a round barrow.	Low-High
N/A	N/A	Area_20_07: 5200	A weak positive curvilinear anomaly (5200) identified during the geophysical survey It is up to 2 m wide and 46 m long. On the western side, it likely extends beyond the survey area and is cut off by an area of increased magnetic response at the east, where it forms a rectilinear area of 8 m by 5 m. It indicates a ditch-like feature of unknown date.	Low
N/A	N/A	Area_20_07: 5201	A weak positive linear anomaly (5201) identified during the geophysical survey. It is up to 2 m wide and traverses the site on a north-east – south-west orientation. This anomaly is indicative of a ditch-like feature and could relate to a field boundary that	Low

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
			predates mapping. It is equally possible, however, that it relates to the B1034 road nearby.	
47285	APS_05	Area_20_07: 5202, 5203, 5204, 5205	Field boundaries visible as cropmarks at Thorpe Cross. Weak, positive linear anomalies 5202 – 5205 identified during the geophysical survey indicate ditch features that are up to 2 m wide. These correspond with field boundaries noted on the 1898 Second Edition OS map and within the HER and APS datasets.	Low
N/A	N/A	Area_18_02: 5100	A weak, annular positive anomaly (5100**)** identified during the geophysical survey. The anomaly is 13 m in diameter and 1.3 m wide. It indicates a ditch-like feature related to a possible roundhouse or a barrow	Low-High
46798	APS_06	N/A	Field boundaries visible as cropmarks at New Hall.	Low
46801	APS_07	Area_18_06: 5102	Field boundaries visible as cropmarks at Golden Lane.	Low
3160	N/A	N/A	Near Thorpe Green, possible cropmarks comprising linear features, pits, and possibly two ring ditches. These latter marks are on grassland and may be grazing marks rather than archaeological.	Low-Medium
52955	N/A	N/A	A PAS findspot of a coin of Medieval date.	Low
17243	APS_08	Area_18_02: 5101, Area_18_06: 5102	Field system visible as cropmarks and cropmarks of a linear feature (low validity), Thorpe-le-Soken. Weak positive linear anomalies have been detected (5101 and 5102) from the geophysical survey which support the HER and APS records.	Low

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
3073	N/A	N/A	Barker's Farm - suggested line of Roman road.	Low-High
17241 3042	APS_09	Field EOT_01: 4802, 4803, 4804; EOT_02: 4805, 4806, 4807	A tumulus depicted on the earlier edition OS mapping indicates the position of a likely Bronze Age round barrow which was visible later as a cropmark. Tumulus marked on 6" OS series of 1874-5, at Mill Hill. Cropmark of field boundaries.	Low-High
N/A	APS_09	Field EOT_05: 4810, 4811	A former field boundary (4810, 4811) corresponding to APS data was identified in the geophysical survey and is marked on the 1898 Second Edition OS map.	Low
N/A	N/A	Field EOT_05: 4801	Ditch-like feature (4801) identified during the geophysical survey, possibly a field boundary that predates the available maps.	Low
48329 3189 3136	APS_10	Area_12_01: 4703	Cropmarks of ring ditches and linear ditches and possible trackways, and field boundaries near Lodge Lane. South of Wolves Hall Farm, cropmarks comprising linear features and trackways. Field boundary (4703) also identified during the geophysical surveys.	Low-Medium
3179	APS_11	Fields TGN_03, TGN_04: 4607, 4606	Field system and possible drainage visible as earthworks. Cropmarks comprising a possible ring ditch, plus linear features which may be geological or field drainage, north of Tendring Green	Low-Medium
N/A	N/A	Field TNG_01: 4603, 4604	Two potential ditch features (4603 & 4604) identified during the geophysical survey on a rectilinear alignment are noted in the southern portion of the survey in field	Low

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
			TGN_01. They delimit a 90 m by 90 m area on a south-west to north-east orientation.	
3167	APS_14	Area_10_02, Area_10_04: 4505, 4506, 4508	Field system visible as extant on 1950s aerial photographs and as cropmarks on satellite imagery. Cropmarks comprising a possible double-ditched trackway, an adjoining irregular linear feature, and a possible ring ditch, although the aerial photo is rather dark and these features are not clear to the east of Hempstall's Farm. Former field boundaries (4505, 4506, 4508) were identified during the geophysical survey.	Low-Medium
N/A	N/A	Area_10_02: 4500	Feature 4500 identified during the geophysical survey pertains to a possible earthen bank of unknown origin. The presence of Bronze Age barrows and round houses in the wider landscape suggests this could be of the same origin. It could as well be a response from superficial deposits and as such reflect a natural feature.	Low-High
N/A	N/A	Area_10_01: 4501, 4502, 4503, 4504	Feature 4501 identified during the geophysical survey is a curvilinear feature running on a south-west to north-east orientation for 26m. This indicates a ditch-like feature and relate to a small enclosure. Features 4502 - 4504 relate to former field boundaries on 1898 Second Edition OS mapping.	Low-Medium
17325 3177 47376	APS_20	Area_09_01: 4400; Area_09_02: 4402	Bradfield Lodge: cropmarks of former field, woodland and irregular enclosure. South of Bradfield Lodge: cropmarks comprising trackways, field boundaries and ring ditches. Cropmark of a possible mill mound west of Abbots Hall, plus linear features which may be geological to the north of Abbott's Hall. A former field boundary (4400, 4402) was identified during the geophysical survey and is visible on the 1898 Second Edition OS map.	Low-Medium

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
50930	N/A	N/A	A PAS findspot of a buckle of Post-medieval date.	Low
3130	APS_18	N/A	Cropmarks of field boundaries and possible trackways to the east of Mulley's Farm.	Low
N/A	N/A	Area_5_05: 4216, 4218, 4219	Former field boundaries (4216, 4218, 4219) on a north-east to south-west alignment identified during the geophysical survey.	Low
3131	APS_15	N/A	Cropmarks of linear ditches and a series of five ring ditches to the east of Mulley's Farm. Also cropmarks comprising field boundaries and trackways. The features appear to lie outside of the onshore project area.	Low-Medium
3182	N/A	N/A	Cropmarks of linear features some of which may be agricultural or geological in origin. The features are expected to lie outside of the onshore project area.	Low
3148	N/A	Area_5_03: 4209	Cropmark of three ring ditches, plus some linear features of field and parish boundaries at Hawkins Farm. A former field boundary (4209) was identified in the north-east of Area_5_03 and is recorded on the 1898 Second Edition OS map.	Low-Medium
N/A	N/A	Area_5_05: 4200, 4202	The northern boundary of a rectilinear enclosure (4200) identified during the geophysical survey in the centre of the survey area indicates prehistoric activity within the site. Feature 4202 may relate to a small stone wall and is likely, not contemporary with the enclosure at 4200.	Low-Medium

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
17318 17321	N/A	N/A	Cropmarks of parish and field boundaries at Welhams Farm. Features unlikely to lie within the onshore project area.	Low
N/A	N/A	Area_5_04: 4203	A rectilinear enclosure (4203) occupies a square area of 21m by 21m and is 2m in width. An oval anomaly is located within the northwestern corner of it that occupies an area of 6m by 3.5m. This type of anomaly could represent an oven or kiln, however it could equally indicate a ferrous object. The feature at (4203) has been interpreted as a ditched enclosure, however, further investigation would be required to determine its origin.	Low-Medium
N/A	APS_19	Area_04_02: 4102, 4103, 4104, 4105 4106, 4107, 4112	The gradiometer survey has identified anomalies which may be archaeological in origin. The remains of an older field system (4102-4107), absent from available map sources, have been identified across most of the site. In addition, several ring-ditch features (4112) similar to the circular features, identified from aerial photographs in the wider area could indicate further settlement activity.	Low-Medium
2460	APS_19	Fields LB_04, LB_07, LB_09, Area_5_01: 4024, 4029, 4032, 4206, 4207	Cropmarks covering a large area, mainly linear features being part of field systems or trackways, but there are also many ring ditches and several enclosures, and what may be a henge, south and west of Little Bromley Hall. Positive linear anomalies on geophysical survey indicating ditch-like features. Identified as former field boundaries.	Low-High
N/A	N/A	Field LB_07: 4038	An irregular shaped anomaly (4038) covers an area of 65m by 34m and indicates a surface distribution of magnetic material such as burned clay bricks. It corresponds to the location of the former Rudkin's farm, known from 1896 OS mapping.	Low-Medium
52884	N/A	N/A	A PAS findspot of a strainer of Medieval date.	Low

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
54689	N/A	N/A	A PAS findspot of a pendant of Post-medieval date.	Low
Onshore substation works area				
2607 2573	APS_27	N/A	Linear features at right angles to Roman road, probably field division, at Badley Hall. Roman road, linking Mistley with Colchester. Site is connected to APS sites 23, 30 and 31.	Medium
17486 2668 3168 2631	APS_26	Fields LB_01, LB_02: 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4016, 4017, 4018, 4019, 4021, 4022, 4031	Site of Roman road (feature 4000) and associated linear features including field boundaries. Some features confirmed by geophysical survey, such as the likely Roman Road, field system, and possible enclosures. At the phase 1 evaluation, two parallel ditches were identified at the approximate location of the likely Roman road. However, no dateable material was recovered from either of the ditches, nor any signs of a road surface. Field system and enclosures to the south of the road were also confirmed by the evaluation, but with little datable material culture. An enclosure to the north of the likely Roman Road contained few residual sherds of pottery dating to the Romano-British period, A ditch at the north-east boundary of the onshore substation works area interpreted as possible archaeology in the geophysical survey (but not attributed a WA ID), was found to be the earliest feature on site, based on the recovery of 25 sherds of Late Prehistoric pottery from the fill. No other definitely dated Prehistoric features were identified during the evaluation. East-west alignment of possible Roman road through Horsleycross Street (HER 3168) extending to the north of Little Bromley (HER 2631). Also, location of former Lower Barn (4031). North of Norman's Farm are cropmarks of linear features (HER 17486) Former field boundaries present on 1898 OS mapping (4010, 4019, 4020, 4021, 4022). Three ring ditches, one with only half its circumference visible are recorded north of Norman's Farm (HER 2668).	Low-High

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance
2468	N/A	N/A	Sesterce, probably of Hadrian, found in 1930, at Holly Lodge	Low
51070	N/A	N/A	A PAS findspot of a hoard Middle Bronze Age to Late Bronze Age date.	Low-Medium
50910	N/A	N/A	A PAS findspot of an Ampulla, Harness, Pendant, and Tokens of Medieval to Post-medieval date.	Low
17110	APS_30	N/A	An area of Cropmarks of a double-ditched rectangular enclosure, with entrances, a curvilinear enclosure, trackways, linear features, a Roman road (PRN 2631) and field boundaries. Features unlikely to lie within the onshore project area.	Low
52869	N/A	N/A	A PAS findspot of an Ampulla, Harness, Pendant, and Tokens of Medieval to Post-medieval date.	Low

25.5.5 Archaeological potential within the onshore project area

233. The overall archaeological potential within the onshore project area, as assessed in the ADBA's (ES Appendix 25.1 and ES Appendix 25.2, Document Reference: 3.3.48 and 3.3.49) prior to the assessment of the geophysical survey data, is considered to be moderate, with the following key themes drawn out based on information available to date:

- For the Palaeolithic, Mesolithic, and Neolithic periods, there is a moderate likelihood of finds limited to lithic artefacts. Evidence within the immediate vicinity at Lawford (near to the onshore substation works area), comprises evidence for a more settled existence from the Neolithic period onwards, although most likely in the form of lithic finds.
- Bronze Age funerary activity in the form of cropmark evidence is focused around the Little Bromley area (near to the onshore substation works area). Additional undated ring-ditch features identifiable from the geophysical survey and HER record are located at various points along the onshore cable route, suggesting a moderate to high likelihood for unrecorded assets relating to funerary practice. The concentration of prehistoric findspots within the vicinity of the onshore substation works area increases the potential for further finds in this area. Similarly, the record of ring-ditches and possible associated enclosures in the HER around Beaumont-cum-Moze and Great Holland suggests there is potential for Bronze Age remains in these areas.
- Iron Age evidence is demonstrated in the HER as a red hill at the intertidal zone at landfall, though no evidence of this was identified during the heritage walkover survey. The high density of Iron Age and post-medieval findspots to the south of Little Bromley suggests this could be an area of particular sensitivity, consistent with multiperiod settlement. Geophysical survey of the area revealed linear and curvilinear anomalies, discrete features and a residual remains of a possible trackway which has been identified on aerial imagery sources. Smaller concentrations of findspots near to Lawford, Beaumont-cum-Moze, and Great Holland, suggest a moderate likelihood for Iron Age activity at these areas in particular, which likely relate to isolated settlement and agricultural field systems.
- The first and second phase of evaluation trenching at the onshore substation works area has identified a number of features that have been attributed to as early as the Later Prehistoric period based on artefactual evidence, with the phase 2 survey representing one intense period of Post-Medieval activity. At the phase 1 evaluation, a grave containing cremated human remains was discovered, but a lack of dating evidence hampers further discussion of the burial. Numerous Bronze Age ring ditches are known to lie within the environs of the onshore substation works area, including a substantial group at Great Bromley some 3km to the south. Similarly, the findspot of a Bronze Age hoard was recorded at the centre of the onshore substation works area. The cremation rite was practiced across the wide temporal range covered by these finds, and although a later prehistoric or Romano-British date appears most likely it cannot be stated with certainty. Romano-British activity is represented in abundance to the north-west of Little Bromley (across the onshore substation works area) where a small

settlement is likely present at the intersection of various Roman roads radiating from Colchester and out to coastal settlements / harbours. Note, artefactual evidence recovered from the evaluation trenching dating to the Romano-British period is considered too small a quantity to be reliable for dating features at the onshore substation works area. Similar concentrations are around Little Bromley and Beaumont-cum-Moze and to a lesser degree at Beaumont Quay. Any previously unrecorded assets would likely be representative of the road network and land-use in association with settlement and subsistence. Note, the geophysical survey undertaken across the onshore substation works area has provided enhanced information for this site (see Section 25.5.4).

- High likelihood of unrecorded assets relating to the medieval period (and potentially the early medieval period) likely relating to isolated rural settlement and agricultural field systems. Archaeological remains relating to settlement and agriculture would potentially be concentrated in the vicinity of existing settlements, evidenced by the concentrations of finds to the south of Little Bromley, around Beaumont-cum-Moze and Thorpe-le-Soken, with dispersed finds and cropmark evidence of field boundaries, enclosures and trackways in the wider area.
- Similarly with the Post-medieval period, unrecorded assets are likely to relate to isolated settlements and agriculture with more dense settlement patterns around Great Clacton and Walton-on-the-Naze evidenced by findspots of coins and a trade token. industry concentrated around established villages and towns. Well preserved remains relating to industrial activities may be concentrated near Beaumont Quay where a lime kiln survives in good condition. An additional brick kiln is recorded at Thorpe-le-Soken within the Onshore Development Area. Further evidence is noted around Little Bromley and Horsley Cross.
- Moderate likelihood of surviving unrecorded evidence relating to and defensive measures during the 19th century, WWI and WWII, particularly around the coastal areas. These include pillboxes and remains associated with the demolished Martello Tower H and the former Gunfleet estuary (i.e. copperas settling pans).

234. The archaeological potential within the onshore project area is based on an assessment of data obtained through an assessment of baseline data gathering and survey campaigns to inform the assessment. Details of the surveys which have been undertaken to date are detailed in Sections 25.5.4.1 and 25.5.4.2.

25.5.6 Above ground archaeological remains and heritage assets

235. Features considered to represent above ground heritage assets within the onshore project area are summarised in Table 25.12.

Table 25.12 Possible above ground heritage assets within onshore project area

EHER Number	APS ID	Description	Perceived Heritage Importance
Landfall			
10048	N/A	Pillbox on the sea wall at Sandy Point. An FW3/22 pillbox standing on the sea wall at Sandy Point.	Low-Medium
48671	N/A	Site of Mr Barton's Pans, Holland Haven, at the mouth of the former Gunfleet Estuary. Thought to be copperas settling pans.	Low-Medium
Onshore Cable Route			
3143	APS_04	Field boundaries visible as cropmarks on historic aerial photographs and satellite imagery with residual earthwork remains visible on LiDAR data.	Low-Medium
Onshore substation works area			
No above ground heritage assets within the onshore substation works area.			

236. These heritage assets represent only those within the onshore project area which are considered to represent above ground remains as indicated by descriptive information held by the HER and assessed as a result of the aerial photographic, LiDAR and historic map analysis.

237. It is worth noting that during the heritage walkover survey, the detail of the pans at the site of Mr Barton's Pans (EHER 48671) were difficult to establish due to the nature of the long vegetation along this stretch of marshland. Similarly, during the walkover, a slightly raised area was identified at the location of residual earthwork remains visible on LiDAR data (EHER 3143). However, it was not clear if the undulating landscape was a result of natural occurrences or human activity.

238. It is also acknowledged that examples of above ground historic earthworks are a rare resource within Tendring as a result of agricultural activity and as such are considered valuable where they do survive as above ground features.

25.5.7 Heritage importance

239. The non-designated heritage assets within the onshore project area (identified to date as part of this assessment) are examples of locally common features representing Post-Medieval agriculture, and modern military activity. Based on information available to date, these assets may contain evidence that would contribute to understanding the archaeological resource of the local area. They are therefore anticipated to be of low heritage importance.

240. The previously recorded non-designated heritage assets also, however, include possible prehistoric and / or Roman features represented by cropmarks. The results from Phase 1 of the archaeological evaluation at the onshore substation works area suggests that this area was in occupation from as early as the Late Prehistoric period based on artefactual evidence. Artefactual material dating to the Romano-British period was sparse, although two linear ditches were identified at the location and alignment of the likely Roman Road (HER 2573). The discovery of a cremation burial at the site is further indicative of funerary activity in the area, however, based on the lack of dating evidence found in conjunction with the grave, it is not possible to draw further conclusions at this stage. The cremation could represent an isolated burial, or it may be indicative of a wider area of Prehistoric funerary practice associated with ring-ditches (possible Bronze-Age barrows) in the surrounding area, including a substantial group at Great Bromley some 3km to the south.

241. Along the onshore cable route and at the landfall, given the uncertainty regarding the origin of potential sub-surface archaeological remains of this nature in these areas (based on available data), this chapter has been prepared in line with the precautionary principle whereby the highest likely level of importance may be assigned and assessed within Section 25.6, as necessary. This precautionary approach represents good practice in archaeological impact assessment and reduces the potential for impacts to be under-estimated.

242. For the previously unrecorded non-designated heritage assets, identified as a result of the analysis of aerial photography, LiDAR data and historic mapping (ES Appendix 25.1, Annex 25.1.1 and ES Appendix 25.2, Annex 25.2.1 (Document Reference: 3.3.48 and 3.3.49)) it has not yet been possible to determine the precise nature, extent or date of these features. It may also be the case that some (or many) of the features prove to be non-archaeological. Given this uncertainty, these potential heritage assets have also been assigned a precautionary heritage importance, where appropriate, depending on the nature of the asset in question, against which potential impacts have been assessed in Section 25.6.

25.5.8 Heritage setting considerations

243. Designated and non-designated heritage assets have been considered as part of the heritage setting assessment, the results with respect to the Project's onshore infrastructure are presented in ES Appendix 25.3 (Document Reference: 3.3.50). The results with respect to the Project's offshore infrastructure are presented in ES Appendix 25.4 (Document Reference: 3.3.51).

244. The heritage setting assessment initially focussed on all designated heritage assets which are regarded as heritage assets with a medium to high heritage importance, in line with criteria outlined in Table 25.7. However, following consultation with the ETG regarding the heritage assets located within the 5km study area around the onshore substation works area, an additional (non-designated) heritage asset was included for assessment as it is considered to be of national importance and equivalent to a Scheduled Monument (see Table 25.1)

245. The heritage assets considered as part of the setting assessment for the Project's onshore infrastructure include:

- Crop mark site south of Ardleigh (NHLE 1002146 – Scheduled Monument);
- Settlement site north-north-east of Lawford House (1002157 – Scheduled Monument);
- Church of St Mary (NHLE 1337175 – Grade II* Listed Building);
- Jenning's Farmhouse (NHLE 1111459 – Grade II Listed Building);
- Ash House (NHLE 1337154 – Grade II Listed Building); and
- Cropmark site south and west of Little Bromley Hall (EHER 2460 – specifically the non-designated cropmark of a henge).

246. The assessment has established that the tallest structures within the onshore substation works area will be partly visible from the non-designated henge site (EHER 2460), and likely from the upper floor of Jenning's Farmhouse (NHLE 1111459) and Ash House (NHLE 1337154). However, this change in view is not considered to alter these asset's settings or impact their heritage significance.

247. Although the onshore substation works area will not be visible from the Church of St Mary (NHLE 1337175) itself, its inclusion and presence in the landscape will alter the view of the Church from Little Bromley. This change is likely to affect the appreciation of the parish Church from the village, however, it is not considered to impact the heritage significance of the Church.

248. No views of the onshore substation works area were achievable from the cropmark site south of Ardleigh (NHLE 1002146) or the Neolithic settlement site at Lawford (NHLE 1002157), and therefore their settings and associated heritage significance will not be affected.

249. A screening assessment (ES Appendix 25.4 (Document Reference: 3.3.51)), Annex 25.4.2) was carried out to determine costal heritage assets whose significance derived from factors that might interact with visibility of the proposed development may be affected by changes to their setting. 52 designated heritage assets were identified within this study area.

250. Following a preliminary assessment of the settings of these assets, it was determined that a total of 13 scheduled monuments, 17 listed buildings, one conservation area, one Registered Park and Garden would potentially be affected by the presence of the Project within the seascape and therefore would require a full detailed setting assessment. These include:

- The chain of Martello Towers between Slaughden (Aldeburgh) and Jaywick;
- Orford Castle (NHLE 1014860/1030873);
- Battery Observation Post, Bawdsey (NHLE 1389463);
- Bawdsey Manor Registered Park and Gardens (NHLE 1001465) and Bawdsey Manor Pulhamite Cliffs (NHLE 1406805);
- Landguard Fort (NHLE 1018969/1030415);
- Naze Tower (NHLE 1165846); and

- Clacton Seafront Conservation Area.

251. The full assessment is detailed in ES Appendix 25.4 (Document Reference: 3.3.51), which concluded that there would be no impact to the heritage significance of any heritage asset, due to either there being no change to setting, or the change being negligible.

25.5.9 Historic landscape characterisation

252. The HLC data held by the HER has been obtained and is summarised and displayed in the Cable Landfall ADBA (ES Appendix 25.1 (Document Reference: 3.3.48)) and the Cable and Substation ADBA (ES Appendix 25.2 (Document Reference: 3.3.49)). It displays the broad HLC groups which the onshore project area crosses, and are described in detail in the report: Essex Historic Landscape Characterisation Project (Essex County Council and Historic England, 2011).

253. As an overview, the onshore project area is mainly characterised by pre-18th century irregular fields with later enclosure of common fields. Historically the settlement character is very dispersed and rural. The coastline is marked by both improved and unimproved coastal marsh, and the three valleys which cross the onshore project area are characterised by extensive areas of meadow pasture.

254. The onshore project area crosses twelve parish boundaries and one protected lane, Church Road in Little Bromley. These boundaries / lanes are likely to date back to the medieval period. Any hedgerows associated with these boundaries are classed as “Important Hedgerows” and are therefore considered to be heritage assets of medium heritage importance.

- No surviving hedgerows relating to parish boundaries are located within the onshore substation works area or landfall. Three hedgerows survive on the boundaries of the below parishes within the onshore cable route: Bradfield / Wix parish boundary where the project crosses the A210;
- Wix / Tendring parish boundary where the project crosses Stones Green Road; and
- Tendring/Thorpe-le-Soken parish boundary where the project crosses the B1035.

25.5.10 Tendring district historic environment landscape characterisation

255. The historic character of the landscape has been further interpreted as part of the Tendring District Historic Environment Characterisation project. Details of each Historic Environment Characterisation Area (HECA) and each Historic Environment Character Zone (HECZ) for the onshore project area is provided within ES Appendix 25.1 and ES Appendix 25.2 (Document Reference: 3.3.48 and 3.3.49). The following is a summary of HECAs which falls within the 500m non-designated heritage asset study area.

256. There are five main HECAs which fall within the study area.

257. Great Oakley (HECA 3) extends across the centre of the study area. The fieldscape is largely ancient in origin, but significant areas have been affected

by Post-medieval enclosure and post war boundary loss. The area is likely to contain deposits relating to widespread prehistoric activity and occupation. There are a range of cropmarks across the area.

258. South East Tendring Plateau and the Sokens (HECA 6) extends across the south of the study area. The landscape is characterised by a dispersed historic settlement pattern, although several small villages and greens provide foci, a fieldscape of pre-19th century and later enclosure and a cluster of small ancient woodlands in the north of the area. The Holland Brook valley comprises enclosed meadows and reclaimed tidal marshes and is a significant feature running through the middle of and draining the area which is likely to contain well preserved palaeoenvironmental deposits. The archaeological record is largely dominated by concentrations of multi-period cropmarks although WWII defensive structures are also present due to the proximity to the coast.

259. St Osyth and Great Bentley (HECA 11) extends into the north of the study area at the junction between the onshore cable route and the onshore substation works area. The fieldscape is of ancient origin comprising irregular enclosure, with some later enclosure of the former heathlands and greens. There has been moderate post-1950 boundary loss throughout the area. A number of cropmark complexes attest to the archaeological potential of the area. These include ring-ditches of probable Bronze Age date, settlement enclosures and trackways of later prehistoric or Roman date and probable medieval field boundaries.

260. Ardleigh (HECA 12) extends into the north western reaches of the study area in the onshore substation works area. The area is characterised by large areas of former heathland enclosed by agreement in the early 19th century. Elsewhere the fieldscape is largely of ancient origin and irregular but there has been moderate loss of field boundaries since the 1950s. The archaeology of this wider area is dominated by cropmarks including the Scheduled cropmark complex south of Ardleigh (NHLE List Entry 1002146).

261. Little Bentley Area (HECA 13) extends into the study area between Little Bromley and Lawford across the north of the onshore substation works area. The wider area is characterised by heathland which is likely medieval in origin. The heathland was largely enclosed by the mid-19th century as part of wider agriculture developments, the current fieldscape comprises a mixture of later enclosure by agreement and irregular fields of ancient origin. Post 1950s boundary loss has been moderate. There is a high density of cropmarks throughout the area, suggesting it has long been the subject of human occupation and activity. In addition to the more common cropmark typologies in Tendring, two parallel cropmarks representing roadside ditches clearly illustrate the line of a Roman road from Colchester to a purported Roman settlement at Mistley.

25.5.11 Geoarchaeological and palaeoenvironmental potential

262. The updated GDBA (ES Appendix 25.6 (Document Reference: 3.3.53)) identified deposits of archaeological and geoarchaeological interest within the onshore project area. A total of nine GCZs were originally defined in the previous GDBA produced for the onshore project area. These GCZs have been updated following new data obtained from recent geoarchaeological monitoring

of GI works (ES Appendix 25.9, Document Reference: 3.3.56) and geoarchaeological investigations at the onshore substation works area (ES Appendix 25.12, Document Reference: 3.3.59).

263. These include Pleistocene fluvial deposits and Brickearth, and Alluvium of Holocene date with some potential for Pleistocene and / or Holocene Head / Colluvium to be present. Following the secondary phases of geoarchaeological evaluation these deposits were generally identified as of low importance but a gulley identified in the geoarchaeological evaluation may be of medium importance at the onshore substation works area (detailed in Section 25.6.2).

264. Pleistocene fluvial deposits are expected to be present along much of the onshore cable route but are unproven in areas where geological records are absent. Sands and gravels, interpreted as part of the Kesgrave terraces sequence, were recorded during geoarchaeological monitoring of ground investigation (GI) boreholes at the proposed landfall of the Five Estuaries (ES Appendix 25.9, Document Reference: 3.3.56). There is moderate to high potential for Lower to Middle Palaeolithic archaeology and faunal remains to be present within these deposits, or for fine-grained or organic lenses with palaeoenvironmental potential to be preserved.

265. Brickearth is present in the northern and southern parts of the onshore cable route and while its archaeological and palaeoenvironmental potential is largely unknown, there is evidence for preservation of archaeological (including mammalian) remains within similar deposits at Wrabness and Holbrook Bay located to the north of the onshore cable route.

266. Alluvium is of geoarchaeological interest as it may contain or partially mask Holocene archaeological features and / or layers, preserve palaeochannels (remnants of rivers or stream channels that flowed in the past and have been currently filled or buried by younger fluviatile sediments) and contain peat or richly-organic units that have high palaeoenvironmental potential. Alluvium was recorded during geoarchaeological monitoring of GI boreholes at the proposed landfall of the Five Estuaries (ES Appendix 25.9, Document Reference: 3.3.56). The alluvium comprised an upper and lower minerogenic unit, separated by a peat ranging in thickness from 0.5 to 1.5m. The confirmed presence of alluvium and peat within the Holland Haven Marshes indicates there is high potential for deposits with a perceived heritage importance of high to be present at the possible landfall location. Although not proven by legacy borehole data, alluvium is likely to be present on the floodplain of the Tendring Brook towards the centre of the onshore cable route (northeast of Tendring), and towards the north, in the area of Holland Brook (close to Horsley Cross).

267. Deposit modelling along the onshore cable route indicates there is some potential for Head and Colluvium to be present, particularly near the base of slopes. These deposits have potential to include eroded or redeposited archaeological material, or to seal underlying layers of archaeological interest (e.g. buried soil horizons).

268. Results from a priority geophysical survey near Little Bromley located across the onshore substation works area identified a series of ditch and water channel features interpreted as superficial geology (ES Appendix 25.8, Document Reference: 3.3.55). Little Bromley is located in a GCZ characterised by Head /

Colluvium and Brickearth, overlying Pleistocene fluvial deposits. There are no modern watercourses in this area, which is characterised by relatively high, flat ground.

269. Across the Tendring peninsula there is evidence of patterned ground which is a phenomena that occurs in cold climates when physical processes such as freezing and thawing move sediment, washing fine grained material down and bringing coarser gravel to the surface (Essex County Council and Tendring District Council, 2009). This is most common on flat ground where Brickearth overlies sands and gravels as is expected in the Little Bromley area. Therefore, the features observed in the geophysical survey may be patterned ground and represent a landscape that formed during the last cold stage, approximately 15,000 to 20,000 years ago.

270. A summary of the GCZs for the onshore project area (based on Tables 4 and 6 in ES Appendix 25.9 (Document Reference: 3.3.56)) is presented in Table 25.13 below.

Table 25.13 GCZs within the onshore project area

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Archaeological potential of deposits	Paleoenvrionmental potential of deposits	Geoarchaeological Significance
1	Alluvium Peat Fluvial Sands and Gravels (Late Pleistocene)	0.00-9.00 3.00-6.00 9.00-12.00	Low (1) High Unknown	Low (1) High Unknown	Low-Moderate Moderate-High Unknown
2	Unknown	Unknown	Unknown	Unknown	Unknown
3	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel)	Unknown 0.20-4.50 0.50-6.00	Low Unknown Unknown	Low (2) Unknown Unknown	Low-Moderate Unknown Unknown
3a	Head-Brickearth Kesgrave Sands and Gravels (Cooks Green Gravel)	0.20-2.00 1.20-5.60	Unknown Unknown	Unknown Unknown	Unknown Unknown
3b	Head-Brickearth	0.30-4.50	Moderate	Low	Moderate
4	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel)	Unknown	Low Unknown Unknown	Low (2) Unknown Moderate	Low-Moderate Unknown Moderate-High

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Archaeological potential of deposits	Paleoenvrionmental potential of deposits	Geoarchaeological Significance
4a	Head-Brickearth Kesgrave Sands and Gravels (Cooks Green Gravel)	1.00-4.10 2.00-3.00	Unknown Unknown	Unknown Unknown	Unknown Unknown
5	Alluvium Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel/ Wivenhoe Gravel)	Unknown	Low (1) Low Unknown Unknown	Low (1) Low (2) Unknown Unknown	Low-Moderate Low-Moderate Unknown Unknown
6	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel / Wivenhoe Gravel)	Unknown 0.20-3.00+ 0.50-3.50+	Low Unknown Unknown	Low (2) Unknown Unknown	Low-Moderate Unknown Unknown
7	Alluvium Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	Unknown	Low (1) Low Unknown Unknown	Low (1) Low (2) Unknown Unknown	Low-Moderate Low-Moderate Unknown Unknown

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Archaeological potential of deposits	Paleoenvrionmental potential of deposits	Geoarchaeological Significance
8	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	Unknown 0.00-2.75 0.00-10.00	Low Unknown Unknown	Low (2) Unknown Unknown	Low-Moderate Unknown Unknown
8a	Head-Brickearth Head-Gravel Sands Kesgrave Sands and Gravels (Ardleigh Gravel)	0.30-1.70 0.60-2.55 0.90-3.20 1.60-3.0+	Low Low-Moderate Low Low (3)	Low Low Unknown Low (3)	Moderate-Low Unknown Unknown High
8b	Head-Brickearth Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	0.27-1.00 0.45-1.80 0.50-3.20+	Low Low-Moderate Low (3)	Low Low Low-Moderate (3)	Moderate-Low Unknown High

(1) may contain organic-rich or peat units of high archaeological and palaeoenvironmental potential
(2) may contain calcareous units of moderate palaeoenvironmental potential
(3) potential of deposits below evaluated depth is unknown

25.5.12 Future trends in baseline conditions

271. In the event that North Falls is not developed, an assessment of the future conditions for onshore archaeology and cultural heritage has been carried out and is described within this section.

272. The historic environment is vulnerable to the effects of climate change. Changes to environmental conditions have the potential to alter the range of flora and fauna within the environment, thereby potentially changing the inherent character of historic and designated landscapes and affecting historic building materials (e.g. fungal / plant growth and insect infestation due to the effects of global warming). Extremes in temperature and cycles of wetting and drying as a result of climate change can also damage historic buildings, landscapes and buried archaeological remains, variously as a result of soil saturation and shrinkage and changes to soil chemistry. Waterlogged archaeological and palaeoenvironmental remains are particularly vulnerable in this regard, with the desiccation of soils and lowered groundwater levels potentially increasing the risk of decay to such remains, if and where present. These damaging cycles create stressful environments for buried archaeology, with preservation in situ becoming increasingly difficult. Given that heritage assets, and the contexts in which they survive vary, it follows that multiple factors may affect their survival, stabilisation or decay. On this basis, broad-scale strategies to safeguard the historic environment from the effects of climate change are therefore difficult to determine, with no one single solution available.

273. Elements of climate change considered to be of particular relevance to the onshore project area include those associated with sea level changes and erosion, which have the potential to damage and de-stabilise coastal heritage assets. In particular, increased frequency and severity of storms, coupled with sea level rise, will likely impact coastal heritage assets and in the medium to long-term, sea-level rise is likely to drive a very significant change.

274. The sub-surface archaeology which is exposed, investigated and recorded to professional standards may, however, be considered a public benefit in terms of understanding of and building upon the archaeological record, and certainly preferable to assets and remains being lost altogether.

25.6 Assessment of significance

25.6.1 Likely significant effects during construction

275. This section outlines potential impacts as a result of North Falls, their likely magnitude and the resulting significance of any effects when considered against the heritage importance of assets assessed, using the assessment methodology described in Section 25.4.3.

276. A range of potential impacts may occur to onshore archaeology and cultural heritage assets as a result of changes during the construction, operation and decommissioning of North Falls. North Falls has the potential to impact upon the historic environment resource in a number of ways, through direct (physical) changes, indirect (physical) changes, and indirect (non-physical) changes to the setting of heritage assets. Some impacts and changes would be temporary and

others permanent, some confined to the construction stages and others more permanent during operation and the lifespan of North Falls, and subsequent decommissioning. A summary of all potential impacts identified for onshore archaeology and cultural heritage is provided in Section 25.12.

277. Direct (physical) impacts encompass direct effects from the physical siting of the DCO order limits. Potential direct impacts thus comprise both direct damage to archaeological deposits and material and the disturbance or destruction of relationships between deposits and material and their wider surroundings. This may include buried archaeological remains. Consequently, all aspects of North Falls which involve intrusive groundworks have the potential to affect heritage assets with archaeological interest (e.g., buried archaeological remains) through direct physical change.

278. North Falls also has the potential to interact with local hydrological processes which in turn may result in impacts of an indirect (physical) nature occurring upon buried archaeological deposits through either desiccation or waterlogging.

279. Indirect (non-physical) impacts on the historic environment, as stated in NPS EN3 (DESNZ, 2023b), include heritage assets being affected by change in their setting. Indirect (non-physical) impacts upon significance as a result of change in the setting of heritage assets have the potential to occur throughout the lifetime of North Falls, thus encompassing all phases, from construction, into operation and subsequent decommissioning. Indirect non-physical impacts upon the setting of heritage assets are most relevant as a result of the presence of above ground infrastructure for North Falls during the operational phase, effects of which may be long-term or 'permanent' in nature. Indirect non-physical impacts upon the setting of heritage assets may also arise as a result of construction and decommissioning works, although effects would be, by comparison, shorter in duration and of a temporary nature.

280. The impact assessment as presented in this chapter assumes that activities associated with construction may theoretically occur anywhere within the onshore project area.

281. As such heritage assets would not be considered as single, individual receptors as part of an asset-by-asset approach. Instead, for the purposes of this chapter, designated and non-designated heritage assets have been grouped. The following broad groups would apply and be taken forward into the impact assessment:

- Below ground archaeology:
    - Areas of possible archaeological interest (including designated and non-designated buried archaeological heritage assets) (ranging between anticipated low and high, as a worst case, heritage importance);
    - Unknown potential buried archaeological remains (precautionary high heritage importance until evidenced otherwise); and
    - Geoarchaeological and palaeoenvironmental deposits (precautionary medium heritage importance until evidenced otherwise).
- Above ground archaeology / built heritage assets:

- Designated heritage assets (high heritage importance); and
- Areas of possible archaeological / cultural heritage interest (including non-designated above ground archaeology and cultural heritage assets, e.g., earthworks and standing structures) (ranging between anticipated low and medium, as a worst case, heritage importance).

25.6.1.1 Impact 1: direct physical impact on (permanent change to) designated heritage assets

282. Impacts resulting in likely significant effects as part of the construction work are those associated with intrusive groundworks, including:

- The removal of topsoil across the onshore project area;
- The excavation of transition joint bays at the landfall;
- The use of HDD at the landfall;
- Open cut trenching as part of the onshore cable installation works;
- The excavation of jointing bays, HDD launch / reception pits and link boxes along the onshore cable route;
- Groundworks associated with the onshore cable route easement and associated access trackways;
- Groundworks associated with the onshore substation;
- Vibration from HDD drilling and other intrusive groundworks; and
- Accidental damage from plant movement and other construction traffic.

283. Any direct (physical) impact to designated heritage assets (and their associated heritage significance) should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset the greater the justification would be needed for any loss (EN-1, paragraph 5.9.30). Any direct (physical) impact would likely be permanent and irreversible. If disturbed or removed without an appropriate record having been made, their context and relationship to other heritage assets is partially or completely lost and their heritage significance is as such likely to be reduced.

284. The onshore project area avoids all known (e.g., Conservation Areas, Scheduled Monuments, Listed Buildings, etc.) designated heritage assets and as such, no direct physical impacts (an no likely significant effects) are anticipated to occur to designated heritage assets (Section 25.5.2) as there would be no change to receptors.

285. As discussed in Section 25.5.2, the southernmost extent of Frinton Conservation Area and the eastern section of Church Lane of Great Holland Conservation Area falls within proposed Operation and Management Access track for the landfall. These access tracks would be used for operation and maintenance during the operational phase of the Project with no physical works proposed along these routes.

25.6.1.2 Impact 2: direct physical impact on (permanent change to) non-designated heritage assets (including buried archaeological remains, historic earthworks and structures)

286. Impacts resulting in likely significant effects as part of the construction work are those associated with intrusive groundworks, including:

- The removal of topsoil across the onshore project area;
- The excavation of transition joint bays at the landfall;
- The use of HDD at the landfall;
- Open cut trenching as part of the onshore cable installation works;
- The excavation of jointing bays, HDD launch / reception pits and link boxes along the onshore cable route;
- Groundworks associated with the onshore cable route and associated access trackways;
- Groundworks associated with the onshore substation;
- Vibration from HDD drilling and other intrusive groundworks; and
- Accidental damage from plant movement and other construction traffic

287. There is potential for drilling fluid to breakout and spread into archaeological deposits thereby causing an adverse impact upon site preservation. As part of the HDD works, a drilling fluid (comprising a combination of water and natural clays such as benitoite) would be employed to lubricate the drilling process (Table 21.3, ES Chapter 21 Water Resources and Flood Risk (Document Reference: 3.3.23)).

288. Any adverse impacts (and associated effects) upon sub-surface archaeological remains, geoarchaeological / palaeoenvironmental deposits, and above ground heritage assets due to construction-related works would likely be permanent and irreversible in nature. Once archaeological deposits and the relationships between deposits, material and their wider surroundings have been damaged or disturbed, it is not possible to reinstate or reverse those changes. As such, direct physical impacts to an asset's fabric (where elements lost contribute to heritage significance) can represent a total loss of an asset's heritage significance, or parts of it, and the character, composition or attributes of the asset may be fundamentally changed or lost from the site altogether.

289. A staged programme of assessment has been carried out with a view to understanding the potential archaeological remains and their likely heritage significance in the study areas and more specifically within the onshore project area. This approach to date has identified a number of areas of possible archaeological and geoarchaeological interest, which have been assigned a predicted heritage significance level between low and high. Those considered to be most vulnerable with regard to the various elements of construction are highlighted below.

290. It should also be emphasised that the potential for buried archaeological remains, geoarchaeological / palaeoenvironmental remains, and above ground heritage assets, not currently represented by the desk-based data, to be affected as a result of construction works should not be discounted. In the

absence of further data regarding the 'potential' archaeological resource, such assets must be considered as potentially having a high perceived heritage significance.

291. Extant earthworks and field boundaries are an integral part of the HLC and the Tendring District Historic Environment Characterisation. Any loss of such features arising as a result of construction-related activities therefore has the potential to impact upon an integral part of the HLC across Tendring within the onshore project area and wider surrounds. This change to the HLC arising from the potential loss of above ground features is also discussed below.

292. It is noted that there would be no impact on the three 'important hedgerows' which survive on the parish's boundaries within the onshore cable route due to the use of HDD in these areas.

Landfall

293. Construction activities within the landfall that have the potential to directly (physically) impact buried archaeological and geoarchaeological / palaeoenvironmental remains, and above ground heritage assets, are those associated with the HDD works, cable trenching, installation of the landfall HDD compound, and groundworks associated with transition joint bay installation.

294. Data available and assessed to date (as part of this assessment) within the landfall indicates a predominance of features associated with the coastal defence network of the World Wars (particularly those of the WWII) and from the 19th century (see Section 25.5.3, Table 25.11). It is possible that sub-surface remains relating to these features exist within the landfall. Below ground features associated with the two World Wars are likely to be of low to medium heritage importance.

295. One pillbox has been identified within the landfall as above ground archaeological remains (and possible associated below ground remains), alongside the site of copperas settling pans (see Table 25.12). Based on information available to date, these heritage assets are assigned a low to medium heritage importance.

296. The landfall also contains numerous records of multi-period findspots, although predominantly prehistoric in date, and numerous areas of cropmarks, which could potentially indicate the presence of buried archaeological remains of earlier date (see Section 25.5.3, Table 25.11). Due to the uncertainty of the heritage significance of these findspots in the absence of further assessment and survey, these assets are assigned a precautionary low to medium heritage importance.

297. The landfall (GCZ 1)is also likely to contain alluvium which is of geoarchaeological interest as it may contain or partially mask Holocene archaeological features and / or layers, preserve palaeochannels and contain peat or richly-organic units that have high palaeoenvironmental potential and be of high importance.

Onshore Cable Route

298. Construction activities within the onshore project area that have the potential to directly (physically) impact buried archaeological and geoarchaeological / palaeoenvironmental remains and above ground heritage assets are those

associated with topsoil removal, open cut trenching and the excavation of joints bays, HDD pits and drilling, link boxes, and groundworks associated with the onshore route and access trackways.

299. Data available and assessed to date within the onshore route element of the onshore project area indicates the potential presence of sub-surface archaeological remains of varying type. Due to the extent of the onshore cable route, the large number of possible areas of archaeological interest currently identified and the inability to accurately ascertain the presence or absence, nature and extent of the potential buried remains within it, it is not possible at this stage of enquiry to identify each and every heritage asset representative of below ground archaeology that may be impacted by construction works associated with final DCO order limits. It is, however, possible to develop a clear understanding of archaeological potential from the aerial photographic, geophysical survey and contextual data from the HER and other historical and archival sources.

300. Areas of notable potential within the onshore project area are presented in Section 25.5.3, Table 25.11. These areas have been variously assigned a low to high perceived heritage importance based on information available to date.

301. In addition to areas of potential buried archaeological remains, an area representative of above ground archaeological remains has been identified from aerial imagery within the onshore project area (see Table 25.12). Based on information available to date, these heritage assets are assigned a low to medium heritage importance.

302. With respect to the potential presence of geoarchaeological and palaeoenvironmental remains, these are presented in Section 25.5.11, Table 25.13 and have been assigned a moderate to high heritage importance based on information available to date. Alluvium is likely to be present at Holland Haven Marshes towards the south of the onshore cable route, on the floodplain of the Tendring Brook (GCZ 7) towards the centre of the onshore cable route (northeast of Tendring), and towards the north, in the area of Holland Brook (close to Horsley Cross). As noted above, this alluvium is of geoarchaeological interest and of low to moderate importance.

303. Pleistocene fluvial deposits are expected to be present along much of the onshore cable route (GCZ 3 to 8). There is moderate to high potential for Lower to Middle Palaeolithic archaeology and faunal remains to be present within these deposits, or for fine-grained or organic lenses with palaeoenvironmental potential to be preserved which could range from low to high importance.

304. Brickearth is present in the northern and southern parts of the onshore cable route (GCZ 3 to 8) and while its archaeological and palaeoenvironmental potential is largely unknown, there is evidence for preservation of archaeological (including mammalian) remains within similar deposits at Wrabness and Holbrook Bay located to the north of the onshore cable.

Onshore substation works area

305. Construction activities at the onshore substation that have the potential to directly (physically) impact buried archaeological remains are those associated with intrusive groundworks, such as piling and landscape planting.

306. Data available and assessed to date for the onshore substation works area includes extensive cropmarks of a Roman road, field systems, trackways, ring ditches and several enclosures of Romano-British date (see Table 25.11). Some of these cropmarks and assets have been further confirmed by geophysical survey and two phases of archaeological evaluation trenching (see Section 25.5.4). The evaluations confirmed the presence of multiple field systems and similar land management features and discrete pits and post-holes, demonstrating the accuracy of the previous geophysical and aerial photography surveys. Features dated to the Late Prehistoric and Medieval periods were identified from artefactual evidence. There was tentative evidence for Romano-British activity, most notable in the north of the Phase 1 evaluation trenching area with the presumed route of a Roman Road (Figure 2, ES Appendix 25.11, Document Reference: 3.3.58). The Phase 1 evaluation trenching area including the likely Roman Road and Late Prehistoric and Medieval features has been assigned a medium to high level of perceived heritage importance based on information available to date. The Phase 2 evaluation trenching area which identified features predominantly relating to post-medieval to modern agricultural field systems, which been assigned a low to medium level of perceived heritage importance.

307. The onshore substation works area is located in a GCZ characterised by Head / Colluvium and Brickearth, overlying Pleistocene fluvial deposits (GCZ 8a and 8b). The priority geophysical survey across the onshore substation works area identified a series of ditch and water channel features interpreted as superficial geology; these features may be patterned ground and represent a landscape that formed during the last cold stage, approximately 15,000 to 20,000 years ago. Subsequent intrusive geoarchaeological evaluation carried out to date has further characterised much of the Palaeolithic geoarchaeological resource beneath the onshore substation works area. The majority of the area demonstrated a generally low potential for significant Palaeolithic geoarchaeological evidence, and as such is of low importance.

308. The upper c. 3.0 m of the of the Ardleigh Gravels may contain reworked Lower Palaeolithic artefacts of significance to the Palaeolithic settlement history of the region, as would be of low to medium importance, but given their likely low density and the artefact sampling already carried out as part of the evaluation these are well mapped in the area.

309. The Ardleigh Gravels below 3.0 m bgl that occur in the onshore substation works area were not able to be directly archaeologically evaluated. These are a highly significant Palaeolithic geoarchaeological resource of high importance, however, due to their depth, the interaction between the Project and these deposits is likely to be minimal and by piling only. Given the localised nature of these deposits, the samples taken, and a program of assessment and analysis is considered sufficient to mitigate against any development impacts (see 25.6.1.2.3 Additional Mitigation below).

25.6.1.2.1 Magnitude of impact

310. The extent of any impact upon buried archaeological and geoarchaeological or palaeoenvironmental remains and above ground heritage assets would depend on the presence, nature and depth of any such remains, in association with the depth of construction-related groundworks, as well as the specific contribution

to heritage significance of those elements, aspects or areas of the asset subject to impact.

311. Fluid pressures would be monitored throughout the drilling process to reduce the potential for breakout of the drilling fluid. A Bentonite Breakout Management Plan would be agreed with the Environment Agency prior to the commencement of construction activities (Table 21.3, ES Chapter 21 Water Resources and Flood Risk (Document Reference: 3.3.23)). The potential for drilling fluid to breakout and spread onto archaeological deposits, features and materials of low to high importance (Table 25.14 and Table 25.15) thereby causing an adverse impact upon site preservation has been assessed as an effect of negligible magnitude.

Landfall

312. Direct physical impacts to potential below ground archaeological remains as part of construction works, comprising shallow intrusive works such as topsoil stripping for compounds, working areas and haul roads, within the landfall could cause the complete removal of coherent archaeological heritage assets or 'sites.' This could represent up to a high magnitude of impact on archaeological remains of low-medium importance.

313. The uncertainty regarding the precise nature, extent and depth of any alluvial deposits (c. 0m to 9m bgl) and peat deposits (c. 3.0m to 6.0m bgl) within the landfall means that a precautionary assessment is appropriate. In this case, direct physical impacts to potential geoarchaeological and palaeoenvironmental remains from deeper construction works, primarily cable and excavation of transition joint bays could represent up to a high magnitude of impact to heritage assets of low to high importance within the area of disturbance resulting from the loss of archaeological interest. In all cases this would represent a small area of a much more extensive deposit sequence, and the magnitude of impact may be substantially reduced where it can be demonstrated that such remains are of limited value or extent.

314. Direct physical impacts to above ground heritage assets as part of construction works within the landfall have the potential to result in a high magnitude of impact resulting from loss of archaeological and historic interests to heritage assets of low to medium importance.

Onshore Cable Route

315. It is possible that direct physical impacts to potential below ground archaeological remains as part of construction works within the onshore cable route could result in the complete removal of coherent archaeological heritage assets or 'sites' by even shallow intrusive works such as topsoil stripping for working areas, compounds and haul roads. This would result in a high magnitude of impact on heritage assets of low-medium importance resulting from loss of archaeological interest.

316. Deposits of geoarchaeological interest and palaeoenvironmental potential are likely to be present within the onshore cable route, although the extent and depth of these deposits in currently unknown, deeper construction works, primarily cable trenching, could result in disturbance of shallower deposits. In all cases, an effect would represent the disturbance of a limited proportion of a

more extensive deposit sequence and archaeological interest would be largely preserved. This would result in effects of low to medium magnitude of impact on heritage assets of low to medium importance.

317. Field boundaries visible as cropmarks (APS_04) on historic aerial photographs and satellite imagery are recoded within the onshore cable route and are of low to medium importance. Direct physical impacts to above ground archaeological remains as part of construction works within the onshore project area have the potential to result in impacts of high magnitude on remains of low to medium importance.

Onshore substation works area

318. It is possible that direct physical impacts to potential below ground archaeological remains as part of construction works within the onshore substation works area could result in the complete removal of coherent archaeological heritage assets or 'sites' resulting in a high magnitude of impact on heritage assets of low to medium importance as a result of loss of archaeological interest.

319. Deposits of geoarchaeological interest and palaeoenvironmental potential are likely to be present within the onshore substation works area. Direct physical impacts from construction works to the upper c. 3.0 m of the of the Ardleigh Gravels would arise primarily from deeper construction works, and would affect a limited area of a more extensive deposit sequence, resulting in impacts of low to medium magnitude upon deposits of geoarchaeological interest and palaeoenvironmental potential of low importance. The more significant deposit sequences in the Ardleigh Gravels deposits below 3.0 m bgl within the onshore substation works area would only be affected by deeper excavation and piling which is anticipated to be of very limited extent, resulting in a low magnitude of adverse impact on a heritage asset of high importance. In both cases, the archaeological interest of these deposit sequences would be largely preserved.

25.6.1.2.2 Significance of effect

Landfall

320. Construction works within the landfall have the potential to result in effects of up to major adverse significance to potential below ground archaeological and geoarchaeological and palaeoenvironmental remains, and extant above ground heritage assets (in certain instances, prior to site specific mitigation), based upon the realistic worst case, which is significant in EIA terms. The specific receptors, magnitude of impact and significance of effect for landfall are presented in (Table 25.14 and Table 25.15)

Onshore Cable Route

321. In the absence of additional mitigation, direct physical impacts to areas of possible archaeological interest assigned a heritage importance ranging from low to high and above could result in an effect of major adverse significance, based upon a realistic worst case scenario, which is significant in EIA terms. The specific receptors relating to below ground archaeology, magnitude of impact and significance of effect for landfall are presented in Table 25.15.

322. In the absence of additional mitigation, direct physical impacts to deposits of geoarchaeological interest and palaeoenvironmental potential which have a

perceived heritage importance of low to medium value could result in an effect of moderate adverse significance, based upon a realistic worst case scenario, which is significant in EIA terms. The specific GCZs, magnitude of impact and significance of effect for landfall are presented in Table 25.14.

323. Construction works within the onshore project area have the potential to result in effects of major adverse significance on identified earthworks assigned a medium heritage importance and effects of a moderate adverse significance to those assets assigned a low heritage importance, based on the realistic worst case scenario, which is significant in EIA terms.

324. The onshore project area crosses twelve parish boundaries and one protected lane. Parish boundaries would normally be considered to be heritage assets only where there is a physical manifestation such as a hedgerow, which would be classed as an “Important Hedgerow” as a result of that association and would therefore be considered to be a heritage asset of low heritage importance. Prior to mitigation, groundworks have the potential to result in a low magnitude of impact upon any such hedgerows (where present, given the limited interaction between the boundaries and the onshore cable route), resulting in an effect of minor adverse significance, as a likely worst case scenario, which is not significant in EIA terms.

Onshore substation works area

325. In the absence of additional mitigation, all direct physical impacts within the onshore substation works area where areas of possible archaeological interest have been assigned a heritage importance of medium to high could result in an effect of major adverse significance, based upon a realistic worst case scenario, which is significant in EIA terms. The specific receptors relating to below ground archaeology, magnitude of impact and significance of effect for landfall are presented in Table 25.15.

326. In the absence of additional mitigation, direct physical impacts to deposits of geoarchaeological interest and palaeoenvironmental potential which have a perceived heritage importance of low to high could result in an effect of major adverse significance, based upon a realistic worst case scenario, which is significant in EIA terms. The specific GCZs, magnitude of impact and significance of effect for landfall are presented in Table 25.14.

327. Any impacts from construction works to the upper c. 3.0 m bgl of the Ardleigh Gravels deposits have the potential to result in an effect of minor adverse significance. Impacts to the Ardleigh Gravels deposits below 3.0 m bgl that occur in the onshore substation works area have the potential to result in an effect of moderate adverse significance, which is significant in EIA terms The specific GCZs, magnitude of impact and significance of effect for landfall are presented in (Table 25.14).

328. The onshore substation works area would represent a permanent / long-term change to the historic character of the landscape, which is mapped as an area with high density of cropmarks that has long been the subject of human occupancy and activity, as well as field boundaries historically focused on surrounding farmsteads and the settlement of Great Bromley. The HLC notes moderate loss of field boundaries since the 1950s and as such these areas are considered to have low heritage importance. The presence of the onshore

substation would have a low adverse impact on the overall historical character of the landscape, resulting in an effect of negligible effect.

Table 25.14 Assessment of effect on identified GCZs within the onshore project area

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Geoarchaeological Significance	Magnitude of Impact	Significance of Effect
1	Alluvium Peat Fluvial Sands and Gravels (Late Pleistocene)	0.00-9.00 3.00-6.00 9.00-12.00	Low-Medium Medium -High Unknown	Impacts from HDD (20m of depth) within this area could result in a medium to high adverse impact on all deposits recorded.	Up to major adverse (as a worst-case scenario)
2	Unknown	Unknown	Unknown	Impacts from cable trenching and Transition Joint Bays TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of an unknown significance.	Up to moderate adverse (as a worst-case scenario).
3	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel)	Unknown 0.20-4.50 0.50-6.00	Low- Medium Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium and unknown significance.	Up to moderate adverse (as a worst-case scenario).
3a	Head-Brickearth Kesgrave Sands and Gravels (Cooks Green Gravel)	0.20-2.00 1.20-5.60	Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of unknown significance.	Up to moderate adverse (as a worst-case scenario).

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Geoarchaeological Significance	Magnitude of Impact	Significance of Effect
3b	Head-Brickearth	0.30-4.50	Medium	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of medium significance.	Up to moderate adverse (as a worst-case scenario)
4	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel)	Unknown	Low- Medium Unknown Medium -High	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to high significance.	Up to major adverse (as a worst-case scenario)
4a	Head-Brickearth Kesgrave Sands and Gravels (Cooks Green Gravel)	1.00-4.10 2.00-3.00	Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of an unknown significance.	Up to moderate adverse (as a worst-case scenario).
5	Alluvium Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Cooks Green Gravel/ Wivenhoe Gravel)	Unknown	Low- Medium Low- Medium Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium and unknown significance.	Up to moderate adverse (as a worst-case scenario).

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Geoarchaeological Significance	Magnitude of Impact	Significance of Effect
6	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel / Wivenhoe Gravel)	Unknown 0.20-3.00+ 0.50-3.50+	Low- Medium Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium significance and unknown significance.	Up to moderate adverse (as a worst-case scenario).
7	Alluvium Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	Unknown	Low- Medium Low- Medium Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium significance and unknown significance.	Up to moderate adverse (as a worst-case scenario).
8	Colluvium Head-Brickearth / Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	Unknown 0.00-2.75 0.00-10.00	Low- Medium Unknown Unknown	Impacts from cable trenching and TJBs (2m of depth) could result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium significance and unknown significance.	Up to moderate adverse (as a worst-case scenario).
8a	Head-Brickearth Head-Gravel Sands Kesgrave Sands and Gravels (Ardleigh Gravel)	0.30-1.70 0.60-2.55 0.90-3.20 1.60-3.0+	Medium -Low Unknown Unknown High	Shallower impacts arising within the onshore substation works area upon the upper deposits (3m bgl) would result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium significance and unknown significance. The higher importance Ardleigh gravel would only be affected by deeper excavation and piling which is anticipated to be of very limited extent,	Up to moderate adverse (as a worst-case scenario)

GCZ	Principal Quaternary deposits	Approximate depth of deposits (m bgl)	Geoarchaeological Significance	Magnitude of Impact	Significance of Effect
				resulting in a low magnitude of adverse impact on a heritage asset of high importance.	
8b	Head-Brickearth Head-Gravel Kesgrave Sands and Gravels (Ardleigh Gravel)	0.27-1.00 0.45-1.80 0.50-3.20+	Medium -Low Unknown High	Shallower impacts arising within the onshore substation works area upon the upper deposits (3m bgl) would result in a low to medium magnitude of impact on of a limited proportion of a more extensive deposits of low to medium significance and unknown significance. The higher importance Ardleigh gravel would only be affected by deeper excavation and piling which is anticipated to be of very limited extent, resulting in a low magnitude of adverse impact on a heritage asset of high importance.	Up to moderate adverse (as a worst-case scenario)

Table 25.15 Assessment of effect on below ground archaeology within the onshore project area

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
Landfall						
46609	N/A	N/A	Site of Martello Tower I, Battery Point, Frinton. Built in 1810-12 demolished in 1819.	Medium	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
2915	N/A	N/A	Site of Iron Age Red Hill at the sea frontage between Holland and Frinton.	Low	High adverse	Up to moderate adverse
48658	N/A	N/A	Site of the former Gunfleet estuary, used as a port and haven in the medieval period, gradually silted up in the post-medieval period.	Medium	High adverse	Up to major adverse
48484	N/A	N/A	An area of grazing marsh along the former tidal reaches of the Holland Brook and Holland Haven, including a mixture of improved grassland and relict salt marsh. Sea walls survive, a single red hill has been recorded, as have preserved timbers.	Low-Medium	High adverse	Up to major adverse
N/A	N/A	Field HNN_08: 5502	A possible embankment (feature 5502) or water management system was identified during the geophysical survey along the western edge of Gunfleet Estuary. This appears to be a ditch and bank feature with angular turns suggesting a manmade rather than natural origin.	Low-Medium	High adverse	Up to major adverse
Onshore cable route						
N/A	N/A	Field LCR_04: 5403	A large enclosure 5403 was identified in the north-western part of the survey area. However, it could equally relate to a past channel of the Holland Brook River.	Low-Medium	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
N/A	N/A	Field LCR_01: 5405	Former field boundaries identifiable on 1898 OS mapping.	Low	High adverse	Up to moderate adverse
2978	APS_10	N/A	Mainly geological features some possible archaeological features - linear features and pits.	Low-Medium	High adverse	Up to major adverse
17224	N/A	N/A	Cropmark of geological marks, Manor Farm.	Low	High adverse	Up to moderate adverse
2975	APS_09a	Fields LCR_06, LCR_07: 5411, 5412	Field System which overlies earlier boundaries, trackways and possible pit alignments visible as cropmarks and soilmarks. Area is heavily disturbed by geological cropmarks which may be masking archaeological features. There are also a large number of pits which may be natural features.	Low-Medium	High adverse	Up to major adverse
3627	APS_14a	N/A	Square enclosures visible as cropmarks likely part of a Post Medieval field system. Underlying ditched feature is of unknown origin. Area is heavily disturbed by geological cropmarks which may be masking archaeological features. There is also a small number of pits.	Low-Medium	High adverse	Up to major adverse
16986	APS_02	N/A	Cropmarks of linear features - field boundaries.	Low	High adverse	Up to moderate adverse
3570	APS_03	N/A	Field boundaries visible as cropmarks.	Low-Medium	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
			Birch Hoe Farm: Linear features, field boundaries, trackways running north to south, pits, all masked by periglacial features.			
3143 17231	APS_04	Field KWC_09: 5305	Field boundaries visible as cropmarks. East of Thorpe Park: Cropmarks masked by geological features: field boundaries, trackways and enclosures. Grove Fruit Farm: Cropmark of linear features; field boundaries and possible enclosure	Low-Medium	High adverse	Up to major adverse
N/A	N/A	KWC_04: 5300	A rectilinear enclosure (feature 5300) was identified during the geophysical survey at the eastern part of the field that could relate to a livestock enclosure.	Low-Medium	High adverse	Up to major adverse
3089	N/A	N/A	A wider area of cropmarked linear features which are unlikely to lie within the onshore project area.	Low	High adverse	Up to moderate adverse
N/A	N/A	Field KCW_07: 5304	Former field boundary (5304) illustrated on 1898 Second Edition OS maps.	Low	High adverse	Up to moderate adverse
N/A	N/A	KWC:07: 5301	A ditch-like feature (5301) identified during the geophysical survey with an opening to the north-west. This may relate to prehistoric activity, such as a roundhouse or a round barrow.	Low-High	High adverse	Up to major adverse
N/A	N/A	Area_20_07: 5200	A weak positive curvilinear anomaly (5200) identified during the geophysical survey It is up to 2 m wide and 46 m long. On the western side, it likely extends beyond	Low	High adverse	Up to moderate adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
			the survey area and is cut off by an area of increased magnetic response at the east, where it forms a rectilinear area of 8 m by 5 m. It indicates a ditch-like feature of unknown date.			
N/A	N/A	Area_20_07: 5201	A weak positive linear anomaly (5201) identified during the geophysical survey. It is up to 2 m wide and traverses the site on a north-east – south-west orientation. This anomaly is indicative of a ditch-like feature and could relate to a field boundary that predates mapping. It is equally possible, however, that it relates to the B1034 road nearby.	Low	High adverse	Up to moderate adverse
47285	APS_05	Area_20_07: 5202, 5203, 5204, 5205	Field boundaries visible as cropmarks at Thorpe Cross. Weak, positive linear anomalies 5202 – 5205 identified during the geophysical survey indicate ditch features that are up to 2 m wide. These correspond with field boundaries noted on the 1898 Second Edition OS map and within the HER and APS datasets.	Low	High adverse	Up to moderate adverse
N/A	N/A	Area_18_02: 5100	A weak, annular positive anomaly (5100) identified during the geophysical survey. The anomaly is 13 m in diameter and 1.3 m wide. It indicates a ditch-like feature related to a possible roundhouse or a barrow	Low-High	High adverse	Up to major adverse
46798	APS_06	N/A	Field boundaries visible as cropmarks at New Hall.	Low	High adverse	Up to moderate adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
46801	APS_07	N/A	Field boundaries visible as cropmarks at Golden Lane.	Low	High adverse	Up to moderate adverse
3160	N/A	N/A	Near Thorpe Green, possible cropmarks comprising linear features, pits, and possibly two ring ditches. These latter marks are on grassland and may be grazing marks rather than archaeological.	Low-Medium	High adverse	Up to major adverse
52955	N/A	N/A	A PAS findspot of a coin of Medieval date.	Low	High adverse	Up to moderate adverse
17243	APS_08	Area_18_02: 5101, Area_18_06: 5102	Field system visible as cropmarks and cropmarks of a linear feature (low validity), Thorpe-le-Soken. Weak positive linear anomalies have been detected (5101 and 5102) from the geophysical survey which support the HER and APS records.	Low	High adverse	Up to moderate adverse
3073	N/A	N/A	Barker's Farm - suggested line of Roman road.	Low-High	High adverse	Up to major adverse
17241 3042	APS_09	Field EOT_01: 4802, 4803, 4804; EOT_02: 4805, 4806, 4807	A tumulus depicted on the earlier edition OS mapping indicates the position of a likely Bronze Age round barrow which was visible later as a cropmark. Tumulus marked on 6" OS series of 1874-5, at Mill Hill. Cropmark of field boundaries.	Low-High	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
N/A	APS_09	Field EOT_05: 4810, 4811	A former field boundaries (4810, 4811) corresponding to APS data was identified in the geophysical survey and is marked on the 1898 Second Edition OS map.	Low	High adverse	Up to moderate adverse
N/A	N/A	Field EPT_05: 4801	Ditch-like feature (4801) identified during the geophysical survey, possibly a field boundary that predates the available maps.	Low	High adverse	Up to moderate adverse
48329 3189 3136	APS_10	Area 12: 4703	Cropmarks of ring ditches and linear ditches and possible trackways, and field boundaries near Lodge Lane. South of Wolves Hall Farm, cropmarks comprising linear features and trackways. Field boundary (4703) also identified during the geophysical surveys.	Low-Medium	High adverse	Up to major adverse
3179	APS_11	Fields TGN_03, TGN_04: 4607, 4606	Field system and possible drainage visible as earthworks. Cropmarks comprising a possible ring ditch, plus linear features which may be geological or field drainage, north of Tendring Green	Low-Medium	High adverse	Up to major adverse
N/A	N/A	Field TNG_01: 4603, 4604	Two potential ditch features (4603 & 4604) identified during the geophysical survey on a rectilinear alignment are noted in the southern portion of the survey in field TGN_01. They delimit a 90 m by 90 m area on a south-west to north-east orientation.	Low	High adverse	Up to moderate adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
3167	APS_14	Area_10_02, Area_10_04: 4505, 4506, 4508	Field system visible as extant on 1950s aerial photographs and as cropmarks on satellite imagery. Cropmarks comprising a possible double-ditched trackway, an adjoining irregular linear feature, and a possible ring ditch, although the aerial photo is rather dark and these features are not clear to the east of Hempstall's Farm. Former field boundaries (4505, 4506, 4508) were identified during the geophysical survey.	Low-Medium	High adverse	Up to major adverse
N/A	N/A	Area_10_02: 4500	Feature 4500 identified during the geophysical survey pertains to a possible earthen bank of unknown origin. The presence of Bronze Age barrows and round houses in the wider landscape suggests this could be of the same origin. It could as well be a response from superficial deposits and as such reflect a natural feature.	Low-High	High adverse	Up to major adverse
N/A	N/A	Area_10_01: 4501, 4502, 4503, 4504	Feature 4501 identified during the geophysical survey is a curvilinear feature running on a south-west to north-east orientation for 26m. This indicates a ditch-like feature and relate to a small enclosure. Features 4502 - 4504 relate to former field boundaries on 1898 Second Edition OS mapping.	Low-Medium	High adverse	Up to major adverse
17325 3177 47376	APS_20	Area_09_01: 4400; Area_09_02: 4402	Bradfield Lodge: cropmarks of former field, woodland and irregular enclosure. South of Bradfield Lodge: cropmarks comprising trackways, field boundaries and ring ditches.	Low-Medium	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
			Cropmark of a possible mill mound west of Abbots Hall, plus linear features which may be geological to the north of Abbott's Hall. A former field boundary (4400, 4402) was identified during the geophysical survey and is visible on the 1898 Second Edition OS map.			
50930	N/A	N/A	A PAS findspot of a buckle of Post-medieval date.	Low	High adverse	Up to moderate adverse
3130	APS_18	N/A	Cropmarks of field boundaries and possible trackways to the east of Mulley's Farm.	Low	High adverse	Up to moderate adverse
N/A	N/A	Area_5_05: 4216, 4218, 4219	Former field boundary (4216, 4218, 4219) on a northeast to south-west alignment identified during the geophysical survey.	Low	High adverse	Up to moderate adverse
3131	APS_15	N/A	Cropmarks of linear ditches and a series of five ring ditches to the east of Mulley's Farm. Also cropmarks comprising field boundaries and trackways. The features appear to lie outside of the onshore project area.	Low-Medium	High adverse	Up to major adverse
3182	N/A	N/A	Cropmarks of linear features some of which may be agricultural or geological in origin. The features are expected to lie outside of the onshore project area.	Low	High adverse	Up to moderate adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
3148	APS_12	Area_5_03: 4209	Cropmark of three ring ditches, plus some linear features of field and parish boundaries at Hawkins Farm. A former field boundary (4209) was identified in the north-east of Area_5_03 and is recorded on the 1898 Second Edition OS map.	Low-Medium	High adverse	Up to major adverse
N/A	N/A	Area_5_05: 4200, 4202	The northern boundary of a rectilinear enclosure (4200) identified during the geophysical survey in the centre of the survey area indicates prehistoric activity within the site. Feature 4202 may relate to a small stone wall and is likely, not contemporary with the enclosure at 4200.	Low-Medium	High adverse	Up to major adverse
17318 17321	N/A	N/A	Cropmarks of parish and field boundaries at Welhams Farm. Features unlikely to lie within the onshore project area.	Low	High adverse	Up to moderate adverse
N/A	N/A	Area_5_04: 4203	A rectilinear enclosure (4203) occupies a square area of 21m by 21m and is 2m in width. An oval anomaly is located within the northwestern corner of it that occupies an area of 6m by 3.5m. This type of anomaly could represent an oven or kiln, however it could equally indicate a ferrous object. The feature at (4203) has been interpreted as a ditched enclosure, however, further investigation would be required to determine its origin.	Low-Medium	High adverse	
N/A	APS_19	Area_04_02: 4102, 4103, 4104, 4105 4106, 4107, 4112	The gradiometer survey has identified anomalies which may be archaeological in origin.	Low-Medium	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
			The remains of an older field system (4102-4107), absent from available map sources, have been identified across most of the site. In addition, several ring-ditch features (4112) similar to the circular features, identified from aerial photographs in the wider area could indicate further settlement activity.			
2460	APS_19	Fields LB_04, LB_07, LB_09, Area_5_01: 4024, 4029, 4032, 4206, 4207	Cropmarks covering a large area, mainly linear features being part of field systems or trackways, but there are also many ring ditches and several enclosures, and what may be a henge, south and west of Little Bromley Hall. Positive linear anomalies on geophysical survey indicating ditch-like features. Identified as former field boundaries.	Low-High	High adverse	Up to major adverse
N/A	N/A	Field LB_07: 4038	An irregular shaped anomaly (4038) covers an area of 65m by 34m and indicates a surface distribution of magnetic material such as burned clay bricks. It corresponds to the location of the former Rudkin's farm, known from 1896 OS mapping.	Low-Medium	High adverse	Up to major adverse
52884	N/A	N/A	A PAS findspot of a strainer of Medieval date.	Low	High adverse	Up to moderate adverse
54689	N/A	N/A	A PAS findspot of a pendant of Post-medieval date.	Low	High adverse	Up to moderate adverse
Onshore substation works area						

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
2607 2573	APS_27	N/A	Linear features at right angles to Roman road, probably field division, at Badley Hall. Roman road, linking Mistley with Colchester. Site is connected to APS sites 23, 30 and 31.	Medium	High adverse	Up to major adverse
17486 2668 3168 2631	APS_26	Fields LB_01, LB_02: 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4016, 4017, 4018, 4019, 4021, 4022, 4031	Site of Roman road (feature 4000) and associated linear features including field boundaries. Some features confirmed by geophysical survey, such as the likely Roman Road, field system, and possible enclosures. At the phase 1 evaluation, two parallel ditches were identified at the approximate location of the likely Roman road. However, no dateable material was recovered from either of the ditches, nor any signs of a road surface. Field system and enclosures to the south of the road were also confirmed by the evaluation, but with little datable material culture. An enclosure to the north of the likely Roman Road contained few residual sherds of pottery dating to the Romano-British period, A ditch at the north-east boundary of the onshore substation works area interpreted as possible archaeology in the geophysical survey (but not attributed a WA ID), was found to be the earliest feature on site, based on the recovery of 25 sherds of Late Prehistoric pottery from the fill. No other definitely dated Prehistoric features were identified during the evaluation. East-west alignment of possible Roman road through Horsleycross Street (HER 3168) extending to the north of Little Bromley (HER 2631). Also, location of former Lower Barn (4031). North of Norman's Farm are cropmarks of linear features (HER 17486)	Low-High	High adverse	Up to major adverse

EHER Number	APS ID	WA ID (geophysics results)	Description	Perceived Heritage Importance	Magnitude of Impact	Pre-Mitigation Significance of Effect
			Former field boundaries present on 1898 OS mapping (4010, 4019, 4020, 4021, 4022). Three ring ditches, one with only half its circumference visible are recorded north of Norman's Farm (HER 2668).			
2468	N/A	N/A	Sesterce, probably of Hadrian, found in 1930, at Holly Lodge	Low	High adverse	Up to moderate adverse
51070	N/A	N/A	A PAS findspot of a hoard Middle Bronze Age to Late Bronze Age date.	Low-Medium	High adverse	Up to major adverse
50910	N/A	N/A	A PAS findspot of an Ampulla, Harness, Pendant, and Tokens of Medieval to Post-medieval date.	Low	High adverse	Up to moderate adverse
17110	APS_30	N/A	An area of Cropmarks of a double-ditched rectangular enclosure, with entrances, a curvilinear enclosure, trackways, linear features, a Roman road (PRN 2631) and field boundaries. Features unlikely to lie within the onshore project area.	Low	High adverse	Up to moderate adverse
52869	N/A	N/A	A PAS findspot of an Ampulla, Harness, Pendant, and Tokens of Medieval to Post-medieval date.	Low	High adverse	Up to moderate adverse

25.6.1.2.3 Additional mitigation

329. The Project has committed to undertake additional programmes of survey and evaluation where of relevance to sub-surface archaeological remains, which may include any outstanding geophysical survey and a scheme wide programme of evaluation trenching. This strategy is outlined as part of a project-specific onshore OWSI (Document Reference: 7.12), submitted with the DCO application. The survey and evaluation work may indicate the presence of previously unknown buried archaeology (and further verify previously known / anticipated buried remains as indicated by the previous non-intrusive survey methods), enabling the resource to be appropriately addressed by means of mitigating any impacts in a manner that is proportionate to the significance of the remains present.

330. Archaeological mitigation is envisaged to comprise a combination of the following recognised standard approaches:

- Further advance and enacting of preservation in situ options and requirements (e.g., avoidance / micro-siting / HDD etc., where practicable);
- Archaeological excavation: including subsequent post-excavation assessment, and analysis, publication and archiving;
- Archaeological monitoring / watching brief: including subsequent post-excavation assessment, and analysis, publication and archiving (where appropriate); and
- Earthwork condition surveys: including subsequent reporting and archiving (followed by backfilling and reinstatement, where required on a case-by-case basis).

331. Further evaluation of potential geoarchaeological and palaeoenvironmental remains will include a programme of geoarchaeological monitoring of engineering-led GI works to inform mitigation approaches such as geoarchaeological assessment and palaeoenvironmental survey.

332. Impact to the HLC (including hedgerows and parish boundaries) will be reduced by returning field boundaries / areas / hedgerows to their pre-construction condition and character post-construction, as part of a sensitive programme of backfilling and reinstatement / landscaping (see ES Chapter 22 Land Use and Agriculture (Document Reference: 3.1.24)) for further details of hedgerow reinstatement). Certain hedgerows and field boundaries (e.g., parish boundaries) may require recording prior to the construction process and enhanced provisions made during reinstatement.

333. The site-specific measures adopted by North Falls will be determined post-consent as the Project progresses in a specific and bespoke manner, tailored on a case-by-case / area-by-area basis (as required) accordingly and in response to the combination of onshore archaeological and cultural heritage assessment. Opportunities to optimise the programme, including expedient commencement of archaeological work in the immediate post-consent stages will also be sought in ongoing discussion and agreement with the ETG.

334. The preferred and optimum mitigation measure is preservation in situ, wherever practicable. By avoiding sub-surface archaeological remains (sites / features), either largely or in their entirety (as indicated by existing and available data), the

magnitude of impact may be reduced depending on the extent of the site / feature in question (with reference to change or impact upon heritage significance) and the degree to which preservation in situ has been applied. Each site will be considered on a case-by-case basis and with consideration of the principles presented in the Historic England document 'Preserving Archaeological Remains' (2015) to ensure preservation is the correct decision for the archaeological remains in question.

335. Where avoidance is not practicable, significant impacts upon sub-surface archaeological remains will, to a degree, be offset by the application of appropriate alternative mitigation measures (such as archaeological recording) which serve to preserve archaeological remains, where present, by record (e.g., following intrusive evaluation and subsequent excavation, where required).

25.6.1.2.4 Residual significance of effect

336. Although archaeological recording cannot be considered to entirely mitigate the magnitude of impact (and associated significance of effect) given the preference in policy for physical retention of a heritage asset, the acquisition of an archaeological record of an asset that would be lost is required by NPS EN-1. This recording would also allow the archaeological interest of a heritage asset to be captured to a degree, albeit in the form of an archive and reporting.

337. With the application of mitigation through investigation and recording, it is anticipated that the residual magnitude and significance of effect would be reduced or offset to levels considered non-significant in EIA terms (i.e., anticipated to be no worse than a minor adverse significance of effect for Impact 2).

338. Where detail design of the proposed development can be used to achieve-avoidance of identified or potential archaeological heritage assets, this application of mitigation by preservation in situ would result in a reduced impact, depending on whether a heritage asset were to be avoided completely or in part. In some cases this would result in no impact, more often it would result in a reduced magnitude of impact which would still require mitigation as set out above.

25.6.1.3 Impacts 3 and 4: indirect physical impact on (permanent change to) designated and non-designated heritage assets

339. Potential indirect impacts to designated and non-designated heritage assets from changes to ground conditions are assessed with reference to ES Chapter 21 Water Resources and Flood Risk (Document Reference: 3.1.23).

340. Construction activities undertaken as part of the Project have the potential to affect below ground deposits of archaeological and geoarchaeological interest over a wider area than that of the footprint of the Project, for example, through hydrological changes that may cause desiccation and drying out of wetland deposits and associated preserved waterlogged archaeological or geoarchaeological remains.

341. Heritage assets which have the potential to be subject to indirect impacts from changes in hydrological processes comprise deposits of geoarchaeological interest and potential waterlogged archaeological remains in the area close to the landfall. These remains are not designated and as a result, no designated heritage assets have been identified that would be subject to any indirect physical effect.

342. Areas which contain deposits of geoarchaeological interest (based on available data) have been identified by a GDBA (ES Appendix 25.6 (Document Reference: 3.3.53)). This approach has identified a number of areas of possible geoarchaeological and palaeoenvironmental interest, which have been assigned a precautionary low to high heritage importance (Table 25.13).

343. In addition to potential changes to ground conditions, potential indirect impacts to non-designated heritage assets could occur as a result of vibration from groundworks affecting the fabric of a heritage asset. This is assessed with reference to ES Chapter 26 Noise and Vibration (Document Reference: 3.1.28).

344. With respect to non-designated heritage assets which could be affected by vibration; these range from a level of low to high heritage importance (Table 25.11 and Table 25.12). There is no impact anticipated designated heritage assets (Impact 3) as these are avoided by the onshore project area.

25.6.1.3.1 Magnitude of impact

345. The connection of any 'waterlogged' deposits of geoarchaeological or paleoenvironmental interest in the gravel deposits derives from intensely localised ground conditions resulting from differential drainage through wider deposit sequences that are independent from the wider groundwater and surface water drainage systems and which cannot be accurately modelled. In general, effects on very localised areas of wetter ground within more extensive 'dry' deposits, particularly gravels which are generally free-draining would be localised on areas of intrusion and would represent very limited, if any additional loss of archaeological interest, resulting in at most a negligible adverse impact.

346. Wetter areas adjacent to the coast or fed by riverine systems would not be subject to any lasting dewatering as a result of the proposed works and no indirect physical effects on these deposits is anticipated.

347. Potential for vibration from groundworks affecting the fabric of a heritage asset (non-designated) could occur through the operation of the HDD and ancillary equipment or piling works at the onshore substation (if required) taking place within the onshore project area. The vibration effects upon structures from the operation of the HDD and ancillary equipment within the onshore cable route / piling at the onshore substation (if required) is assessed within ES Chapter 26 Noise and Vibration (Document Reference: 3.1.28) as being of no greater than negligible magnitude beyond 1.4m from the works (HDD) or 23m from the works (onshore substation) As these buffer distances are within onshore cable route and the onshore substation works area boundaries respectively, and therefore within land already affected by excavation, additional effects are considered to not occur. Effects on structures outside these buffers are assessed as having an impact of negligible magnitude. Therefore, the magnitude of impact from vibration effects upon non-designated heritage assets is no greater than negligible. There is considered to be no vibration effects upon designated heritage assets within the onshore project area.

25.6.1.3.2 Significance of effect

348. In accordance with the significance of effect matrix (Table 25.9) without mitigation, should impacts to non-designated heritage assets occur from changes to hydrological processes, the significance of effect is likely to be minor adverse, which is not significant in EIA terms.

349. In accordance with the significance of effect matrix (Table 25.9) without mitigation, should impacts to non-designated heritage assets occur from

vibration effects, the significance of effect could be minor adverse (not significant in EIA terms) as a worst case scenario recognising that some assets of low importance would suffer only a negligible effect from negligible impact.

25.6.1.3.3 Additional mitigation

350. No additional mitigation measures for receptors beyond the buffers outlined above are proposed with respective to vibration or hydrological processes effects.

25.6.1.4 Impacts 5 and 6: temporary change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance

351. A review of the designated heritage assets located in proximity to the onshore project area and therefore potentially susceptible to a temporary change to their setting include the following assets:

- Great Holland Lodge (NHLE 1337116 – Grade II Listed Building);
- Church of All Saints (NHLE 1165610 – Grade II* Listed Building);
- Great Holland Conservation Area;
- Ring Cottage and Tudor Cottage (NHLE 1317222 – Grade II Listed Building);
- Great Holland Mill House (NHLE 1111532 – Grade II Listed Building);
- Thorpe-le-Soken Conservation Area;
- Barker's Farmhouse (NHLE 1322630 – Grade II Listed Building);
- Hempstall's Farmhouse (NHLE 1240504 – Grade II Listed Building); and
- Church of St Mary (NHLE 1337175 – Grade II Listed Building).

352. These designated heritage assets have a medium or high levels of importance.

353. No non-designated heritage assets were identified as being susceptible to a temporary change to their setting.

25.6.1.4.1 Magnitude of impact

354. Activities undertaken as part of construction works for North Falls have the potential to impact designated and non-designated heritage assets through a temporary change in their setting which may affect their heritage significance. Temporary changes in the setting of heritage assets, should they occur, may do so (for example) through the presence of machinery, construction traffic and general construction activities taking place within and adjacent to the onshore project area. The sight, sound, any dust created, and even smell, during the construction phase has the potential to temporarily change the setting of heritage assets and their associated heritage significance.

355. Any impact during construction would be short term (see Table 25.2) and reversible. These impacts would also be slight due to the perceptibility of the works from the identified receptors. It is therefore considered that any change to setting and associated heritage significance would result in a negligible adverse magnitude of impact.

25.6.1.4.2 Significance of effect

356. In accordance with the significance of effect matrix (Table 25.9) without mitigation, should impacts occur from changes to setting from North Falls, these have the potential to be of minor adverse significance, as a worst case scenario.

25.6.1.4.3 Embedded mitigation

357. During construction, the movement of construction traffic and machinery would be temporary and localised. The removal of hedgerows and trees would be avoided where practicable. On completion of construction, the onshore cable route would be fully reinstated to its previous condition. No above-ground infrastructure would remain, other than manholes for link boxes located up to one every (approximately) 500m along the onshore cable route. Hedgerows or trees would not be replanted directly over the buried cables. A landscape scheme would be developed to secure the restoration and, where practicable, enhancement of the landscape post-construction, and outline version of which will be submitted as part of the DCO application.

25.6.1.4.4 Residual significance of effect

358. The reinstatement of the landscape would reverse the construction period effects and no lasting effect would be experienced.

25.6.2 Likely significant effects during operation

359. During operation, it is expected that there would be no further requirement for land to be disturbed or excavated, except in the event that onshore cables require repair or maintenance or the onshore substation access works needing to be reinstated. However, these activities would not extend beyond the construction footprint assessed above, and for the former would be relatively rare and localised in occurrence. For the latter, the haul road required to access the onshore substation, required in the unlikely event of transformer failure, would potentially be in place for up to 7 months, but its location would be over land already disturbed during construction. As such, direct and indirect physical impacts on heritage assets during operation have been scoped out of further assessment, as impacts would have already occurred during the construction phase. This was agreed at the scoping stage with PINS (Table 25.1).

360. The presence of permanent above ground onshore and offshore infrastructure could, however, have an effect on heritage significance as a result of change in the setting of heritage assets due to the presence of new, permanent above ground onshore and offshore infrastructure associated with North Falls being introduced to (and present within) the landscape and seascape, respectively.

25.6.2.1 Impacts 7 and 8: permanent change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance

361. The presence of permanent visible infrastructure could have an ongoing impact on the setting of heritage assets for the duration of the operation phase resulting from the Project's onshore and offshore infrastructure.

362. The heritage assets which may be subject to a change in setting affecting their heritage significance, due to the presence of the onshore and offshore infrastructure, and which require further assessment, have been identified within ES Appendix 25.3 and ES Appendix 25.4 (Document Reference: 3.3.50 and 3.3.51), respectively.

Onshore Infrastructure

363. The following heritage assets may be subject to a change in setting affecting their heritage significance, due to the presence of the onshore substations and have been identified as requiring further assessment. A detailed assessment has been undertaken of the following designated heritage assets (ES Appendix 25.3 (Document Reference: 3.3.50)):

- Crop mark site south of Ardleigh (NHLE 1002146 – Scheduled Monument);
- Settlement site north-north-east of Lawford House (1002157 – Scheduled Monument);
- Church of St Mary (NHLE 1337175 – Grade II* Listed Building);
- Jenning's Farmhouse (NHLE 1111459 – Grade II Listed Building);
- Ash House (NHLE 1337154 – Grade II Listed Building); and
- Cropmark site south and west of Little Bromley Hall (EHER 2460 – specifically the non-designated cropmark of a henge).

364. These heritage assets have medium or high levels of heritage importance and are shown on Figure 25.3.1 (ES Appendix 25.3 (Document Reference: 3.3.50)).

Offshore Infrastructure

365. An initial appraisal (ES Appendix 25.3 (Document Reference: 3.3.50)) was undertaken to identify designated heritage assets that were potentially subject to change in setting due to the perceptual presence of the offshore infrastructure in the seascape. This change may affect their heritage significance and assessment has been undertaken of the following designated heritage assets (ES Appendix 25.4 (Document Reference: 3.3.51)):

- The chain of Martello Towers between Slaughden (Aldeburgh) and Jaywick;
- Orford Castle (NHLE 1014860/1030873);
- Battery Observation Post, Bawdsey (NHLE 1389463);
- Bawdsey Manor Registered Park and Gardens (NHLE 1001465) and Bawdsey Manor Pulhamite Cliffs (NHLE 1406805);
- Landguard Fort (NHLE 1018969/1030415);
- Naze Tower (NHLE 1165846); and
- Clacton Seafront Conservation Area.

366. These heritage assets have a medium to high level of heritage importance and are shown on Figures 1a – 1e (ES Appendix 25.4 (Document Reference: 3.3.51)).

25.6.2.1.1 Magnitude of impact

Onshore Infrastructure

367. The assessment has established that the tallest structures within the onshore substation works area would be partly visible from the non-designated henge site (EHER 2460), and likely visible from the upper floor of Jenning's Farmhouse (NHLE 1111459) and Ash House (NHLE 1337154). However, this change in view is not considered to alter these assets' settings or impact their heritage significance, which mainly derives from their architectural and historical interest.

368. The onshore substation works area would not be visible from the Church of St Mary (NHLE 1337175) itself, however upper elements of the substation may be visible with difficulty as an element in the background of some passing views of the Church from Little Bromley. The proposed development would remain clearly separated from the church and would not affect the perceived prominence of the church in these views from the village. This change is not, therefore, considered to impact the heritage significance of the Church and as such there would be no change to its heritage significance.

369. The onshore substation works area was not visible from the cropmark site south of Ardleigh (NHLE 1002146) or the Neolithic settlement site at Lawford (NHLE 1002157), and therefore their settings and associated heritage significance would not be affected.

370. Overall the presence of the onshore substation would not detract from any of the heritage assets' archaeological, historic, and architectural interest. Therefore, no change to the significance of the designated heritage assets would occur due to changes in their setting. This is supported by the detailed setting assessment presented in ES Appendix 25.3 (Document Reference: 3.3.50).

Offshore Infrastructure

371. The presence of permanent visible offshore infrastructure could have an ongoing impact on the setting of coastal heritage assets for the duration of the operational phase as a result of its visible presence within the seascape; at the distances involved it is not anticipated that any other perceptual change that might affect the significance of these assets would be discernible.

372. The magnitude of impact upon the identified heritage assets as a result of a change to their setting affecting their heritage significance could be low adverse, as a worst-case scenario.

25.6.2.1.2 Significance of effect

Onshore Infrastructure

373. As outlined above, as there would be no change to the setting of heritage assets as a result of the onshore substation and as such the effect would be nil.

Offshore Infrastructure

374. Following the detailed setting assessment (ES Appendix 25.4 (Document Reference: 3.3.51)) (it was concluded that only two assets, Bawdsey Manor Registered Park and Gardens (Grade II NHLE 1001465) and Bawdsey Manor Pulhamite Cliffs (Grade II Listed Building NHLE 1406805) would be subject to any impacts. In accordance with the significance of effect matrix (Table 25.9) without mitigation, should impacts occur from changes to setting from the offshore infrastructure, these have the potential to be of minor adverse significance (not significant) as a worst case scenario.

25.6.3 Likely significant effects during Decommissioning

375. No decision has been made regarding the final decommissioning policy for North Falls as it is recognised that industry best practice, rules and legislation change over time. The detailed decommissioning activities and methodology would be determined later within the Project's lifetime so as to be in line with latest and current guidance, policy and legislation at that point. At that juncture,

the decommissioning methodology would be agreed with the relevant authorities and statutory consultees. Onshore, decommissioning is likely to include removal or reuse of the onshore substation with the cables and jointing bays left in situ or removed.

376. Assuming that provision is made for methods of removal which reduce further impact to the wider area, it is reasonable to assume that any potential physical damage upon designated and non-designated heritage assets would have already occurred as part of construction activities. As such, the worst case scenario with regard to decommissioning cannot be ascertained in detail until the decommissioning plan is finalised.

377. Changes to setting may be present as a result of visual and audible impacts associated with decommissioning activities. Any changes to the setting of heritage assets are considered to be temporary in duration, occurring in association with the decommissioning phase. As such, the worst case scenario as outlined for the construction phase in relation to temporary changes to the setting of heritage assets is unlikely to be exceeded as a result of decommissioning activities.

25.7 Potential monitoring requirements

378. Monitoring requirements for onshore archaeology are described in the onshore OWSI (Document Reference: 7.12) submitted alongside the DCO application and further developed and agreed with stakeholders prior to construction taking account of the final detailed design of North Falls.

379. Direct (physical) impacts would be offset or reduced through either preservation in situ or archaeological fieldwork and reporting, undertaken by professional archaeologists and monitored by Essex County Council Historic Environment Service (Place Services) on behalf of Tendring District Council.

25.8 Cumulative effects

25.8.1 Identification of potential cumulative effects

380. The first step in the CEA process is the identification of which residual effects assessed for North Falls on their own have the potential for a cumulative effect with other plans, projects and activities. This information is set out in Table 25.16. Only potential effects assessed in Section 25.6 as negligible adverse or above are included in the CEA (i.e., those assessed as ‘no impact’ are not taken forward as there is no potential for them to contribute to a cumulative impact).

381. Table 25.16 concludes that in relation to onshore archaeology and cultural heritage, potential cumulative impacts are likely to arise where the construction phase for two or more projects overlap or where the extent of the archaeological resource intersects two or more projects, or where intervisibility is shared between a heritage asset and two or more developments, should construction and operation run simultaneously.

Table 25.16 Potential cumulative effects

Impact	Potential for Cumulative Effect	Rationale
Construction		
Impact 1: direct physical impact on (permanent change to) designated heritage assets	No	There are no direct physical impacts anticipated to occur to designated heritage assets therefore there is no pathway for potential cumulative effects.
Impact 2: direct physical impact on (permanent change to) non-designated heritage assets	Yes	Cumulative direct effects arising from two or more projects are possible given the level of uncertainty regarding the nature and extent of the potential archaeological resource. Impacts may occur to individual archaeological features (buried or above ground) in an area of overlap or those with an extent which intersects two or more proposed project boundaries (where groundworks are anticipated). Effects may occur which affect the nature of the archaeological resource on a wider scale. Such effects also have the potential to affect the HLC of the study area (e.g., loss of earthworks as a result of one project could affect the HLC as summarised for the purposes of another project).
Impacts 3 and 4: indirect physical impact on (permanent change to) designated and non-designated heritage assets	Impact 3: No	There are no indirect physical impacts anticipated to occur to designated heritage assets therefore there is no pathway for potential cumulative effects. There are minor adverse impacts (as a worst case scenario anticipated to occur to non-designated heritage assets from vibrational and hydrological impacts which may give rise to cumulative effect. Cumulative direct effects arising from two or more projects are possible in an area of overlap or those with an extent which intersects two or more proposed project boundaries (where groundworks are anticipated).
	Impact 4: Yes	
Impact 5 and 6: temporary change in the setting of heritage assets (both designated and non-designated) which may affect their heritage significance	Impact 5: Yes	Cumulative changes in heritage setting arising from two or more projects are possible, particularly in the event that the construction of two or more projects is concurrent and within sight of an individual heritage asset, although additional factors affecting setting may also occur. There are no temporary changes to the setting of non-designated heritage assets which may affect their significance predicted therefore there is no pathway for potential cumulative effects.
	Impact 6: No	
Operation		
Impacts 7 and 8: permanent change in the setting of heritage assets (both designated and non-designated) which may affect their heritage significance	Yes	Cumulative changes in heritage setting arising from two or more projects are possible, particularly in the event that the infrastructure of two or more projects occurs within sight of an individual heritage asset, although additional factors affecting setting may also occur.

Impact	Potential for Cumulative Effect	Rationale
Decommissioning		
The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. A decommissioning plan will be provided. As such, cumulative effects during the decommissioning stage are assumed to be no worse than those identified during the construction stage.		

25.8.2 Other plans, projects and activities

382. The second step in the cumulative assessment is the identification of the other plans, projects and activities that may result in cumulative effects for inclusion in the CEA (described as 'project screening'). This information is set out in Table 25.17, together with a consideration of the relevant details of each, including current status (e.g., under construction), planned construction period, closest distance to North Falls, status of available data and rationale for including or excluding from the assessment.

383. The Project screening has been informed by the development of a CEA project list which forms an exhaustive list of plans, projects and activities within the study area (Section 25.3.1) relevant to North Falls. The list has been appraised, based on the confidence in being able to undertake an assessment from the information and data available, enabling individual plans, projects and activities to be screened in or out.

384. Those projects located more than 1km from the onshore cable route and more than 5km from the onshore substation works area are screened out and not included in Table 25.17.

385. With regard to cumulative effects relating to the setting of onshore heritage assets arising from consented and proposed offshore wind farms these are screened in Table 25.18.

Table 25.17 Summary of projects considered for the CEA in relation to onshore archaeology and cultural heritage (project screening)

Project	Status	Construction period	Closest distance from the onshore project area (km)	Confidence in data	Included in the CEA (Y/N)	Rationale
National Infrastructure Planning						
Five Estuaries Offshore Wind Farm	Pre-application	2028 - 2030	Project footprint directly overlaps with North Falls onshore project area.	High	Yes	The onshore project area for Five Estuaries covers largely the same area as North Falls. There is also a possibility that both projects could be constructed at around the same time, therefore, cumulative effects may occur, and may result in impacts of a direct and / or indirect nature upon non-designated heritage assets. There is also the possibility of cumulative effects on heritage setting should the construction periods overlap.
Norwich to Tilbury (formerly East Anglia GREEN)	Pre-application	2027 - 2031	Project footprint directly overlaps with North Falls onshore project area.	High	Yes	The proposed substation area for Norwich to Tilbury is in close proximity to North Falls proposed onshore substation works area. Therefore, cumulative effects could occur, and may result in impacts of a direct and / or indirect nature upon non-designated heritage assets. There is also the possibility of cumulative effects on heritage setting should the construction periods overlap.
Essex County Council						
Elmstead Hall, Elmstead, Colchester, Essex	Approved	Information unavailable.	5	N/A	No	In consideration of the type of development proposed (which mainly comprise of small scale commercial and

Project	Status	Construction period	Closest distance from the onshore project area (km)	Confidence in data	Included in the CEA (Y/N)	Rationale
Elmstead Hall, Elmstead, Colchester, Essex, CO7 7AT Commercial	Approved	Information unavailable.	5	N/A	No	residential applications) and the distance from North Falls, there would be no potential for direct or indirect physical cumulative effects or potential for cumulative effects on heritage setting.
Elmstead Hall, Elmstead, Colchester, Essex, CO7 7AT Commercial	Approved	Information unavailable.	5	N/A	No	
Martell's Quarry, Slough Lane, Ardleigh, Essex, CO7 7RU Commercial	Out for consultation	Information unavailable	3	N/A	No	
Land at: Elmstead Hall, Elmstead, Colchester, Essex Commercial	Approved	Information unavailable.	5	N/A	No	
Land at Martells Quarry, Slough Lane, Ardleigh, Essex, CO7 7RU Commercial	Approved	Information unavailable.	3	N/A	No	

Project	Status	Construction period	Closest distance from the onshore project area (km)	Confidence in data	Included in the CEA (Y/N)	Rationale
Land at: Martells Quarry, Slough Lane, Ardleigh, Essex, CO7 7RU Commercial	Approved	Information unavailable	3	N/A	No	
Land At Martells Quarry, Slough Lane, Ardleigh, Essex CO7 7RU Commercial	Approved	Information unavailable.	3	N/A	No	
Land At Martells Quarry, Slough Lane, Ardleigh, Essex CO7 7RU Commercial	Approved	Information unavailable.	3	N/A	No	
Crown Quarry (Ardleigh Reservoir Extension), Wick Farm, Old Ipswich Road, Tendring, Colchester, CO7 7QR Commercial	Approved	Information unavailable.	3	N/A	No	
Ardleigh Waste Transfer Station, A120, Ardleigh, Colchester, CO7 7SL Commercial	Approved	Information unavailable.	5	N/A	No	

Project	Status	Construction period	Closest distance from the onshore project area (km)	Confidence in data	Included in the CEA (Y/N)	Rationale
35 Roach Vale, Colchester, CO4 3YN Residential	Approved	Information unavailable.	4	N/A	No	
Elmstead Hall, Elmstead, Colchester Commercial	Approved	Information unavailable.	5	N/A	No	
Elmstead Hall, Elmstead, Colchester, CO7 7EX Commercial	Approved	Information unavailable.	5	N/A	No	
Tendring District Council						
Land Between the A120 and A133, To The East of Colchester and of Elmstead Market Infrastructure	Awaiting decision	Information unavailable.	3	N/A	No	In consideration of the type of development proposed (road improvement works and residential developments) and the distance from North Falls, there would be no potential for direct or indirect physical cumulative effects or potential for cumulative effects on heritage setting.
Hamilton Lodge Parsons Hill Great Bromley Colchester Essex CO7 7JB Residential	Approval - Outline	Information unavailable.	2	N/A	No	

Project	Status	Construction period	Closest distance from the onshore project area (km)	Confidence in data	Included in the CEA (Y/N)	Rationale
Land adjacent to Lawford Grid Substation Ardleigh Road Little Bromley Essex CO11 2QB	Approved	Information unavailable.	0.3	Low	Yes	The proposed battery energy storage scheme is located in close proximity to the onshore substation works area for North Falls. If the Project construction overlaps with the construction of the North Falls substation, cumulative effects on heritage setting could occur, depending on the eventual North Falls onshore substation location and is considered within the following assessment. The potential for direct and indirect physical cumulative effects on heritage assets is unlikely and are scoped out of further assessment. Depending on the final North Falls onshore substation location, cumulative effects on heritage setting could also occur.

Table 25.18 Summary of offshore projects considered for the CEA in relation to impacts to the setting of onshore heritage assets (project screening)

Distance from Array	Name	Status	Number of Wind turbine generator (WTG)	Blad Tip Height (m)	Included in CEA (Y/N	Rationale
0 to 20km	Greater Gabbard	Operational	140	131	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is potential for cumulative effects to occur.
0 to 25km	Galloper	Operational	56	180.5	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational

Distance from Array	Name	Status	Number of Wind turbine generator (WTG)	Blad Tip Height (m)	Included in CEA (Y/N	Rationale
						impacts to setting and therefore there is potential for cumulative effects to occur.
20 to 32km	London Array - Phase 1	Operational	175	147	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is potential for cumulative effects to occur.
27 to 32km	Thanet	Operational	100	115	No	This project is not identified in any SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is no pathway for cumulative effects to occur.
35 to 55km	East Anglia Two	Consented	60	283	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is potential for cumulative effects to occur.
39 to 46km	Gunfleet Sands - Phase 1 and 2	Operational	48	129	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is potential for cumulative effects to occur.

Distance from Array	Name	Status	Number of Wind turbine generator (WTG)	Blad Tip Height (m)	Included in CEA (Y/N	Rationale
46km	Gunfleet Sands - Phase 3 Demonstration Project	Operational	2	144	Yes	This project has been identified in SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is potential for cumulative effects to occur.
55 to 62km	Kentish Flats	Operational	30	115	No	This project is not identified in any SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is no pathway for cumulative effects to occur.
55 to 62km	Kentish Flats Extension	Operational	16	139.6	No	This project is not identified in any SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is no pathway for cumulative effects to occur.
54 to 73km	East Anglia One	Operational	102	167	No	This project is not identified in any SLVIA visualisations from onshore heritage assets in which the assessment in Section 25.6.2 has identified will be subject to operational impacts to setting and therefore there is no pathway for cumulative effects to occur.

25.8.3 Assessment of cumulative effects

386. Five Estuaries is also in its application phase, having submitted a DCO to the PINS for the project, which was accepted on 22 April 2024. Although subject to a separate DCO, there is an option (Option 2) for Five Estuaries to share the same landfall location and onshore cable route (including Bentley Road improvement works) as North Falls, with the two projects also having co-located onshore substations within the same onshore substation works area. The two projects also have the same National Grid connection point.

387. Five Estuaries and North Falls have sought to collaborate and coordinate where practicable, which has led to collaborative design of the projects' onshore infrastructure, and also to sharing of detailed project design information onshore. As a result, a detailed CEA for effects arising from the development of the Five Estuaries can be undertaken. The CEA section of this chapter is therefore split into two sections:

- the first describing a detailed CEA covering effects predicted to arise from development of Five Estuaries and North Falls;
- the second, detailing effects predicted to arise from the development of Five Estuaries, North Falls and other projects.

388. The latter section will be based on the project information available for each scheme in the public domain, and by definition is therefore less detailed than the Five Estuaries and North Falls CEA section.

389. Full details on the approach to CEA used within this chapter are set out in ES Chapter 6 EIA Methodology (Document Reference: 3.1.8).

25.8.3.1 Five Estuaries

25.8.3.1.1 Realistic worst case scenario

390. Using the design information provided by Five Estuaries, and checked / updated against the submission of the Five Estuaries ES, a realistic worst case cumulative scenario has been developed for this assessment.

391. This realistic worst case cumulative scenario considers three potential cumulative scenarios, as outlined in ES Chapter 5 Project Description (Document Reference: 3.1.7):

- **Scenario 1:** North Falls 'Option 2' build out is progressed, and Five Estuaries Offshore Wind Farm Limited (VEOWL) undertakes landfall, onshore substation construction and cable pull which overlaps with North Falls equivalent works. In this scenario, onshore cable route associated works, including temporary construction compounds, accesses and haul road, all remain in place and are used by the second project during its construction.
- **Scenario 2:** North Falls 'Option 1 build out is progressed, and VEOWL undertakes landfall, onshore substation and onshore cable route construction and cable pull, all of which does not overlap with North Falls' equivalent works. There would be a gap of between 1 and 3 years between each Projects' construction. In this scenario, onshore cable route associated works, including temporary construction compounds, accesses and haul

road, all remain in place and are used by the second project during its construction.

- **Scenario 3:** North Falls 'Option 1' build out is progressed, and VEOWL undertakes a separate landfall, onshore substation and onshore cable route construction and cable pull with a multi-year (i.e. >3 year) gap between the two construction activities. In this scenario, there is no reuse in onshore temporary works between the two projects, and all onshore cable route associated works are rebuilt and reinstated in full by the second project.

392. Full details on the build out scenarios considered within this assessment are detailed in ES Chapter 5 Project Description (Document Reference: 3.1.7) ES Chapter 6 EIA Methodology (Document Reference: 3.1.8).

393. The realistic worst case scenario for likely cumulative effects scoped into the EIA for the onshore archaeology and cultural heritage assessment is Scenario 3 and is summarised in Table 25.19. This is based on there being a multi-year gap between constructions activities and no reusing of temporary works likely causing additional impacts to below and above ground heritage assets. These are based on project parameters for Five Estuaries described in ES Chapter 5 Project Description (Document Reference: 3.1.7), which provides further details regarding specific activities and their durations.

Table 25.19 Realistic worst-case scenario of cumulative effects arising from development of North Falls and Five Estuaries – (Scenario 3) (independent build).

Element of the project infrastructure	Parameter	Notes
Construction		
Impacts relating to the landfall	Landfall HDD (temporary works) physical parameters: Maximum No. of TJBs = 4 Individual TJB dimensions / permanent landtake = 4 x 15m Maximum HDD depth = 20m Maximum indicative length of HDD = 1.1km HDD temporary works area = 150 x 300m	Duration includes compound establishment, HDD, transition bays, and reinstatement.
	Duration: 13 months (of which HDD = 6 months) + 13 months (of which HDD = 6 months) HDD to include 24 hour / 7 days working where required	
Impacts relating to the onshore cable route	Cable route construction physical parameters: Route length = up to 24km Jointing bays = Maximum of 192 (approximately every 500m) buried below ground Joint bay dimensions = 4 x 15m Maximum cable trench depth = 2m Indicative cable route width = 80m (open cut trenching), 90m (trenchless crossings), 130m (complex trenchless crossings) Cable construction compound dimensions = 150 x 150m (main) to 100 x 100m (satellite) No. of trenches = 4 Cable trench width (max.) = 3.75m (at top) Haul road width = 6m wide road, 10m wide total including verges, drainage and passing places.	Overall duration includes establishing / reinstating temporary construction compounds and haul roads, cable installation (trench excavation, duct installation, cable jointing), HDD (includes compound establishment, HDD, and reinstatement).

Element of the project infrastructure	Parameter	Notes
	Replanting restrictions = 37m swathe in which only shrubs (growth up to max. 5m height) can be planted.	
	Trenchless crossings physical parameters: Maximum width of buried cable = 130m Maximum trenchless crossing depth = 20m HDD compound dimensions = 75 x 150m	
	Durations: Bentley road improvement works = 6 to 9 months Cable route works = 18 to 27 months (per project, i.e. up to 54 months) Cable installation = 12 months (per project, i.e. up to 24 months) Major HDD (each location) = 8 months (of which HDD = 4 months) (per project) Minor HDD crossings = 2 months (per project) Major HDD crossings to include 24 hour / 7 days working where required.	
Impacts relating to the onshore substation and National Grid connection works	Onshore substation (temporary works) physical parameters: Indicative area of the substations = 280 x 210m + 280 x 210m Number of buildings = 6 + 8 External equipment height (lightning masts) = 18m Construction compound footprint = 250 x 150m + 250 x 150m National Grid connection works physical parameters (for two projects): All enabling worth / platform constructed by National Grid. Cable installation works as described above Equipment may include:	

Element of the project infrastructure	Parameter	Notes
	cable sealing ends, surge arrestors, earth switch, disconnectors, circuit breakers, current transformers, voltage transformers, busbars	
	Durations: Substation construction duration = 21 to 27 months (per project, i.e. up to 54 months)	
Operation		
Impacts relating to the onshore cable route	Cable corridors operational physical parameters: No. of link boxes = up to 192 Link box footprint (per box) = 0.6 x 1 x 1.5m Cross-sectional area of buried cement-bound sand = 0.6m^2	
Impacts relating to the onshore substation	<u>Onshore substation construction physical parameters:</u> Maximum platform footprint = 280 x 210m + 280 x 210m Number of buildings = 6 + 8 External equipment height (lightning masts) = 18m	Normal operating conditions would not require lighting at the onshore substation, although low level movement detecting security lighting may be utilised for health and safety purposes. Temporary lighting during working hours would be provided during maintenance activities only. Low level continuous noise emissions would also be generated by the onshore substation during operation.
Impacts relating to the offshore array	<u>Offshore infrastructure parameters:</u> Up to 57 wind turbines Array area = 95km^2 Closest distance to shore = 40km	

Element of the project infrastructure	Parameter	Notes
	Two offshore substation platforms Maximum rotor tip height = 377.4m above MHWS Operational lifetime expected to be 30 years (North Falls) to 40 years (Five Estuaries).	
Decommissioning		
No final decision has yet been made regarding the final decommissioning policy for the onshore project infrastructure including landfall, onshore cable route, 400kV cable route and onshore substation. It is also recognised that legislation and industry best practice change over time. However, it is likely that the onshore project equipment, including the cable, will be removed, reused, or recycled where practicable and the transition bays and cable ducts being left in place. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and will be agreed with the regulator. It is anticipated that for the purposes of a worst case scenario, the impacts will be no greater than those identified for the construction phase.		

25.8.3.1.2 During construction

Impact 2 direct physical impact on (permanent change to) non-designated heritage assets (including buried archaeological remains, historic earthworks and structures) and Impact 3 and 4 indirect physical impact on (permanent change to) designated and non-designated heritage assets.

394. The overlapping nature of both onshore project areas means that there is the potential for direct and indirect physical cumulative effects on buried archaeology, geoarchaeological and palaeoenvironmental deposits.

395. The additional impacts to below ground archaeological remains by not reusing temporary works areas could potential have major adverse impacts upon below-ground heritage assets of up to high importance.

396. As both projects will adopt a mitigation strategy presented within the onshore OWSI (Document Reference: 7.12), no likely significant direct or indirect physical cumulative effects during construction are predicted over and above the effects of North Falls.

397. Archaeological mitigation is envisaged to comprise a combination of the following recognised standard approaches:

- Further advance and enacting of preservation in situ options and requirements (e.g., avoidance / micro-siting / HDD etc., where practicable);
- Archaeological excavation: including subsequent post-excavation assessment, and analysis, publication and archiving; and
- Archaeological monitoring / watching brief: including subsequent post-excavation assessment, and analysis, publication and archiving (where appropriate).

398. Further evaluation of potential geoarchaeological and palaeoenvironmental remains will include a programme of geoarchaeological monitoring of engineering-led GI works to inform mitigation approaches such as geoarchaeological assessment and palaeoenvironmental survey.

399. With these measures in place, direct and indirect physical cumulative effects during construction are anticipated to be non-significant in EIA terms.

Impact 5 and 6 temporary change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance

400. With any possible overlap in construction period for both projects there is the potential for temporary change to the setting of designated and non-designated heritage assets associated with Five Estuaries construction activities, as they will share intervisibility with the same heritage assets as the onshore project area.

401. The assessment undertaken as part of the ES has concluded that there would be a negligible adverse magnitude of impact upon elements of the setting (that contribute to their value) of identified designated heritage within the study area. This could be through the presence of machinery, construction traffic and general construction activities taking place within and adjacent to the onshore project area. Whilst the overlap between construction periods would prolong any impacts it is anticipated that these impacts would be of negligible magnitude for

both projects. Impacts from the any cumulative change to heritage setting will be temporary and reversible.

402. No likely significant cumulative effects on heritage setting during construction are predicted over and above the effects of North Falls. In consideration of the construction period, cumulative effects on heritage setting are anticipated to be non-significant in EIA terms.

25.8.3.1.3 During operation

Impact 7 and 8: permanent change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance

403. The primary cumulative effect considerations with respect to the setting of heritage assets is expected to be limited to the potential intervisibility of the Project's onshore substation / offshore array with the Five Estuaries onshore substation / offshore array, and any potential to cumulatively effect the setting of (the same) heritage assets in proximity to these.

404. A full setting assessment has been carried out (Appendices 25.3 and 25.4 (Document Reference: 3.3.50 and 3.3.51)). At present, there is anticipated to be a limited magnitude of change to the setting of two coastal heritage assets as the result of offshore infrastructure, however this is not expected to impact their heritage significance to levels considered significant in EIA terms. Due to the distance of the Five Estuaries array from these assets it is not anticipated these impacts would add to any cumulative impact arising from the North Falls infrastructure.

405. Where the onshore setting assessment (ES Appendix 25.3 (Document Reference: 3.3.50)) has concluded that there would be no impact on heritage assets settings and their heritage significance, these would not contribute to any cumulative effect arising from the construction of Five Estuaries. These include:

- Cropmark site south of Ardleigh (NHLE 1002146)
- Neolithic settlement site at Lawford (NHLE 1002157)

406. Cumulative impacts may arise where structures within the North Falls onshore substation works area would be partly visible alongside Five Estuaries infrastructure from selected heritage assets (see figures 25.3.2 – 25.3.5 in ES Appendix 25.3 (Document Reference: 3.3.50). As this change in view is not considered to impact the heritage significance of these assets it is not anticipated that these would contribute to any cumulative impact arising from the presence of Five Estuaries infrastructure. These comprise:

- Non-designated henge site (EHER 2460)
- Jenning's Farmhouse (NHLE 1111459)
- Church of St Mary (NHLE 1337175)

407. Overall, there is not expected that any cumulative effects during the operation of the Project and Five Estuaries would be significant in EIA terms.

25.8.3.1.4 During decommissioning

408. No decision has been made regarding the final decommissioning policy for North Falls as it is recognised that industry best practice, rules and legislation change over time. The detailed decommissioning activities and methodology would be determined later within the Project's lifetime so as to be in line with

latest and current guidance, policy and legislation at that point. At that juncture, the decommissioning methodology would be agreed with the relevant authorities and statutory consultees. Onshore, decommissioning is likely to include removal or reuse of the onshore substation with the cables and jointing bays left in situ or removed.

409. Assuming that provision is made for methods of removal which reduce further impact to the wider area, it is reasonable to assume that any potential damage upon designated and non-designated heritage assets would have already occurred as part of construction activities.

410. Changes to setting may be present as a result of visual and audible impacts associated with decommissioning activities. Any changes to the setting of heritage assets are considered to be temporary in duration, occurring in association with the decommissioning phase. As such, the worst case scenario as outlined for the construction phase in relation to temporary changes to the setting of heritage assets is unlikely to be exceeded as a result of decommissioning activities.

25.8.3.1.5 Summary

There are no predicted significant cumulative effects identified during the onshore archaeology and cultural heritage CEA in relation to Five Estuaries.

25.8.3.2 North Falls, Five Estuaries and other projects

411. Based on the project screening in Table 25.17 and Table 25.18, in addition to Five Estuaries, two of the other listed projects will be included in the CEA for further assessment: Norwich to Tilbury and Little Bromley BESS.

25.8.3.2.1 During construction

412. Cumulative effects from other projects during construction are shown in Table 25.20.

Table 25.20 Cumulative effects from other projects on onshore archaeology and cultural heritage during construction

Project	Construction Impacts 2 and 4: Direct and indirect physical impact on (permanent change to) non-designated heritage assets arising as a result of the construction phase	Construction Impact 5 and 6: Temporary change to the setting of designated and non-designated heritage assets arising as a result of the construction phase
Norwich to Tilbury	A new onshore substation is proposed to be built as part of the Norwich to Tilbury proposals by National Grid, close to the North Falls onshore substation works area. The close proximity of both project areas means that there is the potential for direct and indirect physical cumulative effects on buried archaeology, geoarchaeological / palaeoenvironmental deposits and above ground heritage assets associated with Norwich to Tilbury construction activities, as they may potentially intersect similar features in the same wider landscape. It is anticipated that a mitigation strategy which will seek to avoid, reduce or offset the effects of direct and indirect physical impacts will be adopted by Norwich to Tilbury. Archaeological mitigation is envisaged to comprise a combination of the following recognised standard approaches: • Further advance and enacting of preservation in situ options and requirements (e.g., avoidance / micro-siting / HDD etc., where practicable); • Archaeological excavation: including subsequent post-excavation assessment, and analysis, publication and archiving; and • Archaeological monitoring / watching brief: including subsequent post-excavation assessment, and analysis, publication and archiving (where appropriate). As all projects will be required to adopt a mitigation strategy as part of the planning process, this will ensure that impacts to buried heritage potentially affected by Norwich to Tilbury will appropriately mitigated and as a result no likely significant direct or indirect physical cumulative effects during construction are predicted over and above the effects of North Falls. With these measures in place, direct and indirect physical cumulative effects during construction are anticipated to be non-significant in EIA terms.	If the construction schedules for North Falls, Five Estuaries and Norwich to Tilbury overlap temporally, there is the potential for temporary cumulative effects on heritage setting to occur. The receptors outlined in section 25.6.1, which were identified as possibly being subject to negligible adverse impacts are all 1.7km or greater away from Norwich to Tilbury infrastructure therefore there is no pathway for cumulative effects. Any cumulative change to heritage setting will be temporary and reversible, therefore no likely significant cumulative effects on heritage setting during construction are predicted over and above the effects of North Falls. In consideration of the temporary nature of the construction period, cumulative effects on heritage setting are anticipated to be non-significant in EIA terms.
Little Bromley BESS	An ADBA was not submitted with the planning application for Little Bromley BESS. However, the recommended condition for archaeological evaluation and investigation from Essex County Council Historic Environment Service (HES) implies that the project is likely to have a direct physical impact on	If the construction schedules for North Falls, Five Estuaries and Little Bromley BESS overlap temporally, there is the

Project	Construction Impacts 2 and 4: Direct and indirect physical impact on (permanent change to) non-designated heritage assets arising as a result of the construction phase	Construction Impact 5 and 6: Temporary change to the setting of designated and non-designated heritage assets arising as a result of the construction phase
	known and potential buried archaeological remains. In consideration of the proximity of this project to the North Falls and Five Estuaries onshore substations, there is potential for direct physical cumulative effects on buried archaeological remains. As all projects will be required to adopt a mitigation strategy as part of the planning process, this will ensure that impacts to buried heritage potentially affected by Little Bromley BESS will appropriately mitigated and as a result, no likely significant direct physical cumulative effects during construction are predicted over and above the effects of North Falls. With these measures in place, direct physical cumulative effects during construction are anticipated to be non-significant in EIA terms.	potential for temporary cumulative effects on heritage setting to occur. The receptors outlined in section 25.6.1, which were identified as possibly being subject to negligible adverse impacts are all 1.7km or greater away from Little Bromley BESS therefore there is no pathway for cumulative effects. Any cumulative change to heritage setting will be temporary and reversible, therefore no likely significant cumulative effects on heritage setting during construction are predicted over and above the effects of North Falls. In consideration of the temporary nature of the construction period, cumulative effects on heritage setting are anticipated to be non-significant in EIA terms.

25.8.3.2.2 During operation

413. Cumulative effects from other projects during operation are shown in Table 25.21.

Table 25.21 Cumulative effect from other projects on onshore archaeology and cultural heritage during operation

Project	Operation Impact 7 and 8: Permanent change to the setting of designated and non-designated heritage assets arising as a result of operational works
Norwich to Tilbury	The primary cumulative effect considerations with respect to the setting of heritage assets is expected to be limited to the potential intervisibility of the North Falls and Five Estuaries onshore substations with Norwich to Tilbury and any potential to cumulatively effect the setting of (the same) heritage assets in proximity to these. Where the onshore setting assessment (ES Appendix 25.3 (Document Reference: 3.3.50)) has concluded that there will be a no impact on heritage assets settings and their heritage significance, these would not contribute to any cumulative effect arising from the construction of Norwich to Tilbury. This applies to the following assets: • Cropmark site south of Ardleigh (NHLE 1002146) • Neolithic settlement site at Lawford (NHLE 1002157) Cumulative impacts may arise where structures within the North Falls and Five Estuaries onshore substation works area will be partly visible alongside Norwich to Tilbury infrastructure from selected heritage assets (see figures 25.3.2 – 25.3.5 in ES Appendix 25.3 (Document Reference: 3.3.50)). As this change in view is not considered to alter these assets' settings or impact their heritage significance it is not anticipated that these would contribute to any cumulative impact arising from the Project in cumulation with the presence of Norwich to Tilbury infrastructure. This applies to the following assets: • non-designated henge site (EHER 2460) • Jenning's Farmhouse (NHLE 1111459) • Church of St Mary (NHLE 1337175) Overall, it is not expected that any cumulative effects during the operation of North Falls, Five Estuaries and Norwich to Tilbury are anticipated to be non-significant in EIA terms.
Little Bromley BESS	The primary cumulative effect considerations with respect to the setting of heritage assets is expected to be limited to the potential intervisibility of the North Falls and Five Estuaries onshore substations with Little Bromley BESS and any potential to cumulatively effect the setting of (the same) heritage assets in proximity to these.

Project	Operation Impact 7 and 8: Permanent change to the setting of designated and non-designated heritage assets arising as a result of operational works
	Where the onshore setting assessment (ES Appendix 25.3, (Document Reference: 3.3.50)) has concluded that there will be a no impact on heritage assets settings and their heritage significance, these would not contribute to any cumulative impact arising from the Project in cumulation with the construction of Little Bromley BESS. This applies to the following assets: • Cropmark site south of Ardleigh (NHLE 1002146) • Neolithic settlement site at Lawford (NHLE 1002157) Cumulative impacts may arise where structures within the North Falls and Five Estuaries onshore substation works area will be partly visible alongside Little Bromley BESS infrastructure from selected heritage assets (see figures 25.3.2 – 25.3.5 in ES Appendix 25.3 (Document Reference: 3.3.50)). As this change in view is not considered to alter these asset's settings or impact their heritage significance it is not anticipated that these would contribute to any cumulative impact arising from the presence of Little Bromley BESS infrastructure. This applies to the following assets: • non-designated henge site (EHER 2460) • Jenning's Farmhouse (NHLE 1111459) • Church of St Mary (NHLE 1337175) Overall, it is anticipated that any cumulative effects during the operation of North Falls, Five Estuaries and Little Bromley BESS will not be significant in EIA terms.
Consented and Operation offshore wind farms: • Five Estuaries • Greater Gabbard • Galloper, • London Array - Phase 1 • East Anglia Two • Gunfleet Sands - Phase 1 and 2, • Gunfleet Sands - Phase 3 Demonstration Project)	The primary cumulative effect considerations with respect to the setting of identified onshore heritage assets is expected to be limited to the potential intervisibility of the Project's array when viewed against a baseline of the consented and operation wind farms. The offshore setting assessment (ES Appendix 25.4 (Document Reference: 3.3.51)) concluded that there will be a minor adverse effect which would not be significant in EIA terms to Pulhamite Cliffs (Grade II Listed Building NHLE 1406805) and Bawdsey Manor Park (Grade II NHLE 1001465). Viewpoint 10 (SLVIA Figure 29.2.10b-c) shows the location Projects array area alongside other consented and operational wind farms when viewing from Bawdsey Manor Park and the Pulhamite Cliffs. The visualisation shows that the Project would be the most visible when viewed against the baseline of (most notably) Five Estuaries, Galloper, Greater Galloper and East Anglia Two, although Five Estuaries would be visible behind the North Falls array in views from the asset. Gunfleet Sands Phase 1, 2 and 3 along with London Array – Phase 1 are also barely visible to a viewer who actively searches when looking to the south, to the extent where it is considered that these would not contribute to the cumulative baseline.

Project	Operation Impact 7 and 8: Permanent change to the setting of designated and non-designated heritage assets arising as a result of operational works
	The Project would represent a limited addition to the arc of view towards the array area, and as a fairly coherent addition to this baseline; in all cases, the additional projects considered in the cumulative baseline would be visible only in excellent visibility. As a result, there would be a slight increase in magnitude of impact to low adverse, resulting in a minor adverse significance of effect which would be non-significant in EIA terms.

25.8.3.2.3 During decommissioning

414. Decommissioning strategies have not yet been finalised or are not available for North Falls, Five Estuaries, Little Bromley BESS or Norwich to Tilbury; however, the cumulative impacts are expected to be the same as those of the initial construction phase.

25.9 Transboundary effects

415. There are no transboundary effects with regards to onshore archaeology and cultural heritage as the onshore project area would not be sited in proximity to any international boundaries. Transboundary effects are therefore scoped out of this assessment and are not considered further.

25.10 Interactions

416. There are potential interactions between the onshore archaeology and cultural heritage topic and other topics that have been considered within this ES. Table 25.22 provides a summary of the principal interactions and signposts to where those issues have been addressed.

Table 25.22 Onshore archaeology and cultural heritage interactions

Impact / receptor	Related Chapter (Volume 3.1)	Where Addressed in this Chapter	Rationale
Construction			
Impacts 1 and 2:	No interactions identified.		
Impacts 3 and 4: Indirect (physical) impacts on designated and non-designated heritage assets.	ES Chapter 21 Water Resources and Flood Risk	Section 25.6.1.3	Potential impacts as a result of changes to ground conditions affecting buried archaeological deposits.
	ES Chapter 26 Noise and Vibration	Section 25.6.1.3	Potential for vibration from groundworks affecting the fabric of a heritage asset.
Impacts 5 and 6: Temporary change to the setting of heritage assets.	ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage	Section 25.6.1.4	Impacts to the setting of coastal heritage assets may occur associated with activities associated with the installation of offshore infrastructure.
	ES Chapter 20 Onshore Air Quality	Section 25.6.1.4	Potential impacts from dust could change the setting of heritage assets.
	ES Chapter 26 Noise and Vibration	Section 25.6.1.4	Potential impacts related to noise and vibration could change the setting of heritage assets.

Impact / receptor	Related Chapter (Volume 3.1)	Where Addressed in this Chapter	Rationale
	ES Chapter 29 Seascape, Landscape and Visual Impact Assessment	Section 25.6.1.4	There could be potential impacts with respect to visual receptors along the coast which could also represent potential changes to the setting of heritage assets.
	ES Chapter 30 Landscape and Visual Impact Assessment	Section 25.6.1.4	There could be potential impacts with respect to landscape and visual receptors which could also represent potential changes to the setting of heritage assets.
Operation			
Impacts 7 and 8: Permanent change to the setting of heritage assets.	ES Chapter 16 Offshore and Intertidal Archaeology and Cultural Heritage	Section 25.6.2.1	Impacts to the setting of coastal heritage assets may occur associated with the presence of offshore infrastructure.
	ES Chapter 26 Noise and Vibration	Section 25.6.2.1	Potential impacts related to noise and vibration could change the setting of heritage assets.
	ES Chapter 29 Seascape, Landscape and Visual Impact Assessment	Section 25.6.2.1	There could be potential impacts with respect to visual receptors along the coast which could also represent potential changes to the setting of heritage assets.
	ES Chapter 30 Landscape and Visual Impact Assessment	Section 25.6.2.1	There could be potential impacts with respect to landscape and visual receptors which could also represent potential changes to the setting of heritage assets.
Decommissioning			
Interactions and the identified impacts associated with the decommissioning phase would be no greater than those identified for the construction phase.			

25.11 Inter-relationships

417. The impacts identified and assessed in this chapter have the potential to interrelate with each other. The areas of potential inter-relationships between impacts are presented in Table 25.23. This provides a screening tool for which impacts have the potential to interrelate. Table 25.24 provides an assessment for each receptor (or receptor group) as related to these impacts.

418. Within Table 25.24 the impacts are assessed relative to each development phase (i.e., construction, operation or decommissioning) to see if (for example) multiple construction impacts affecting the same receptor could increase the significance of effect upon that receptor. Following this, a lifetime assessment is undertaken which considers the potential for impacts to affect receptors across all development phases.

Table 25.23 Inter-relationships between impacts - screening

Potential Interaction between Impacts						
Construction						
	Impact 1: Direct Physical Impact on Designated Heritage Assets	Impact 2: Direct Impact on Non-designated Heritage Assets	Impact 3: Indirect Physical Impact on Designated Heritage Assets	Impact 4: Indirect Physical Impact on Non-designated Heritage Assets	Impact 5: Temporary Change to the Setting of Designated Heritage Assets	Impact 6: Temporary Change to the Setting of Non-designated Heritage Assets
Impact 1: Direct Physical Impact on Designated Heritage Assets		No	Yes	No	Yes	No
Impact 2: Direct Impact on Non-designated Heritage Assets	No		No	Yes	No	Yes
Impact 3: Indirect Physical Impact on Designated Heritage Assets	Yes	No		No	Yes	No
Impact 4: Indirect Physical Impact on Non-designated Heritage Assets	No	Yes	No		No	Yes
Impact 5: Temporary Change to the Setting of Designated Heritage Assets	Yes	No	Yes	No		No

Potential Interaction between Impacts						
Impact 6: Temporary Change to the Setting of Non-designated Heritage Assets	No	Yes	No	Yes	No	
Operation						
	Impact 7: Permanent Change to the Setting of Designated Heritage Assets			Impact 8: Permanent Change to the Setting of Non-designated Heritage Assets		
Impact 7: Permanent Change to the Setting of Designated Heritage Assets				No		
Impact 8: Permanent Change to the Setting of Non-designated Heritage Assets	No					
Decommissioning						
It is anticipated that the decommissioning impacts would be similar in nature to those of construction.						

Table 25.24 Inter-relationship between impacts – phase and lifetime assessment

Receptor	Highest significance level			Phase assessment	Lifetime assessment
	Construction	Operation	Decommissioning		
Designated Heritage Assets	No impact	Minor adverse	No impact	No greater than individually assessed impact. Mitigation (avoidance, micro-siting and route refinement) would reduce or remove the potential for indirect physical impacts on designated heritage assets during construction. There would be no direct or indirect physical disturbance during operation. Setting impacts in the construction and decommissioning phases would be temporary. It is therefore considered that there would be no pathway for interaction to exacerbate the potential impacts associated with these activities during or between any of the Project phases.	No greater than individually assessed impact. Infrastructure is only installed during construction, therefore there is no greater footprint taken as part of the operational or decommissioning phases. Setting is not relevant to the construction and decommissioning phases as any change would be temporary. It is therefore considered that over the Project lifetime these impacts would not combine to increase the significance level of any impacts identified in this assessment.
Non-designated Heritage Assets	Minor adverse	Minor adverse	Minor adverse	No greater than individually assessed impact. Mitigation would reduce or offset the potential for direct physical and indirect physical impacts on non-designated heritage assets during construction. There would be no direct or indirect physical disturbance during operation. Setting impacts in the construction and decommissioning phases would be temporary. It is therefore considered that there would be no pathway for interaction to exacerbate the potential impacts associated with these activities during or between any of the Project phases.	No greater than individually assessed impact. Infrastructure is only installed during construction, therefore there is no greater footprint taken as part of the operational or decommissioning phases. Setting is not relevant to the construction and decommissioning phases as any change would be temporary. It is therefore considered that over the Project lifetime these impacts would not combine to increase the significance level of any impacts identified in this assessment.

25.12 Summary

419. This chapter provides a characterisation of the existing environment for onshore archaeology and cultural heritage based on both existing and site-specific survey data. An impact assessment has been undertaken and has established that there would be some minor adverse residual effects on heritage assets during construction, operation and decommissioning phases of North Falls.

420. A summary of the findings of this chapter for onshore archaeology and cultural heritage is presented in Table 25.25. The significance of effect represents a worst case scenario.

421. In accordance with the assessment methodology presented in Section 25.4, this table should also be used in conjunction with the additional narrative explanations provided in Section 25.6.

422. The impact assessment as presented in this chapter assumes that activities associated with construction may theoretically occur anywhere within the onshore project area.

423. A summary of the CEA between North falls and other projects, including Five Estuaries, is presented also in Table 25.26.

Table 25.25 Summary of potential likely significant effects on onshore archaeology and cultural heritage topic

Potential impact	Receptor	Sensitivity	Magnitude of impact	Pre-mitigation effect	Mitigation measures proposed	Residual effect
Construction						
Impact 1: Direct physical impact on designated heritage assets	Known designated heritage assets	Medium - High	No impact	N/A	N/A	N/A
Impact 2: Direct physical impact on non-designated heritage assets	Known and potential buried archaeological and geoarchaeological / palaeoenvironmental remains and above ground heritage assets	Low - High	High adverse	Moderate to major adverse	Carrying and executing preservation in situ options and requirements (e.g. avoidance / micro-siting / HDD etc., where possible). Application of mitigation through preservation by record, which could include: • Archaeological excavation: including subsequent post-excavation assessment, and analysis, publication and archiving; • Archaeological monitoring / watching brief: including subsequent post-excavation assessment, and analysis, publication and archiving (where appropriate); and • Earthwork condition surveys: including	Following the application of appropriate and proportionate evaluation and mitigation approaches, to be agreed in consultation with relevant stakeholders, the residual impact is anticipated to be reduced (or offset) to an impact significance level of minor adverse, as a worst case scenario.

Potential impact	Receptor	Sensitivity	Magnitude of impact	Pre-mitigation effect	Mitigation measures proposed	Residual effect
					subsequent reporting and archiving (followed by backfilling and reinstatement, where required on a case-by-case basis).	
Impact 3: Indirect physical impact on designated heritage assets	Vibration affecting designated heritage assets	Medium - High	No impact	N/A	N/A	N/A
Impact 4: Indirect physical impact on non-designated heritage assets	Known palaeoenvironmental and geoarchaeological deposits	Low - High	Negligible	Minor adverse	No further mitigation is proposed with respect to potential vibration from the operation of the HDD.	Minor adverse as a worst case scenario.
	Vibration affecting non-designated heritage assets	Low - High	Negligible	Minor adverse	No further mitigation is proposed with respect to potential vibration from the operation of the HDD.	
Impact 5: Temporary change to the setting of designated heritage assets	Designated heritage assets	Medium - High	Negligible adverse	(Up to) Minor adverse	No further mitigation is proposed	Residual impact is anticipated to be reduced to negligible adverse, as a worst case scenario.
Impact 6: Temporary change to the setting of	Known non-designated above ground heritage assets	Low - High	No impact	N/A	N/A	N/A

Potential impact	Receptor	Sensitivity	Magnitude of impact	Pre-mitigation effect	Mitigation measures proposed	Residual effect
non-designated heritage assets						
Operation						
Impact 7: Permanent change to the setting of designated heritage assets	Known designated heritage assets	Medium - High	Low adverse	(Up to) Minor adverse	No further mitigation is proposed	Minor adverse, as a worst case scenario.
Impact 8: Permanent change to the setting of non-designated heritage assets	Known non-designated above ground heritage assets	Low - High	No impact	N/A	N/A	N/A
Decommissioning						
No decision has been made regarding the final decommissioning policy, as it is recognised that industry best practice, rules and legislation change over time. The decommissioning methodology would need to be finalised nearer to the end of the lifetime of the Project so as to be in line with latest and current guidance, policy and legislation at that point. Any such methodology would be agreed with the relevant authorities and statutory consultees. It is anticipated that the decommissioning impacts could be similar in nature to those of construction, depending on the extent and depths to which any further intrusive sub-surface decommissioning groundworks may occur.						

Table 25.26 Summary of potential cumulative effects on onshore archaeology and cultural heritage

Potential impact	Cumulative effect	Additional mitigation
Construction		
Impact 1: Direct physical impact on (permanent change to) designated heritage assets.	The onshore project area avoids all known (Scheduled Monuments, Listed Buildings, etc.) designated heritage assets and as such, no direct physical impacts are anticipated to occur to designated heritage assets. Operation and maintenance access routes to service the landfall located within the onshore project area currently extend into the southern half of Frinton Conservation Area and the eastern end of Great Holland Conservation Area, however no direct physical impacts are anticipated. As such there is no pathway for cumulative effects.	N/A
Impact 2: direct physical impact on (permanent change to) non-designated heritage assets (including buried archaeological remains, historic earthworks and structures) and Impact 3 and 4: indirect physical impact on (permanent change to) designated and non-designated heritage assets.	The overlapping nature the project and others assessed in this chapter means that there is the potential for direct and indirect physical cumulative effects on buried archaeology, geoarchaeological and palaeoenvironmental deposits. As other projects will adopt a mitigation strategy, no likely significant direct or indirect physical cumulative effects during construction are predicted over and above the effects of North Falls. With these measures in place, direct and indirect physical cumulative effects during construction are anticipated to be non-significant in EIA terms.	N/A
Impact 5 and 6: temporary change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance	Any cumulative change to heritage setting would be temporary and reversible. No likely significant cumulative effects on heritage setting during construction are predicted over and above the effects of North Falls. In consideration of the temporary nature of the construction period, cumulative effects on heritage setting are anticipated to be non-significant in EIA terms.	N/A
Operation		

Potential impact	Cumulative effect	Additional mitigation
Impact 7 and 8: permanent change to the setting of heritage assets (both designated and non-designated) which could affect their heritage significance.	Cumulative impacts may arise where structures within the North Falls onshore substation works area would be partly visible alongside other projects infrastructure from selected heritage assets. As this change in view is not considered to alter these assets' settings or impact their heritage significance it is not anticipated that these would contribute to any cumulative impact arising from the presence other projects' infrastructure.	N/A
Decommissioning		
Decommissioning strategies have not yet been finalised for North Falls, Five Estuaries or Norwich to Tilbury; however, the cumulative effects are expected to be the same as those of the initial construction phase.		

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HARNESSING THE POWER OF NORTH SEA WIND

North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

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