Preliminary Environmental Information Report Volume 1

Chapter 26 Marine Archaeology

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LIONLINK

Contents

Glossary of Project Terminology

This Glossary has been provided to define terms used across a number of the LionLink Multi-Purpose Interconnector Project documents.

Term	Definition
Applicant, the	National Grid Lion Link Limited (NGLLL)
Co-ordination	The process of people or entities working together.
Co-location	Where different elements of a project, or various projects, are located in one place.
Development Consent Order (DCO)	An order made by the Secretary of State pursuant to the Planning Act 2008 (as amended) granting development consent for a Nationally Significant Infrastructure Project. It grants consent to develop the approved project and may include (among other things) powers to compulsorily acquire land and rights where required and deemed marine licences for any offshore works.
Draft Order Limits	The area of land identified as being subject to the DCO application. The Draft Order Limits are made up of the land required both temporarily and permanently to allow for the construction, operation and maintenance, and decommissioning of the Proposed Scheme. All onshore parts of the Proposed Onshore Scheme are located within England and offshore parts of the Proposed Offshore Scheme are located within English territorial waters to 12 Nautical Miles and then up to the United Kingdom (UK) Exclusive Economic Zone (EEZ) boundary at sea.
Dutch Offshore Components	Is the term used when referring to the offshore elements of the Project within Dutch waters.
Environmental Impact Assessment (EIA)	The EIA is a systematic regulatory process that assesses the potential likely significant effects of a proposed project or development on the environment.
EIA Scoping Report	An EIA scoping report defines the proposed scope and methodology of the EIA process for a particular project or development. The EIA Scoping Report for the Proposed Scheme was submitted to the Planning Inspectorate with a request for the Secretary of State to adopt a scoping opinion in relation to the Proposed Scheme on 6 March 2024.

Term	Definition
Environmental Statement (ES)	The ES is a document that sets out the likely significant effects of the project on the environment. The ES is the main output from the EIA process. The ES is published as part of the DCO application.
Exclusive Economic Zone (EEZ)	The zone in which the coastal state exercises the rights under Part V of the United Nations Convention on the Law of the Sea. These rights relate principally to the water column and may extend to 200 nautical miles from baselines. This is distinct from territorial waters, which for the UK extend 12 nautical miles from the coast.
Landfall	The proposed Landfall is where the proposed offshore HVDC Submarine Cables are brought ashore and meets with the onshore proposed Underground HVDC Cables. This includes the Transition Joint Bay (TJB). The proposed Landfall will be located at Walberswick, and there will be no permanent above ground infrastructure at the proposed Landfall.
Landfall Site	The area where the Landfall may be located.
Multi-purpose interconnector (MPI)	A project where GB interconnection is combined with transmission of offshore generation within GB (and optionally within a connecting state).
National Grid Lion Link Limited (NGLLL)	The Applicant, a joint venture between National Grid Ventures and TenneT. NGLLL is a business within the wider National Grid Ventures portfolio.
National Grid Ventures (NGV)	Operates and invests in energy projects, technologies and partnerships to accelerate the development of a clean energy future. This includes interconnectors (such as the LionLink Project), allowing trade between energy markets and the efficient use of renewable energy resources.
Nationally Significant Infrastructure Projects (NSIP)	Major infrastructure developments in England and Wales for which development consent is required, as defined within Section 14 of the Planning Act 2008 (as amended). This includes any development which is subject to a direction by the relevant Secretary of State pursuant to Section 35 of the Planning Act 2008.
Offshore Hybrid Asset (OHA)	A project that combines cross-border interconnection with the transmission of offshore generation, this is an overarching term which covers both multi-purpose interconnectors (MPI) and non-standard interconnectors (NSI).
Order Limits	The maximum extent of land within which the Proposed Scheme may take place, as consented.

Term	Definition
Outline Offshore Construction Environmental Management Plan (Outline Offshore CEMP)	Describes the control measures and standards proposed to be implemented to provide a consistent approach to the environmental management of the construction activities of the Proposed Offshore Scheme.
Outline Onshore Code of Construction Practice (Outline Onshore CoCP)	Describes the control measures and standards proposed to be implemented to provide a consistent approach to the environmental management of the construction activities of the Proposed Onshore Scheme.
Planning Act 2008	The Planning Act 2008 being the relevant primary legislation for national infrastructure planning.
Planning Inspectorate (PINS)	The Planning inspectorate review DCO applications and make a recommendation to the Secretary of State, who will then decide whether to approve the DCO.
Preliminary Environmental Information Report (PEIR)	The PEIR is a document, compiled by the Applicant, which presents preliminary environmental information, as part of the statutory consultation process. This is defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 as containing information which "is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)" (Section 12 2. (b)). This PEIR describes the Proposed Scheme, sets out preliminary findings of the EIA undertaken to date, and the mitigation measures proposed to reduce effects. The PEIR is published at Statutory Consultation stage for information and feedback.
Project (the)	The LionLink Project (hereafter referred to as the 'Project') is a proposal by National Grid Lion Link Limited (NGLLL) and TenneT. The Project is a proposed electricity link between Great Britain (GB) and the Netherlands with a capacity of up to 2.0 gigawatts (GW) of electricity and will connect to Dutch offshore wind via an offshore platform in Dutch waters. The Project is the collective term used to refer to the proposal for all aspects (onshore and offshore) of the proposed interconnector between GB and the Netherlands.
Proposed Offshore Scheme	The term used when referring to the offshore elements of the Proposed Scheme, seaward of the

Term	Definition
	mean high-water springs to the EEZ boundary at sea.
Proposed Scheme	Used when referring to the GB scheme components of the Project, not including Dutch components. This includes both the onshore and offshore scheme components which are within UK territorial waters and up to the UK EEZ boundary at sea.
Scoping Opinion	A scoping opinion is requested from the Planning Inspectorate on behalf of the Secretary of State, to inform the requirements of EIA process and ultimately the ES which will be submitted as part of the application for development consent. Through the scoping process, the views of the statutory consultees and other relevant organisations on the proposed scope of the EIA are sought. A Scoping Opinion for the Proposed Scheme was issued by the Planning Inspectorate (on behalf of the Secretary of State) on 16 April 2024. The Applicant received a separate EIA Scoping Opinion from the Marine Management Organisation (MMO) (Reference DCO/2024/00005, dated 04 September 2024) as the MMO were unable to provide opinion to the Planning Inspectorate in time for the April 2024 deadline.
Scottish Power Renewables (SPR) East Anglia One North (EA1N) and East Anglia 2 (EA2) Consents (SPR EA1N and EA2 Consents)	The Orders made following the Scottish Power Renewables applications for development consent for the following projects: The East Anglia ONE North Offshore Wind Farm Order 2022; and East Anglia TWO Offshore Wind Farm Order 2022
Statutory Consultation	Consultation undertaken with the community and stakeholders in advance of the application for development consent being submitted to the Planning Inspectorate, on behalf of the Secretary of state, in accordance with the PA 2008.
TenneT	Operator of the electricity transmission network across the Netherlands.
Transition Joint Bay (TJB)	An underground structure at the Landfall Site that house the joints between the offshore cables and the onshore cables.

Terms and abbreviations specific to this technical chapter contained herein are provided at the end of the document in the **Topic Glossary and Abbreviations.**

26 MARINE ARCHAEOLOGY

26.1 Introduction

26.1.1 This chapter provides a preliminary assessment of the potential likely significant effects in relation to marine archaeology from the construction, operation and maintenance, and decommissioning of LionLink (hereafter referred to as 'the Proposed Scheme').

26.1.2 This chapter outlines legislation, policy and guidance that is relevant to marine archaeology, summarises the engagement undertaken to date, sets out the scope and methodology of assessment, and describes the baseline environment. Following this, the likely significant effects of the Proposed Scheme on marine archaeology are assessed taking account of mitigation measures within the design. The need for any additional mitigation is then considered along with any proposals for monitoring and/or enhancement. The chapter concludes with a summary of residual effects.

26.1.3 Marine archaeology aspects considered within this chapter for the Proposed Scheme are:

a. palaeolandscape and submerged prehistory;
b. seabed features including maritime sites and coastal remains and aviation sites;
c. intertidal features relating to marine activity.

26.1.4 This chapter should be read in conjunction with **Chapter 2 Description of the Proposed Scheme** of this Preliminary Environmental Information Report (PEIR), which describes the development parameters against which the effects considered in this chapter have been assessed, and **Chapter 5 EIA Approach and Methodology** of this PEIR where the project-wide approach to the assessment methodology is set out.

26.1.5 In addition, there may be interrelationships related to the potential effects on marine archaeology and other disciplines. Therefore, this chapter should be read alongside relevant parts of other chapters; namely:

a. **Chapter 11 Historic Environment** of this PEIR;
b. **Chapter 18 Marine Physical Environment** of this PEIR - identifies the spatial extent of potential impacts from temporary sediment suspension and subsequent re-deposition; and
c. **Chapter 28 Cumulative Effects** of this PEIR.

26.1.6 This chapter is supported by the following appendices and figures, contained within Volume 2 and Volume 3 of this PEIR, respectively:

a. **Appendix 2.2 Outline Offshore Construction Environmental Management Plan** of this PEIR;
b. **Appendix 29.1 Outline Schedule of Environmental Commitments and Measures** of this PEIR;
c. **Appendix 4.1 Legislation and Policy Register** of this PEIR;
d. **Appendix 4.2 Marine Plan Assessment** of this PEIR;
e. **Appendix 5.1 Transboundary Screening** of this PEIR;
f. **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR;
g. **Appendix 26.2 Stage 1 Geoarchaeological Review of 2024 Offshore Geotechnical Data** of this PEIR;
h. **Appendix 26.3 Stage 2 Geoarchaeological Recording of 2024 Geotechnical Data** of this PEIR;
i. **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR; and
j. **Figure 26.1** to **Figure 26.3 a-w** of this PEIR.

26.1.7 As set out in **Chapter 4 Policy and Legislation** of this PEIR**,** cable installation and some associated activities beyond 12 nautical miles (NM) are exempt under the Marine and Coastal Access Act (MCAA) 2009 as well as repair of the installed cable. This chapter presents a preliminary assessment of the offshore elements of the Proposed Scheme (hereafter referred to as the 'Proposed Offshore Scheme') from mean high water springs (MHWS) at the proposed Landfall Site to the boundary between the UK and Netherlands Exclusive Economic Zone (EEZ). This is to provide a holistic view of the Proposed Offshore Scheme and any associated impacts, however consent is not being sought for the exempt cable (either installation or repair) and only cable protection and dredging for sand wave levelling will be included in the Deemed Marine Licence (DML) beyond 12NM.

26.2 Legislation and policy framework

26.2.1 This section identifies the legislation, policy and guidance that has informed the assessment of the likely significant effects on marine archaeology.

26.2.2 The legislation and planning policy which has informed the assessment of effects with respect to marine archaeology is provided within **Appendix 4.1 Legislation and Policy Register** of this PEIR. A preliminary marine plan assessment is provided as **Appendix 4.2 Marine Plan Assessment** of this PEIR.

26.2.3 **Table 26.1** lists the legislation relevant to the assessment of the likely significant effects on marine archaeology. Full details can be found in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR.

Table 26.1: List of relevant legislation for marine archaeology

Legislation	Relevance to assessment
The Planning Act 2008 (Ref 1)	An Act to establish the Infrastructure Planning Commission and make provision about its functions; to make provision about, and about matters ancillary to, the authorisation of projects for the development of nationally significant infrastructure.
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 2)	This Act transposes EU Directive 2011/92/EU (the EIA Directive) into UK law for nationally significant infrastructure projects, ensuring environmental safeguards while potentially streamlining the process.
Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (Ref 3)	The Marine Works (Environmental Impact Assessment) Regulations 2007 require certain types of projects that have the potential to significantly affect the environment to submit an EIA before a marine licence decision is made.
Marine and Coastal Access Act 2009. (Ref 4)	This Act provides a framework for managing and protecting marine and coastal areas, promoting sustainable development, enhancing public access to the coast, and conserving marine biodiversity and habitats, including establishing marine protected areas and coastal access routes.
Protection of Wrecks Act 1973, Section One and Two. (Ref 5)	Section One of the Act designates a restricted area around a wreck to prevent uncontrolled interferences. These protected areas are likely to contain the remains of a vessel, or its contents, which are designated due to their historical, archaeological, or artistic value. Section Two provides for designation of dangerous sites. Wreck sites must have a known location in order to be designated.
Ancient Monuments and Archaeological Areas Act 1979. (Ref 6)	The Ancient Monuments and Archaeological Areas Act 1979protects terrestrial and marine archaeological heritage of England, Wales and Scotland. Any site can be scheduled that appears to be of national importance because of its historic, architectural, traditional, artistic or archaeological interest.
Protection of Military Remains Act 1986. (Ref 7)	The Protection of Military remains Act 1986 provides protection for the wreckage of military aircraft and designated military vessels. The Act provides two types of protection: Protected Places (wrecks designated by name and can be designated even if the location of the site is not known) and Controlled Sites (sites designated by location). It is illegal to disturb these sites. All aircraft lost while in military service are automatically protected under the Act.
Merchant Shipping Act 1995. (Ref 8)	Part IX: Salvage and Wreck of the Merchant Shipping Act 1995 sets out the procedures for determining the ownership of underwater material identified as ‘wreck’, defined as flotsam, jetsam, derelict and lagan found in or on the shores of the UK’s territorial waters or any UK tidal water. Ownership of any wreck remains is determined in accordance with the Act as administered by the Receiver of Wreck of the Maritime Coastguard Agency.

National Policy

26.2.4 The primary basis for deciding whether to grant a Development Consent Order (DCO) for the Proposed Scheme are the National Policy Statements (NPSs), and of primary relevance the Overarching NPS for Energy (NPS EN-1) (Ref 9) and for Electricity Networks Infrastructure (NPS EN-5) (Ref 10). These set out policies to guide how applications for development consent for energy infrastructure should be decided and how the effects of such infrastructure are considered.

26.2.5 **Table 26.2** lists the paragraphs from the NPS and other national policy that are relevant to the marine archaeology assessment. It also sets out where these policy requirements are addressed within the chapter.

Table 26.2: List of relevant national policy for marine archaeology

Relevant paragraph reference	Summary of policy requirement	Where addressed in PEIR
NPS EN-1		
Section 5.9.10	"*As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.*".	The significance of marine heritage receptors currently identified has been discussed in the baseline conditions (**Section 26.6**). Data has been obtained from several sources (**Section 26.4**) including National Marine Heritage Record and Historic Environment Records for Suffolk.
Section 5.9.11	"*Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to explain the impact.*"	A desk-based assessment has been undertaken to assess the archaeological interest of marine heritage interested (**Appendix 26.1 Marine Archaeological Technical Report** of this PEIR) and is summarised in **Section 26.6**. The desk-based sources of information have been corroborated with site specific survey data and reported on in this PEIR.

Relevant paragraph reference	Summary of policy requirement	Where addressed in PEIR
		The setting of the archaeological resource has also been assessed, although due to their marine nature, representative visualisations have not been generated.
Section 5.9.12 (part)	"*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*."	The significance of marine heritage receptors currently identified has been discussed in the baseline conditions (**Section 26.6**) and the likely significance of such an impact is presented in **Section 26.8**Error! Reference source not found.
Section 5.9.17	"*Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the asset's importance and significance and the impact. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant Historic Environmental Record. They should also be required to deposit the archive generated in a local museum or other public repository willing to receive it*."	The significance of marine heritage receptors currently identified has been discussed in the baseline conditions (**Section 26.6**) and the likely significance of such an impact is presented in **Section 26.8.** Features of high archaeological potential (A3 anomalies) have been avoided by means of Archaeological Exclusions Zones (AEZs) (as presented in **Table 26.14**). Avoidance of identified seabed features (A2 anomalies) is recommended by micro-routing. Where impact is unavoidable, further assessment will be undertaken to confirm the historic importance of the anomaly (see **Section 26.7**).
Section 5.9.18	"Where appropriate, the Secretary of State will impose requirements on the Development Consent Order to ensure that the work is undertaken in a timely manner, in accordance with a written scheme of investigation that complies with the policy in this NPS and which has been agreed in writing with the relevant local authority, and to ensure that the completion of the exercise is properly secured."	The Written Scheme of Investigation (WSI) recommends timescales required for work to be undertaken, associated reporting to be submitted, and archives to be deposited. A marine archaeological WSI is appended to this chapter (**Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR). The final WSI will be developed in consultation with

Relevant paragraph reference	Summary of policy requirement	Where addressed in PEIR
		Historic England and approved by the Marine Management Organisation (MMO), as part of the discharge of deemed marine licence conditions.
Section 5.9.27	"*When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.*"	There are no designated archaeological sites in the study area at present. Non-designated sites are not necessarily of lesser value and therefore, non-designated assets that can be demonstrated to be of equivalent value to designated sites are considered to be of equivalent significance to a designated asset for the purpose of this assessment. All sites considered to be of archaeological importance (or are modern wreck sites considered to be seabed hazards) have an AEZ (see **Table 26.14**) implemented around them preventing any works to be undertaken within the extent.
NPS EN-5		
Section 2.2.10 – 11	"*As well as having duties under Section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), 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 infrastructure, to "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and 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 natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.*	A desk-based assessment has been undertaken to assess the archaeological interest of marine heritage interests within the study area (**Appendix 26.1 Marine Archaeological Technical Report** of this PEIR) and is summarised in **Section 26.6**. The desk-based sources of information will be corroborated with site specific survey data and reported on in the ES. The significance of the marine heritage resource is included in the baseline conditions (**Section 26.6**). The embedded control measures to protect the marine

Relevant paragraph reference	Summary of policy requirement	Where addressed in PEIR
	Depending on the location of the proposed development, statutory duties under Section 85 of the Countryside and Rights of Way Act 2000, Section 11A of the National Parks and Access to the Countryside Act 1949 (as amended by Section 62 of the Environment Act 1995), and Section 17A of the Norfolk and Suffolk Broads Act 1988 may be relevant. Applicants should note amendments to each of these provisions contained in Section 245 of the Levelling Up and Regeneration Act 2023."	archaeological resource is presented in **Section 26.7**.
Section 2.13.21	"*The sensitivities of many coastal locations and of the marine environment as well as the potential environmental, community and other impacts in neighbouring onshore areas must be considered in the identification onshore connection points*."	A desk-based assessment has been undertaken to assess the archaeological interest of marine heritage interests within the study area (**Appendix 26.1 Marine Archaeological Technical Report** of this PEIR) and is summarised in **Section 26.6**. The desk-based sources of information have been corroborated with site specific survey data and reported on in this PEIR. The significance of the marine heritage resource is included in the baseline conditions (**Section 26.6**). The embedded control measures to protect the marine archaeological resource is presented in **Section 26.7**.
National Planning Policy Framework (NPPF) - Section 16: Conserving and enhancing the historic environment (Ref 11)		
207	*"In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is*	A desk-based assessment has been undertaken to assess the archaeological interest of marine heritage interests within the study area (**Appendix 26.1 Marine Archaeological Technical Report** of this PEIR) and is summarised in **Section 26.6**. Data has been obtained from several sources (**Section 26.4**)

Relevant paragraph reference	Summary of policy requirement	Where addressed in PEIR
	proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."	including National Marine Heritage Record and Historic Environment Records for Suffolk. The desk-based sources of information have been corroborated with site specific survey data and reported on in this PEIR. The significance of the marine heritage resource is included in the baseline conditions (**Section 26.6**). The embedded control measures to protect the marine archaeological resource is presented in **Section 26.7**. A MagDrone survey is proposed to be carried out. It will cover an area of fields near the Walberswick Landfall and will extend over the Dunwich River and cover the beach. The MagDrone survey is expected to have a maximum penetration into the soil of 1m, and will provide additional information of any potential shallowly buried archaeological features. If undertaken, the archaeological review of this dataset will be reported on in the ES.
208	"*Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this into account when considering the impact of a proposal on a heritage asset, to avoid or minimise any conflict between the heritage asset's conservation and any aspect of the proposal.*"	The significance of the marine heritage resource is included in the Baseline conditions (**Section 26.6**). The embedded control measures to protect the marine archaeological resource is presented in **Section 26.7**.

26.2.6 The local policies listed in **Table 26.3** are considered relevant to the marine archaeology assessment of the Project. The Proposed Offshore Scheme lies within the East Inshore and East Offshore East Marine Plan areas. A preliminary marine plan assessment is provided as **Appendix 4.2 Marine Plan Assessment** of this PEIR.

Table 26.3: List of relevant local policy for marine archaeology

Local planning authority	Relevant local policy	Relevance to assessment
East Suffolk County Council	Suffolk Coastal Local Plan (Ref 12), adopted 2020	Details relevant to this assessment are provided in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR.

26.3 Consultation and engagement

26.3.1 This section describes the outcome of, and response to, the EIA Scoping report (Ref 13) and the EIA Scoping Opinion (Ref 14) in relation to the marine archaeology assessment.

26.3.2 It also provides details of the ongoing technical engagement that has been undertaken with key stakeholders and provides a brief overview of the non-statutory public consultation undertaken to date.

26.3.3 Feedback from engagement and consultation are used to define the assessment approach and to ensure that appropriate baseline information is used.

26.3.4 It should be noted that feedback is also used to drive the design of the Proposed Offshore Scheme to avoid, prevent and reduce any likely environmental effects. **Chapter 3 Alternatives and Design Evolution** of this PEIR reports how the Proposed Offshore Scheme design has evolved in response to feedback and details of proposed embedded design (Primary) mitigation and standard good practice (Tertiary) mitigation measures relevant to the marine archaeology assessment are provided in **Section 26.7** of this chapter.

Consultation

Non-statutory consultation

26.3.5 Feedback received from stakeholders following the close of our 2022 and 2023 consultation is outlined within the **Interim Non-Statutory Consultation Feedback Summary Report 2023** (Ref 15) and **Supplementary Non-Statutory Consultation Summary Report 2024** (Ref 16). No feedback was received in relation to the marine archaeology assessment relevant to the Proposed Offshore Scheme.

EIA scoping opinion

26.3.6 An EIA Scoping Opinion was adopted by the Planning Inspectorate on behalf of the Secretary of State on 16 April 2024 (Ref 14)

26.3.7 The Applicant received a separate EIA Scoping Opinion from the Marine Management Organisation (MMO) (Ref 17) as the MMO were unable to provide opinion to the Planning Inspectorate in time for the April 2024 deadline. In relation to marine archaeology, the MMO deferred to Historic England's comments received by the Planning Inspectorate.

26.3.8 Comments received from the Planning Inspectorate in relation to marine archaeology are provided in **Table 26.4.**

Table 26.4: Preliminary response to Planning Inspectorate scoping opinion comments for marine archaeology

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
ID 3.21.2	Paragraphs 26.3.9, 26.3.40 & 26.3.41 – Historic Seascape Character The Scoping Report states that that historic seascape character is relevant to marine archaeological resource. However, the potential impact pathways to historic seascape character effects have not been described. The ES should provide an assessment of effects to historic seascape character, where significant effects are likely to occur. The Applicant's attention is drawn to Historic England's comments (Appendix 2 of this Opinion) regarding how historic seascape characterisation should be used to inform the assessment.	The Historic Seascape Character has been included as one of the themes assessed (see **Volume 3, Appendix 26.1 Marine Archaeological Technical Report** of this PEIR) and summarised in **Section 26.4.**
ID 3.21.3	Section 26.5 – Mitigation Measures It is noted that the mitigation measures likely to be considered include production of a Written Scheme of Investigation (WSI) and a Protocol for Archaeological Discoveries (PAD) as well as the implementation of Archaeological Exclusion Zones (AEZs). The Inspectorate advises that the strategy for mitigation should be fully described in the ES, including the details relating to any proposed AEZs and the proposed mechanism for securing them.	Embedded mitigation, control measures and additional mitigation, including the production of a WSI (see **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR) and implementation of AEZs are listed in **Section 26.7**.

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
	The Inspectorate advises that the Applicant should make effort to agree the proposed WSI with relevant consultation bodies, to enable the scope of archaeological investigation and mitigation to be determined and secured.	
ID 3.21.4	Section 26.7 – Assessment criteria Table 26-4 of the Scoping Report describes how the value of marine archaeological assets has been defined. However, no information has been provided to define the magnitude of change/impact to receptors. Moreover, the Scoping Report does not explain how the value of receptors and magnitude of change would be used to determine effect significance. This should be clearly set out in the ES with reference to relevant guidance.	The Assessment Methodology is defined in **Section 26.4**.
ID 3.21.5	Paragraphs 26.7.2 to 26.7.3 – Survey data The Scoping Report states that geophysical survey data would be subject to archaeological assessment and that the palaeogeography baseline will be based on geoarchaeological review of the geotechnical and geophysical datasets gathered. Effort should be made to agree the survey scope and method with relevant consultation bodies, including Historic England. This applies equally to surveys that are primarily to inform other aspects but would also be used for marine archaeology. The Applicant's attention is drawn to the comments of Historic England (Appendix of this Opinion) regarding the need for dedicated cores to inform assessment if significant deposit remains are identified in the study area.	Data acquisition programmes have been designed and delivered in liaison with the archaeological advisors. The assessed data sources and a summary of the baseline characteristics for marine archaeology is described in in **Section 26.4** and **Section 26.6**.
ID 3.21.6	Table 26-2 – Indirect impacts on intertidal heritage receptors For the avoidance of doubt, the Inspectorate understands that the assessment of indirect impacts arising from hydrodynamic changes and sedimentary regimes during construction and operation will include consideration of receptors within the intertidal area.	Direct and indirect impacts on marine archaeology receptors within the Proposed Offshore Scheme have been scoped in and embedded control measures are listed in **Section 26.7.**

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
ID 3.21.7	Baseline data sources and information gathering The Applicant's attention is drawn to Historic England's comments (Appendix 2 of this Opinion), which identify additional baseline data sources, research frameworks and guidance documents, which should be used to inform the baseline description where relevant.	Comment is noted and Historic England's comments are addressed in **Table 26.4**.
Planning Inspectorate, Historic England, East of England Office	Table 26-1, Section 26.3.33 and Table 26-3 We would recommend the BGS borehole data and previous geotechnical investigations are included. To develop a preliminary deposit model. We recommend that the Coastal and Intertidal Zone Archaeological Network is included as this may record recent discoveries within the coastal and intertidal zones.	These sources have been included as part of this assessment. The accessed data sources utilised are listed in **Section 26.4** and in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR.
Planning Inspectorate, Historic England, East of England Office	Section 26.3.22 Reference to North Sea Prehistory Research and Management Framework is incorrect and should be as follows: https://researchframeworks.org/nsprmf/ (as accessed through the online Research Frameworks Network). Update other key sources: Regional Framework for the East of England	This comment is noted and will be addressed within a marine archaeology WSI (see **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR)
Planning Inspectorate, Historic England, East of England Office	Section 26.3.41 Any PEIR subsequently produced should not attempt to equate notions of sensitivity to character types. It is recommended that attention should be given to what change in historic character could be introduced by the proposed LionLink Interconnector project. This should include consideration of cumulative change.	The Assessment Methodology is defined in **Section 26.4.**
Planning Inspectorate, Historic England, East of England Office	Section 26.4 We agree with the range of potential impacts that may occur during the construction and operation phases. We also agree with the statement that damage to archaeological sites and material is permanent, and that design of the project should always apply an avoidance	Professionally accredited archaeologists have undertaken the assessment to inform this PIER and the forthcoming ES.

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
	strategy, and support this approach. Involving professional, experienced and accredited archaeological staff and services is therefore essential.	
Planning Inspectorate, Historic England, East of England Office	Section 26.5 The key aspect of an adaptive approach is that the design selection is directly informed and amended where necessary by archaeological analysis and interpretation of survey data. The objective being to secure in-situ avoidance of features, sites and anomalies of known or possible archaeological interest.	The assessed data sources and a summary of baseline characteristics for marine archaeology is described in **Section 26.4** and **Section 26.6**. Direct and indirect impacts on marine archaeology receptors within the Proposed Offshore Scheme have been scoped in and embedded control measures are listed in **Section 26.7**.
Planning Inspectorate, Historic England, East of England Office	Section 26.5.4 It is stated that embedded design measures will be implemented if sensitive receptors cannot be avoided. This could include desk-based survey and archaeological review of marine geophysical survey and geotechnical datasets. We would recommend that an archaeologist is included in the design of this work to ensure that opportunities are maximised to obtain useful data for multiple disciplines, but also to reduce the potential for duplication of effort at a later stage. We would also recommend that a suitably qualified geoarchaeologist is included in the project team at the earliest opportunity. It will allow the geoarchaeologist to identify the deposits that require archaeological sampling and assessment, carrying out a staged review of samples in line with relevant guidance.	The assessed data sources and a summary of baseline characteristics for marine archaeology is described in **Section 26.4** and **Section 26.6**. Direct and indirect impacts on marine archaeology receptors within the Proposed Offshore Scheme have been scoped in and embedded control measures are listed in **Section 26.7**. The assessment has been undertaken by professionally accredited archaeologists. A suitably qualified and experience geoarchaeologist undertook the archaeological assessment of geotechnical data, as part of a staged approach.
Planning Inspectorate, Historic England, East of England Office	Section 26.5.5 Data acquisition programmes should be designed and delivered in consultation with the applicant's specialist archaeological advisors and the analysis reported in the PEIR and as an appendix to the ES.	Data acquisition programmes have been designed and delivered in liaison with the archaeological advisors. The analysis is reported on in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR and will be included as an appendix to the ES.

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
Planning Inspectorate, Historic England, East of England Office	Section 26.5.6 We recommend more attention given to production of a marine archaeological Written Scheme of Investigation (WSI) and to the Protocol for Archaeological Discoveries (PAD) prior to the PEIR publication. The use of Archaeological Exclusion Zones (AEZs) also requires more attention. Insufficient to only refer to 'known wreck sites'; avoidance strategy is only likely to be useful if readily identified charted wrecks are located in the development corridor. Use of AEZs must also encompass other seabed anomalies for which a professional data interpretation is offered by the Applicant's archaeological advisors.	Embedded control measures include the production of a WSI (see **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR). The WSI will include any recommended AEZs (as listed in **Section 26.7**), along with recommendations for further schemes of investigation, and a PAD for reporting and investigating unexpected archaeological discoveries. For the PEIR, AEZs have been proposed around 'known wreck sites' and seabed anomalies identified from the archaeological assessment of geophysical survey data.
Planning Inspectorate, Historic England, East of England Office	Table 26-2 in reference to "Construction" in order to avoid the described "impact" it is essential that the applicant's Retained Archaeologist is directly involved in the planning of all subsequent survey campaigns. In reference to Intertidal heritage receptors, it is directly relevant that WSIs are effectively designed in consultation with the relevant local authority to address any concerns over the use of HDD and so that they can provide a specification for any intertidal walkover survey (as mentioned in Section 26.7.4). We acknowledge the attention given to possible direct or indirect damage caused by alteration of sediment transport regimes and that an assessment is scoped into the ES through the marine physical environment chapter. We agree with the scoping in of transboundary impacts through direct and indirect impacts. In reference to project phase "Operation", and with the potential changes to physical regimes (e.g. sedimentation).	A Retained Archaeologist will be engaged for post-consenting works. Their role and responsibilities will be defined as part of a marine archaeology WSI (see **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR). Results from the proposed MagDrone survey covering the nearshore and onshore elements (further inshore from MHWS) will be presented within the ES.
Planning Inspectorate, Historic	Section 26.7	The assessed data sources and a summary of the baseline characteristics for marine

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
England, East of England Office	We confirm that any PEIR subsequently produced should include desk-based sourced of information. This should include "publicly available data sources (literature and Geographical Information System (GIS) mapping files)." However, to produce a baseline character assessment that is adequate for EIA purposes, the Applicant will need to acquire site-specific survey data to corroborate desk-based sources of information, such as listed in Table 26-3 and illustrated in Figure 26-1.	archaeology is described in in **Section 26.4** and **Section 26.6**.
Planning Inspectorate, Historic England, East of England Office	Section 26.7.2 It is noted that the geophysical data will be assessed by a trained archaeological specialist to provide a full assessment of the known marine heritage receptors. The palaeogeographic baseline survey will also be based on the geoarchaeological review of geotechnical and geophysical datasets (Section 26.7.3). Effort should be made to agree the survey scope and method with relevant consultation bodies, including Historic England. This applies equally to surveys that are primarily to inform other aspects but would also be used for marine archaeology. The Applicant's attention is drawn to the comments of Historic England (Appendix of this Opinion) regarding the need for dedicated cores to inform assessment if significant deposit remains are identified in the study area.	The assessed data sources and a summary of the baseline characteristics for marine archaeology is described in in **Section 26.4** and **Section 26.6**.
Planning Inspectorate, Historic England, East of England Office	Table 26-4 It is apparent that a "value" system is offered which should be considered in reference to the historic environment as detailed within National Policy Statement EN-1 (Overarching – Energy), published November 2023. In particular, if a heritage asset is identifiable, then its archaeological "value" has already been determined. The focus should therefore be to determine the significance of the heritage asset(s) and how best to avoid or minimise conflict between its conservation and the proposed development.	A summary of baseline characteristics and their value and sensitivity for marine archaeology is described in **Section 26.6**.

Scoping Opinion ID	Scoping Opinion Comment	How this is addressed
Planning Inspectorate, Historic England, East of England Office	Section 26.7.8 The references included here in need to be reviewed and updated This is because as relevant documents have been published recently. For example, the Historic England document 'Managing Lithic Sites' (2024: https://historicengland.org.uk/images-books/publications/managing-lithic-sites/).	The comment is noted and has been addressed in this PEIR (see **paragraph 26.4.37**)

Engagement

26.3.9 This section provides details of the ongoing technical engagement that has been undertaken with stakeholders in relation to marine archaeology and is outlined below.

Key stakeholders

26.3.10 Key stakeholders with views and concerns regarding marine archaeology have been identified as including:

a. MMO
b. Historic England
c. Suffolk County Council Archaeologist.

26.3.11 Technical engagement with the key stakeholders is ongoing. A summary of the technical engagement undertaken to January 2025 is outlined in **Table 26.5**.

Table 26.5: Key stakeholder feedback for marine archaeology

Stakeholder	Comment	How addressed in this PEIR
Historic England – Offshore Lead	07/01/2025 The WSI should recommend targeted analysis of geotechnical logs for geoarchaeological purposes	The ES and marine archaeology WSI (see **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR) will include provision for further geoarchaeological assessment where required.
Historic England – East Coast Advisor	07/01/2025 Suggests there to be an ongoing discussion between Onshore and Offshore teams that will enhance the geoarchaeological assessment of data (e.g. peat deposits)	Liaison between Onshore and Offshore teams has been undertaken to make sure there is no data gap between study areas. Meeting was held on 15/01/2025 between Onshore and Offshore consultants (Wessex Archaeology and Arup). The area of overlap was defined as seawards of the terrestrial HDD field (indicated by BH05).

Stakeholder	Comment	How addressed in this PEIR
		Wessex Archaeology agreed to review the onshore borehole logs, photos and reports as part of Stage 1 geoarchaeological assessment.

26.4 Assessment methodology

26.4.1 This section outlines the methodology followed to assess the potential likely significant effects of the Proposed Offshore Scheme in relation to marine archaeology including:

a. Effects scoped into the assessment;
b. Study area;
c. Assessment scenarios;
d. Methodology;
e. Assessment criteria; and
f. Assessment of cumulative effects.

26.4.2 This section provides a description of how receptor sensitivity, magnitude of impact and significance of effects are described and assigned to the assessment.

26.4.3 The project-wide approach to the assessment methodology is set out in **Chapter 5 EIA Approach and Methodology** of this PEIR.

Scope of the assessment

26.4.4 Potential likely significant effects requiring assessment may be temporary or permanent and may occur during construction, operation and maintenance, and decommissioning. **Table 26.6** provides a summary of the potential likely significant effects on marine archaeology receptors within the scope of the assessment. The potential impacts arising from the different phases of the Proposed Offshore Scheme are further detailed in **Section 26.8**. The scope of the assessment has responded to feedback received as detailed in **Section 26.3**.

Table 26.6: Summary of the scope for marine archaeology assessment

Receptor	Construction	Operation and maintenance	Decommissioning
Subtidal heritage assets (sub-seabed heritage receptors and seabed heritage receptors)	Direct damage to subtidal marine archaeology heritage assets and their setting from seabed preparation, installation, cable protection, contact	Unavoidable direct damage to potential subtidal marine archaeology heritage assets	Direct damage to subtidal marine archaeology heritage assets and their setting from decommissioning activities

Receptor	Construction	Operation and maintenance	Decommissioning
	with seabed from installation vessels	and their setting from cable re-burial, repair/replacement of cables, placement of additional cable protection and contact with seabed from vessels	
Intertidal heritage assets (including recorded historic terrestrial marine and aviation features)	Direct damage to intertidal marine archaeology heritage assets and their setting from seabed preparation and installation activities	-	Direct damage to intertidal marine archaeology heritage assets and their setting from decommissioning activities
Marine heritage assets	Indirect impacts on marine archaeology heritage assets because of changes to hydrodynamic and sedimentary regimes, including clearance of sand waves, increased suspended sediment concentrations and depositions, and scour associated with disturbance from installation activities and structures	Indirect impacts on marine archaeology heritage assets caused by changes in local scouring and sedimentation patterns as a result of the installed cable and scour associated with installed structures	Indirect impacts on marine archaeology heritage assets because of changes to hydrodynamic and sedimentary regimes, including increased suspended sediment concentrations and depositions, and scour associated with disturbance from decommissioning activities and structures
Marine heritage assets	Transboundary impacts through direct and indirect impacts to features	Transboundary impacts through direct and indirect impacts to features	Transboundary impacts through direct and indirect impacts to features
Historic Seascape Character	Direct damage to the character of the historic seascape from installation activities	Direct damage to the character of the historic seascape from operational activities	Direct damage to the character of the historic seascape from decommissioning activities

Study area

26.4.5 This section describes the spatial scope (the area which may be impacted) for the assessment as it applies to marine archaeology.

26.4.6 The spatial scope of the impact assessment for marine mammals covers the area of the Proposed Offshore Scheme contained within the Draft Order Limits, together with the Study Area, described as follows.

26.4.7 The Proposed Offshore Scheme routes from Walberswick across the Southern North Sea to the boundary between the English and Dutch Exclusive Economic Zones (EEZ). The Draft Order Limits for the Proposed Offshore Scheme is illustrated in **Figure 26.1** of this PEIR.

26.4.8 The study area comprises the Proposed Offshore Scheme Draft Order Limits and an additional 1km buffer measured from its boundaries, within the marine zone. The 1km buffer extends to 500m above MHWS and includes the intertidal zone, providing sufficient distance to understand whether any identified receptors extend beyond the Proposed Offshore Scheme Draft Order Limits, which could be impacted by installation activities. This provides overlap with the Proposed Onshore Scheme Draft Order Limits.

26.4.9 This study area formed the scope of the current baseline assessment and is considered appropriate to encapsulate all potential marine archaeology receptors. All direct impacts are anticipated to occur within the Draft Order Limits and indirect impacts are, at this stage, considered unlikely to result in significant effects to marine heritage assets beyond 1km from the causal activity.

Assessment scenarios

26.4.10 **Chapter 5 EIA Approach and Methodology** of this PEIR, provides an overview of the project's approach to the temporal scope (the time scales over which impacts may occur) of the EIA. This section describes the temporal scope for the assessment as it applies to marine archaeology.

26.4.11 The temporal scope has been informed by **Chapter 2 Description of the Proposed Scheme** of this PEIR. The temporal scope of the assessment of marine archaeology is consistent with the period over which the Proposed Offshore Scheme would be carried out. It covers the period from award of consent to the anticipated end of the Proposed Scheme lifespan.

26.4.12 It assumes construction of the Proposed Offshore Scheme would commence at the earliest 2028 and complete by 2032. Operation would commence in 2032 with periodical maintenance required during the operational phase of the Proposed Offshore Scheme. It is assumed that maintenance and repair activities could take place at any time during the life span of the Proposed Offshore Scheme.

26.4.13 It is during the construction phase of the Proposed Offshore Scheme that direct impacts to marine archaeology receptors are most likely to occur. Indirect impacts may also occur during construction-related activities.

26.4.14 The Proposed Offshore Scheme would be licensed for 40 years. At this point, either an extension to the licence would be requested, supported by the necessary environmental assessment, or decommissioning would take place. If decommissioning is required, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works, albeit with a lesser duration of two years and, with the removal of visible infrastructure, effects would reduce over the course of that period.

26.4.15 Acknowledging the complexities of completing a detailed assessment for decommissioning works up to 40 years in the future, based on the information available, the Applicant has concluded that impacts from decommissioning would be no greater than those during the construction phase. Furthermore, should decommissioning take place, it is expected that an assessment in accordance with the legislation and guidance at the time of decommissioning would be undertaken. In addition, it expected that the DCO will include a requirement for a written scheme of decommissioning for approval by the MMO and in line with The Crown Estate requirements.

Baseline methodology

Data collection

26.4.16 Baseline data collection has been undertaken to obtain information over the study area. This section provides the approach to collecting baseline data.

26.4.17 The following sources of data have been utilised to inform the baseline with respect to marine archaeology (**Table 26.7**).

Table 26.7: Data sources used to inform the marine archaeology assessment

Source of data	Baseline data
Geophysical survey and associated survey and operations reports (Ref 18, Ref 19, Ref 20)	Geophysical survey data acquired by Next Geosolutions in 2024 comprising sub-bottom profiler (SBP), Sidescan Sonar (SSS), magnetometer (Mag.), and multibeam echosounder (MBES) data sets
Geotechnical data	Geotechnical survey data including 224 vibrocores collected by NextGeo in September 2024

Source of data	Baseline data
United Kingdom Hydrographic Office (UKHO)	Charted wrecks and obstructions database, received in July 2024
National Marine Heritage Record (NMHR) maintained by Historic England, comprising data for terrestrial and marine archaeological sites, find spots and archaeological events (received August 2024)	Records maintained by Historic England, comprising data for terrestrial and marine archaeological sites, find spots and archaeological events, received August 2024
Historic Environment Records (HERs) results for Suffolk	Records of archaeological sites, findspots, and archaeological events covering Suffolk, received September 2024
National Heritage List for England	Datasets maintained by Historic England, comprising data of designated heritage assets including sites protected under the Protection of Military Remains Act 1986 and the Protection of Wrecks Act 1973
Rapid Field Survey of the Suffolk Coast and Intertidal Zone	Records for coastal archaeological findspots carried out by Suffolk County Council Archaeological Service (2003)
Coastal and Intertidal Zone Archaeological Network (CITiZAN)	Records for coastal archaeological findspots and sites (Ref 42)
Historic Seascape Characterisation (HSC)	Datasets comprising the HSC using the consolidated HSC national database (Ref 43)

Site surveys

26.4.18 The geophysical and geotechnical surveys that were undertaken and noted in **Table 26.7** results are included in the **Appendix 26.1 Marine Archaeology Technical Report** of this PEIR.

Assessment methodology

26.4.19 The approach to assessment is set out in **Chapter 5 EIA Approach and Methodology** of this PEIR. This has informed the approach used in this marine archaeology assessment. However, whilst this has informed the approach that has been used in this marine archaeology assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this marine archaeology assessment. This Chapter has been conducted according to appropriate professional standards and the guidance set out in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR. Details are provided below.

26.4.20 The marine archaeology assessment encompasses marine archaeology heritage assets, which includes marine archaeological remains/deposits, seabed features, prehistoric landscapes, seabed or riverbed prehistory, intertidal heritage assets,

maritime and aviation features including shipwrecks and aircraft crash sites and associated material/debris, and the Historic Seascape Character.

Determining importance (value) and sensitivity

26.4.21 The sensitivity of an asset is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. With regards to marine archaeology heritage assets, receptor sensitivity is typically assessed using the following factors:

a. adaptability or vulnerability - the degree to which an asset can avoid or adapt to an effect;
b. tolerance - the ability of an asset to accommodate temporary or permanent change without significant adverse impact;
c. recoverability - the temporal scale over and extent to which an asset will recover following an effect; and
d. value - a measure of the asset's importance, rarity and worth.

26.4.22 Archaeological and cultural heritage assets cannot typically adapt, tolerate or recover from physical impacts resulting in material damage or loss caused by development. Consequently, for the purposes of this assessment, the sensitivity of each asset will be quantified by its value, where value and importance are treated as equivalent terms. Where receptors are considered to be capable of adapting to, tolerating or recovering from indirect impacts, these factors will be incorporated into the assessment of their sensitivity.

26.4.23 The Overarching National Policy Statement for Energy (EN-1) notes that "*there should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be*." However, there are very few designated archaeological sites offshore, and non-designated sites are not necessarily of lesser value. Therefore, non-designated assets that can be demonstrated to be of equivalent value to designated sites are considered to be of equivalent significance to a designated asset for the purpose of this assessment.

26.4.24 Based on Historic England's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (Ref 21) the significance of a historic asset "embraces all the diverse cultural and natural heritage values or interests that people associate with it".

26.4.25 Within this document, significance is weighed by consideration of the potential for the asset to demonstrate the following value criteria:

a. evidential value - deriving from the potential of a place to yield evidence about past human activity;

b. historical value - deriving from the ways in which past people, events and aspects of life can be connected through a place to the present. It tends to be illustrative or associative;
c. aesthetic value - deriving from the ways in which people draw sensory and intellectual stimulation from a place; and
d. communal value - deriving from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values but tend to have additional and specific aspects.

26.4.26 With regards to assessing the importance of shipwrecks, the following criteria listed in Ships and Boats: Prehistory to Present - Designation Selection Guide (Ref 29) can be used to assess an asset in terms of its value:

a. period;
b. documentation;
c. group value;
d. rarity;
e. survival/condition; and
f. potential.

26.4.27 The nature of the archaeological resource is such that there is a high level of uncertainty concerning the distribution of potential, unknown archaeological material on the seabed. It is often the case that data concerning the nature and extent of sites is out of date, extremely limited or entirely lacking. As a precautionary measure, unknown potential cultural heritage receptors are therefore considered to be of high sensitivity and high value, until further information is available to refine this.

26.4.28 The value of known archaeological and cultural heritage assets is assessed on a five-point scale using professional judgement informed by criteria provided in **Table 26.8**.

Table 26.8: Criteria to assess the archaeological value of heritage assets

Value (Sensitivity)	Definition
Very High	Best known, or only example and/or significant potential to contribute to knowledge and understanding and/or public engagement. Assets with a demonstrable international dimension to their importance are likely to fall within this category. Wrecked ships and aircraft that are protected under the Protection of Wrecks Act 1973, Ancient Monuments and Archaeological Areas Act 1979 or Protection of Military Remains Act 1986 with an international dimension to their importance, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value.

Value (Sensitivity)	Definition
	Known submerged prehistoric sites and landscapes with the confirmed presence of largely in situ artefactual material or palaeogeographic features.
High	Above average and/or high potential to contribute to knowledge and understanding and/or public engagement. Assets with a demonstrable national level dimension to their importance are likely to fall within this category. All other wrecked ships and aircraft with statutory protection under the Protection of Wrecks Act 1973, Ancient Monuments and Archaeological Areas Act 1979 or Protection of Military Remains Act 1986, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value. Palaeogeographic features with demonstrable potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.
Medium	Average example and/or moderate potential to contribute to knowledge and understanding and/or public engagement. Assets with a demonstrable district level dimension to their importance are likely to fall within this category. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have moderate potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation. Prehistoric deposits with moderate potential to contribute to an understanding of the palaeoenvironment.
Low	Below average example and/or low potential to contribute to knowledge and understanding and/or public engagement. Assets with a demonstrable local level dimension to their importance are likely to fall within this category. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have low potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation Prehistoric deposits with low potential to contribute to an understanding of the palaeoenvironment.
Negligible	Poor example and/or little or no potential to contribute to knowledge and understanding and/or public engagement. Assets with little or no surviving archaeological interest.

Magnitude

26.4.29 The scale or magnitude of potential impacts (both beneficial and adverse) depends on the degree and extent to which the Proposed Offshore Scheme

activities may change the environment, which usually varies according to the project phase. The magnitude of impact upon known and potential marine archaeology heritage assets ranges from high to negligible, and is defined by the following factors:

a. scale of change (severity) - the degree of change to or from the baseline environment relative to existing environmental conditions caused by the impact being described;
b. spatial extent - the extent of an impact is the full area over which an impact occurs; and
c. duration and frequency - a measure of how long the impact is expected to last and how often the impact would occur (it may be continuous or periodic).

26.4.30 Within this assessment, the magnitude of impact is defined by the criteria presented in **Table 26.9**.

Table 26.9: Magnitude of impact criteria for marine archaeology

Magnitude	Magnitude Criteria
High	Adverse: Loss of resource and/or quality and integrity of resource or severe damage to key characteristics, features or elements, such that the post-development character of the archaeological asset would be fundamentally or considerably changed. Comprehensive change to elements of setting that would result in harm to the asset and our ability to understand and appreciate its heritage significance. Beneficial: Total or considerable protection and understanding gained from key elements or features above and beyond the pre-development conditions, such that the post-development character and quality of the archaeological heritage asset would be fundamentally better understood.
Medium	Adverse: Loss of resource, but not adversely affecting the integrity, or partial loss of/damage to key characteristics, features or elements, such that the post-development character of the archaeological heritage asset would be partially altered or modified. Changes such that the setting of the asset is noticeably different, affecting significance changes in our ability to understand and appreciate the heritage value of the asset. Beneficial: Protection and understanding gained from key elements or features above the pre-development conditions, such that the post-development character and quality of the archaeological heritage asset would be considerably better understood.
Low	Adverse: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the heritage value of the asset. Beneficial: Minor benefit to, or in addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk or negative impact occurring.

Magnitude	Magnitude Criteria
Negligible	Adverse: Very minor loss of detrimental alteration to one or more characteristics, features or elements. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the heritage value of the assets. Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements.

Significance of effect

26.4.31 The significance of an effect, either adverse or beneficial, will be determined using a combination of the magnitude of the impact and the sensitivity of the receptor. A matrix approach is used throughout all topic areas to ensure a consistent approach within the assessment. This is described further in **Chapter 5 EIA Approach and Methodology** of this PEIR and is replicated for ease in **Table 26.10**.

26.4.32 'Major' or 'moderate' effects are deemed to be 'significant' for the purposes of the EIA Regulations, in accordance with standard EIA practice. 'Minor' and 'negligible' effects are deemed to be 'not significant' and may not be important or relevant to the decision-making process, although they may be matters of local concern.

26.4.33 Where the PEIR identifies that there would be no change to a heritage asset, this is classified as 'no impact' and 'no effect.'

26.4.34 If appropriate, where significant residual effects are predicted additional mitigation is proposed. It is noted that mitigation does not reduce the magnitude of the impact where the impact relates to physical loss but may reduce the effect if used to offset or compensate for an adverse effect.

Table 26.10: Significance of effects matrix

Magnitude of impact	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible

Magnitude of impact	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

Cumulative assessment

26.4.35 **Chapter 28 Cumulative Effects** of this PEIR defines the methodology for the assessment of cumulative effects. The marine archaeology assessment of intra- and inter-project cumulative effects will be carried out and reported within the ES to be submitted with the application for development consent.

26.4.36 The Zone of Influence for the inter-project cumulative effects assessment of marine archaeology comprises a 15 km buffer around the Draft Order Limits. This Zone of Influence is substantially larger than the study area to capture any potential buffer of indirect impacts from other surrounding developments and takes into account the sediment dispersion modelling presented in **Chapter 18 Marine Physical Environment** of this PEIR. Given the highly localized nature of direct impacts on marine archaeology, the Zone of Influence for cumulative effects is considered to be the spatial extent of the Draft Order Limits.

Guidance

26.4.37 In addition, the marine archaeology assessment has been undertaken in accordance with relevant guidance and has been compiled in accordance with professional standards. Guidance relating specifically to subsea cable projects does not currently exist, however, since cable routes are an integral part of offshore wind developments, the guidance listed below relating to renewable energy and offshore wind farm projects will be utilised for this assessment. The following guidance is relevant to the assessment:

a. Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (Ref 22);
b. Deposit Modelling and Archaeology Guidance for Mapping Buried Deposits (Ref 23)
c. Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15 (Ref 24);
d. Managing Lithic Scatters: Archaeological Guidance for Planning Authorities and Developers (Ref 25);
e. Military Aircraft Crash Sites: Archaeological guidance on their significance and future management (Ref 26);
f. The Code of Practice for Seabed Development (Ref 27);

g. Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Ref 28);
h. Ships and Boats: Prehistory to Present - Designation Selection Guide (Ref 29);
i. Marine Geophysics: Data Acquisition, Processing and Interpretation Guidance Notes (2nd Edition) (Ref 30);
j. Managing Significance in Decision-Taking in the Historic Environment - Historic Environment Good Practice Advice in Planning: 2 (Ref 31);
k. Preserving Archaeological Remains: Decision-taking for Sites under Development (Ref 32);
l. The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning: 3 (Ref 33);
m. Statements of Heritage Significance: Analysing Significance in Heritage Assets: Historic England Advice Note 12 (Ref 34);
n. Historic Environment Guidance for the Offshore Renewable Energy Sector (Ref 35);
o. Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy (Ref 36);
p. Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (Ref 37);
q. Code of Conduct: Professional Ethics in Archaeology (Ref 38);
r. Curating the Palaeolithic (Ref 39);
s. Managing Lithic Sites (Ref 40); and
t. Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (Ref 41).

26.5 Assessment assumption and limitations

26.5.1 This section provides a description of the assumptions and limitations to the marine archaeology assessment. The information provided in this PEIR is preliminary, the final assessment of significant effects will be reported in the ES.

26.5.2 The PEIR has been produced to fulfil the Applicant's consultation duties in accordance with Section 42 of the Planning Act 2008 (PA2008) and enable consultees to develop an informed view of the likely significant effects of the Proposed Offshore Scheme.

Historic environment records and archives

26.5.3 The secondary information used to compile this report derives from a variety of sources. It is assumed that the HER data, as well as that derived from other secondary sources, are reasonably accurate.

26.5.4 It is acknowledged that the records held by the UKHO, NMHR, HER, and the other sources used in this assessment are not a record of all surviving heritage assets, rather a record of the discovery of a wide range of archaeological and historical components of the marine historic environment. The information held within these datasets is not complete and does not preclude the subsequent

discovery of further elements of the historic environment that are, at present, unknown. In particular, this relates to buried archaeological features.

26.5.5 The data supplied by the UKHO, NMHR and HER were obtained between July-September 2024 and are considered current for the purposes of this baseline assessment, an updated search would only be undertaken if the dataset are over 2 years old.

Geotechnical data

26.5.6 A part of data collection for the assessment is looking into geoarchaeological data. For the baseline assessment a geoarchaeological assessment has been undertaken. A total of 224 vibrocore logs were reviewed with the aim of identifying deposits of archaeological and geoarchaeological significance in the study area. The data reviewed for the geoarchaeological assessment included geotechnical ground investigations undertaken in 2024, which have not been directly recorded by a geoarchaeologist. Despite the high resolution of geotechnical vibrocore logs, it is often difficult to determine the depositional history of deposits based on descriptions alone and in the absence of supplementary palaeoenvironmental and chronological information. To address this, vibrocores were selected for direct study of physical records and correlated with features identified in the SBP data. The results of the assessment (Stage 2 assessment) is presented in **Appendix 26.3 Stage 2 Geoarchaeological Recording 2024** of this PEIR**.**

Geophysical data

26.5.7 Although all data sets were considered suitable for archaeological assessment, a significant amount of mobile sediment was present across the study area which will have affected the visual detection of anomalies on the seabed in the SSS and MBES data to a significant degree.

26.5.8 To facilitate the detection of any potentially buried ferrous debris, no thresholding was applied to the magnetometer data. However, there is still potential for further buried debris to be present across the study area, which may have not been detected.

26.5.9 There are two locations where the geophysical data do not cover the full extents of the Draft Order Limit as provided to Wessex Archaeology. In both locations no sub-bottom profile data has been acquired (**Figure 26.1** of this PEIR), and so a palaeolandscape assessment for these sections was not undertaken. One area is between Kilometre Point (KP)55-63, where the alternative cable route option, with no SBP data was selected in the Draft Order Limits. The second area is between KP157-165 where there is optionality in the Draft Order Limits around Aggregate Area 2109.

26.6 Baseline conditions

26.6.1 To provide an assessment of the likely significance of the Proposed Offshore Scheme (in terms of marine archaeology), it is necessary to identify and understand the baseline conditions in the study area. This provides a reference point against which potential changes in marine archaeology can be assessed

26.6.2 The baseline section should be read in conjunction with the following supporting Appendices and Figures as found within Volume 2 and Volume 3 of this PEIR respectively:

a. **Figure 26.1** Marine Archaeology study area;
b. **Figure 26.2 a-s** Palaeogeographic receptors of archaeological potential;
c. **Figure 26.3 a-w** Seabed features of archaeological potential and recommended AEZs;
d. **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR;
e. **Appendix 26.2 Stage 1 Geoarchaeological Review of 2024 Offshore Geotechnical Data** of this PEIR;
f. **Appendix 26.3 Stage 2 Geoarchaeological Recording of 2024 Geotechnical Data** of this PEIR; and
g. **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR.

26.6.3 Where no data is present along the Proposed Offshore Scheme, this is not displayed in the figures. Otherwise, these are displayed sequentially. The baseline conditions within the study area are summarised below with regard to palaeogeography; seabed features including maritime and aviation sites; intertidal heritage assets; onshore historic environment; and the historic seascape character of the region. A technical report comprising the full archaeological assessment of geophysical and geotechnical survey data and the desk-based review of available datasets and research is appended to this chapter (**Appendix 26.1 Marine Archaeological Technical Report** of this PEIR).

Current baseline

Palaeogeography

26.6.4 There are no historic environment designated sites or known sites of prehistoric date within the study area.

26.6.5 The shallow geology within the study area has been interpreted based on the SBP data, which has been correlated with the Stage 1 geoarchaeological assessment results and divided into the Units summarised as follows:

a. Unit 1: This Unit is interpreted to be undifferentiated Crag formations. There are multiple such formations (e.g. Red Crag, Coralline Crag, Norwich Crag) known to be present within the study area. The archaeological potential of Unit 1 depends on which Crag Formations are represented;

b. Unit 2: This Unit is visible in a relatively short section of the cable route, and is characterised by multiple well defined, sub-parallel internal reflectors. This has been interpreted as being the Westkapelle Ground Formation and are considered to be of no archaeological potential;
c. Unit 3: Sediments interpreted to be the Yarmouth Roads Formation, which is of variable archaeological potential. However, the bulk of Unit 3 is not considered to be of archaeological potential.
d. Unit 4: This Unit is a dominant shallow geological unit at the north-eastern end of the study area and interpreted as the Ipswichian age Eem Formation. As a fully marine deposit, this is not considered to be of archaeological potential.
e. Unit 5: This Unit is interpreted as the Brown Bank Formation comprising shallow water deposits ranging from shallow marine through estuarine to restricted embayment/lagoon deposits, ranging in age from the Early to Mid-Devensian. Based on this, it is interpreted that the blanket deposits represent a more open marine environment, and so is of relatively low archaeological potential, whilst the more restricted channel-like deposits represent a more land-proximal environment and therefore may be of both archaeological and palaeoenvironmental interest (medium to high archaeological potential);
f. Unit 6: This Unit represents the remnant sediments that record the terrestrial environment present prior to the Holocene marine transgression and have been sub-divided into four sub-units:
    i. Unit 6a: Channel features interpreted to be of high archaeological potential;
    ii. Unit 6b: Interpreted as remnants of past land surfaces, and as likely preserving organic and palaeoenvironmental material, considered to be of high archaeological potential and have the potential to contain both in-situ and derived archaeological and palaeoenvironmental material;
    iii. Unit 6c: These sediments are potentially of estuarine and/or intertidal origin, deposited on top of previous land surfaces (i.e. the basal organic layer) during sea level rise in the Holocene. Due to this potential coastal environment, and due to the likelihood of organic material preservation, these features are considered to be of high archaeological potential;
    iv. Unit 6d: Interpreted as a terrestrial head deposit and considered to be of low archaeological potential;
g. Unit 7: Interpreted as possible buried and preserved bank and/or dune features created during the Holocene marine transgression. Considered to be of medium to high archaeological potential; and
h. Unit 8: Seabed sediments that have the potential to contain re-worked artefacts and may cover wreck sites and other cultural heritage in areas of sufficient thickness.

26.6.6 The palaeogeographic assessment, supported by the geotechnical review, for the study area identified 66 features of archaeological potential located within the Unit 3, Unit 4, Unit 5, Unit 6 and Unit 7 sediments (**Figure 26.2 a-s**) comprising:

a. Thirteen channels: two channel features, 75027 and 75033, contain a fill of soft to firm clay and clayey silt (as corroborated by VC_068). These channel features are considered of the highest archaeological potential of the Unit 5 features. Channel feature 75020 correlates with the southern extent of an interpreted Early Holocene channel identified during regional work associated with the Palaeo-Yare catchment and Aggregate Area 240 archaeological

finds, considered to be of high archaeological potential. In the nearshore, channel features 75000 and 75006 potentially represent the remnants of the offshore course of the River Blyth. Channel 75000 contains areas of acoustic blanking, suggesting the presence of preserved organic material, considered to be of high archaeological potential;

b. Three fine grained deposits: within the nearshore area, this is represented by feature 75015 (organic layer) - a distinct reflector found by coring (VC_005 and VC_006) to comprise peat and organic clay. Two extensive features - 75008 and 75010 – have been found by multiple vibrocores (e.g. VC_177 and VC_180) to represent fine grained deposits, generally soft clays, silts, and sands with organic material. Due to the likelihood of organic material preservation, these features are considered to be of high archaeological potential;
c. Eighteen complex and simple cut and fill features that are considered to be of lower archaeological potential since the origin of the feature cannot be confirmed without further investigation;
d. Eleven high amplitude reflectors: Located further offshore, features 75047, 75048, 75050, 75051, 75052, 75054, 75057, 75058, 75060, and 75061 represent deposits of organic clay and peat, corroborated from VC_111 and VC_128, and considered of high archaeological potential;
e. Seven bank and/or dune features with one erosion surface: created during the Holocene marine transgression with features 75016, 75017 and 75063 considered to be of high archaeological potential;
f. Twelve areas of acoustic blanking that have the potential to be shallow gas which may have been caused by microbial breakdown of organic matter and therefore may contain sediments of palaeoenvironmental interest.

26.6.7 A Stage 2 geoarchaeological assessment of selected geotechnical vibrocores followed on from the above Stage 1 geoarchaeological review, undertaken in March 2025. The results have been presented in a standalone report. Please see **Appendix 26.3 Stage 2 Geoarchaeological Recording 2024** of this PEIR. A total of 41 vibrocores were recommended for Stage 2 geoarchaeological recording, which contained units of archaeological potential, including fluvial deposits of the Yarmouth Roads Formation, upper organic bedded sediments of the Eem Formation, possible estuarine to intertidal sands of the Upper Brown Bank Formation, fluvial sands and gravels and alluvial sands, and peat and organic interbedded deposits.

26.6.8 Within the nearshore deposits, sediments representing the Undifferentiated Crag Formations and the Westkapelle Ground Formation, may contain terrestrial sediments equivalent to the Cromer Forest Bed Formation, which could contain internationally significant archaeological and palaeoenvironmental records.

26.6.9 Furthermore, in the nearshore, grey sands with clay beds and peats may correlate to the Yarmouth Roads Formation, which is thought to contain units that are broadly contemporary with terrestrial deposits of the Cromer Forest Bed Formation. Peat deposits of Cromerian age are rare and are therefore assigned a high priority status.

26.6.10 Further offshore, deposits of grey sands with laminae and shells reflect deposition in a shallow marine setting with low archaeological and geoarchaeological potential; however, shell-free sands with organic laminae are present, and may represent floodplain deposits. Floodplain environments are rich ecological settings favoured by early human hunter-gatherers.

26.6.11 Peat was recovered in the nearshore and offshore areas of the Proposed Offshore Scheme. Nearshore, peats possibly within the Yarmouth Roads Formation were identified which may contain a significant palaeoenvironmental record of Cromerian age. Peat deposits formed in terrestrial wetland environments are assigned a high priority status due to their potential to preserve palaeoenvironmental material. The offshore peat deposits were located stratigraphically above possible estuarine to intertidal deposits of the Upper Brown Bank and are therefore likely to date from the Late Glacial to Early Holocene.

Value and sensitivity

26.6.12 Whilst there are no designated sites or known sites of prehistoric date within the study area, there is potential for prehistoric archaeological material to be discovered during seabed works associated with the Proposed Offshore Scheme.

26.6.13 Based on age and the rarity of Palaeolithic and Mesolithic finds in marine contexts, if any sites or material were discovered, they would likely be of very high, probably national, archaeological importance. A guidance note published by English Heritage (now Historic England) (Ref 44) indicated that sites containing Palaeolithic features are so rare in Britain that they should be regarded as nationally important and wherever possible should remain undisturbed. This was reiterated in Historic England's 2023 guidance (Ref 39).

26.6.14 Of particular interest within the study area is the palaeochannel associated with the Palaeo-Yare catchment area (75020), the identified high amplitude reflectors and fine grained/organic deposits, and the potential coastal bank (75016). These, plus other identified channel features, are all preserved terrestrial features that have the potential to contain both *in-situ* and derived archaeological artefacts and preserved palaeoenvironmental material.

26.6.15 All palaeogeographic features and material are fragile and non-renewable and have the potential to be damaged or destroyed if they are directly impacted during the seabed preparation and construction phases of the Proposed Offshore Scheme. Any damage to archaeological sites or material is permanent and recovery is limited to stabilisation or reburial, limiting further impact. There is no potential for the recoverability of any buried deposits if they are affected

following a direct impact. Therefore, the overall sensitivity of palaeogeographic features and material should be regarded as very high.

Seabed features

26.6.16 There are currently no maritime or aviation sites within the study area that are subject to statutory protection.

26.6.17 Within the study area a total of 289 geophysical anomalies were identified as being of possible archaeological potential and are discriminated as shown in **Table 26.11**.

Table 26.11: Anomalies of archaeological potential within the study area

Archaeological discrimination	Quantity	Interpretation
A1	0	Anthropogenic origin of archaeological interest
A2_h	26	Anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature
A2_l	260	Anomaly of possible anthropogenic origin but interpretation is uncertain; may be anthropogenic or a natural feature
A3	3	Historic record of possible archaeological interest with no corresponding geophysical anomaly
Total	**289**	

26.6.18 An additional 36 seabed features are also located within the study area beyond the boundary of the Draft Order Limits. The 36 records were identified in UKHO, NMHR and HER datasets that are located within the study area. These consist of the following:

a. 1 aircraft;
b. 3 fishermen's fasteners;
c. 3 foul ground;
d. 4 obstructions;
e. 1 wellhead; and
f. 24 wrecks.

26.6.19 There is one UKHO record of an aircraft crash site (WA ID 2035), that was located at a general depth of 38 m. However, its identification is unknown, and the record shows that it was salvaged and lifted in 1983. This was not located in a survey carried out in 1988 and therefore listed as 'dead' by the UKHO, i.e. not detected by repeated surveys, therefore considered to not exist. However, it is possible that fragmentary, isolated material relating to the crash site could still be present at this location. An obstruction (WA ID 2034) is located approximately 300m due north of the UKHO position for 2035; this could possibly pertain to the same site.

26.6.20 There are no other known aircraft crash sites in the study area. Nonetheless, there is the potential for aircraft or aircraft-related debris to exist on the seafloor of the study area, potentially as one of the 289 A2 anomalies.

26.6.21 Further details of the geophysical anomalies and additional 36 records are presented in **Figure 9** of **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR.

Value and sensitivity

26.6.22 The perceived setting and value assigned to an individual site is, to a large degree, site specific. A vessel or aircraft may be considered of special interest on the basis of any number of interrelating integral and relative factors, as discussed in the methodology section of this document.

26.6.23 The setting and value of the known, named wrecks can be taken into consideration. All of the sites have limited views due to being underwater, although some have been explored by divers. Some of the wrecks are potentially buried or are considered 'dead' or 'lifted' by the UKHO (2001 -2006, 2009 -2010, 2012, 2014, 2016, 2019, 2021, 2023, 2026, 2028-2030, 2032, 2035-2037) and therefore their underwater setting is further limited. Wrecks dating post-1945 (2004, 2015, 2032, 2035, 2038) are less likely to be of archaeological interest, and the wrecks of this date located in the study area are not considered to have associated archaeological value.

26.6.24 Twelve of the named vessels were lost during the First or Second World Wars, and therefore their non-visual setting is within the wider First World War and Second World War military landscape of the study area and beyond. This includes record 70090 of the British merchant steamship *Rochester City*, record 2011 of the British steamship *Rhineland*, which was mined in 1915 whilst en route from Middlesbrough to Nantes with a cargo of steel, and record 2018 of the Italian steamship *Maria Rosa*, which was lost after being torpedoed by a submarine.

26.6.25 The project East Coast War Channels in the First and Second World War (Ref 45) researched the spatial extent of navigation channels and minefields between the Thames and the Scottish border during both wars and evaluated the heritage assets that are associated with these channels. All these wreck sites are considered to have high archaeological value due to the importance of their military involvement during the wars. The East Coast War Channels are also being considered heritage assets with value in their own right, as they can be spatially represented. The significance of the value of their setting, specifically within the study area, may also become apparent through the assessment of the collective military landscape and seascape, encompassing recorded onshore

defence infrastructure and known losses or documented losses of maritime vessels or aircraft during the First and Second World Wars.

26.6.26 The specific loss events of these 12 named vessels also provide information to how their position setting can be understood: seven vessels were sunk by a mine from a German mine laying submarine (2002, 2009, 2011, 2016, 2030, 70090, 70098), one vessel was torpedoed (2018), two vessels were lost following capture by a German submarine and sunk by explosives (2028 and 2029), one vessel sunk after foundering (2012), and one vessel went missing (presumed mined) (2017). While it is possible that the vessels could have drifted before sinking, it is also possible that the position on the seabed is in close proximity to the wrecking event. Each of these losses is very much a product of its location at the time of loss. For example, those seven vessels that sank following striking a mine were lost due to their unfortunate position within a mine field, and therefore reflects not only the circumstances of the war, but also the specific methods being used to target ships, and, depending on whether the ship drifted following the event, its position on the seabed could even still be in relatively close proximity to the mine or mine field.

26.6.27 It is not possible to assess the setting of the 12 un-named wrecks, seven obstructions and foul ground, however, should further information come to light regarding their character, their associated setting and value should be reviewed. It is possible that these are associated with First World War or Second World War military maritime or aviation activity and therefore become part of the broader military landscape that exists in the region, however without further information to identify these wrecks it is impossible to confirm at this time. At present, the setting associated with these assets cannot be experienced from land or within a wider marine landscape, and due to the generally limited visibility within UK waters, the experience of setting at their locations is likely to be limited to the immediate vicinity.

26.6.28 Furthermore, all wreck sites must be considered to have archaeological value, to a greater or lesser degree and, in accordance with the precautionary approach, the un-named wrecks are therefore considered as high value assets. Similarly, as the value of potential wrecks cannot be evaluated until they are discovered, potential wrecks of all periods should be expected to be of high value.

26.6.29 Aircraft are considered to have significance for remembrance and commemoration but also have an implicit heritage value as historic artefacts, providing information on the aircraft itself and also the circumstances of its use and loss (Ref 26). On this basis, all potential aircraft sites are considered to be of high value.

26.6.30 Additionally, the value and setting of any currently unrecorded wrecks (maritime or aviation) discovered during pre-construction or construction activities for the Proposed Offshore Scheme would also be unknown and would need to be evaluated on a case-by- case basis.

26.6.31 Derived artefacts are likely to be of limited archaeological value as individual discoveries. However, the occurrence of a number of seemingly isolated objects within a particular area has the potential to indicate shipping routes or maritime battlegrounds, or possibly even indicate the presence of a hitherto unknown wreck site. Isolated maritime finds are, therefore, regarded as being of medium archaeological value. Isolated aircraft finds are considered as being of medium archaeological value (but value would be assessed on a case by case basis) as they may provide insight into patterns of historical aviation across the study area or indicate the presence of uncharted aircraft crash sites.

26.6.32 There is potential for the presence of archaeological material of a maritime nature, spanning from the Mesolithic period to the present day within the study area. The potential is summarised by general date ranges and is presented in **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR.

26.6.33 All archaeological seabed features are fragile and non-renewable and have the potential to be damaged or destroyed if they are directly or indirectly impacted during the seabed preparation and construction phases of the Proposed Offshore Scheme. Any damage to archaeological sites or material is permanent and recovery is limited to stabilisation or reburial, limiting further impact. There is no potential for the recoverability of any seabed features if they are affected by a direct or adverse indirect impact. Therefore, the overall sensitivity of known and potential wrecks, aircraft and associated material and debris should be regarded as very high.

Intertidal baseline

26.6.34 There are currently no intertidal sites within the study area that are subject to statutory protection.

26.6.35 At present within the study area, there are a total of 15 records relating to archaeological sites and findspots (see **Figure 11** of the **Appendix 26.1 Marine Archaeological Technical Report** of this PEIR).

26.6.36 Two records date to the Palaeolithic to the Romano-British period, consisting of sub-rectangular rafts of well-humidified peat found at high tide mark (1011) and a possible Neolithic settlement (1012) represented by flint flakes tools, fragments of pottery and bone/antler artefacts.

26.6.37 Six records (1003, 1004, 1006, 1007, 1009 and 1013) relate to material dating to the early medieval - medieval period, consisting of pottery scatters, pottery kilns and structures. There is one record (1001) consisting of a flood sea defence, seen as an earthwork in aerial photographs dating to the post-medieval period.

26.6.38 Three records relate to Second World War coastal defence measures, including anti-tank scaffolding and barbed wire defences (1002), a cluster of structures, with possible pillbox (1005), and a section of barbed wire obstruction and small structure, possibly a pillbox (1008). These records were seen on aerial photographs dating from 1941 to 1945 and therefore their current condition and extent are unknown. These sites are no longer visible on modern aerial imagery, however, it is possible that material from these features could remain, buried, although, any material is likely to be fragmentary.

26.6.39 The final three records relate to human remains (1010), a ring ditch (1014) and a possible ancient encampment (1015), all of which are of unknown date and have limited details.

Value and sensitivity

26.6.40 The perceived value of an individual asset is generally assessed and assigned on a site-by-site basis. Those regarded as being of special interest may be designated under relevant legislation.

26.6.41 Most of the terrestrial findspots and structures in the intertidal zone have been removed and therefore these features do not have a setting as they have been removed from their context. If any Second World War material is discovered during works associated with the Proposed Offshore Scheme, these would have to be assessed within the wider setting of military events and coastal defences. However, the value of such material, if discovered, would be of low archaeological value as it will relate to modern sites which were a common occurrence on most coastlines of east Britain during the war. For features where it is unknown whether any material still survives, these features would have a setting in line with other buried features.

26.6.42 There is potential for further material to be discovered within the vicinity of the identified sites located within the intertidal zone, spanning from the Mesolithic period to the present day. All intertidal heritage assets are fragile and non-renewable and have limited potential to recover if they are affected by a direct impact. Therefore, the overall sensitivity of known and potential intertidal heritage assets should be regarded as high.

Historic environment above (further inshore from) MHWS

26.6.43 There are currently four Grade II listed buildings within the 500m buffer above the MHWS mark. These are primarily listed as residential domiciles and

farmhouses originating from the 17th-18th century, including The Bell Hotel (HER_285564/DFS10270), Valley Farmhouse (HER_285565/DFS10271), Bell Cottage (HER_285566/DFS10743) and The Potter's Wheel (HER_285567/DFS11437).

26.6.44 Two findspots have been recorded within the 500m buffer above the MHWS mark dating to the Mesolithic (NMHR_392145) and Neolithic (NMHR_392143), consisting of a perforated antler mattock and implements.

26.6.45 Several individual findspots and small artefact scatters have been noted within the 500m buffer above the MHWS mark dating to the Romano-British period. A Hod Hill type brooch and a Roman bronze coin were recovered through metal detecting within the area (MSF12476/WLB010), along with a Roman bronze coin (MSF14448/WLB015). Roman pottery sherds were also discovered through field walking (NMHR_392140) and to the south of the village (MSF1868/WLB007).

26.6.46 The high archaeological potential dating to the medieval period within the 500m buffer above the MHWS mark has been attested by a gradiometer survey undertaken in 2023-2024 (Ref 46) represented in the form of a large overarching road and multiple examples of settlement activity which are likely the remains of a settlement from the Saxon - medieval periods (MSF47328/WLB140). Additional medieval to late-medieval assorted metal objects, including coins, and pottery scatters have been found through fieldwalking (MSF14328/WLB015), along with a medieval pit, ditch, and posthole (MSF25182/WLB073). A scatter of medieval and post-medieval pottery was found at Oldtown Marshes (MSF1870/WLB 009). This is thought to be the area of old town `dock'. Timbers survive and can be seen at low tide.

26.6.47 Several sections of sea bank are located throughout the 500m buffer above the MHWS mark, visible as earthworks on 1945 aerial photography (MXS19417/WLB 047, MXS19402/SWD034, MXS19407/WLB038, MXS19416/WLB046). The banks would have been a part of the flood defences in this area and may well date to the post-medieval period, as several similar features in this area do. Other recorded post-medieval records consist of findspots found through metal detecting (MSF12475/WLB010, MSF14447/WLB015), a lime kiln (MSF14891/WLB131) and the site of a post mill believed to have blown down in 1924 (MSF46596/WLB138). The record of a hulk along Dunwich River (MSF18746/SWD014) highlights the potential for maritime activity within the area.

26.6.48 Located on the North Sea coast, the area surrounding Walberswick saw large-scale coastal defences constructed during the Second World War. As such, there is plentiful evidence for Second World War era defensive infrastructure within the 500m buffer above the MHWS mark. Examples of these structures, including pillboxes, stretches of barbed wire, trenches, anti-tank cubes, and bomb craters,

can be seen in aerial photographs dating to the 1940s, with faint traces of these structures still present along the coastline.

Value and sensitivity

26.6.49 Most of the terrestrial findspots and structures in the 500m buffer above the MHWS mark have been removed and therefore these features do not have a setting as they have been removed from their context. If any Second World War material is discovered during works associated with the Proposed Offshore Scheme, these would have to be assessed within the wider setting of military events and coastal defences. However, the value of such material, if discovered, would be of low archaeological value as it will relate to a modern site which were a common occurrence on most coastlines of east Britain during the war. For features where it is unknown whether any material still survives, these features would have a setting in line with other buried features.

26.6.50 All onshore cultural heritage assets are fragile and non-renewable and have the potential to be damaged or destroyed if they are directly impacted during the landing works and construction phases of the Proposed Offshore Scheme. Any damage to archaeological sites or material is permanent and recovery is limited to stabilisation or reburial, limiting further impact. Based on the methodology presented in **Chapter 11 Historic Environment** of this PEIR, the value of a heritage asset is guided by its designated status as derived from its heritage interest. Therefore, the overall sensitivity of designated know onshore cultural heritage assets should be regarded as having medium/high value. For non-designated heritage assets, a worst-case scenario where there is no potential for the recoverability of any known and potential onshore cultural heritage assets is being assumed. Therefore, the overall sensitivity of non-designated known and potential onshore cultural heritage assets should be regarded as also having medium/high value.

Historic Seascape Character (HSC)

26.6.51 The assessment of the HSC within the study area was undertaken using the results of Land Use Consultants Ltd (LUC) Historic Seascape Characterisation (HSC): Consolidating the National HSC Database (Ref 43), which consolidated the eight existing HSC implementation projects (undertaken between 2008 and 2015) into a single national database.

26.6.52 The method assesses and defines areas with HSC types that promote an understanding of historic trends and processes, to inform the sustainable management of change over time.

26.6.53 The study area has been characterised as having the following elements:

a. Cultural topography (palaeochannel);

b. Cultural topography landward (wetland);
c. Cultural topography marine (coarse sediment plains; sand banks with sand waves);
d. Fishing (bottom trawling, drift netting, potting);
e. Maritime safety (buoyage, safety area);
f. Navigation (wreck hazard, hazardous water, navigation route, navigation activity, shoals and flats);
g. Recreation (leisure beach, leisure sailing, wildlife watching);
h. Industry (commercial shipping route);
i. Energy industry (submarine power cable, renewable energy installation (wind)); and
j. Telecommunications (submarine telecommunications cable).

26.6.54 The HSC of the study area is considered to be of medium archaeological value, due to the region's important and prolonged maritime history and its continued use today. The nature of HSC is such that it reflects not only the past character of the seascape but also the present, and the current HSC is already characterised by the broad category of energy industry, more specifically, submarine power cables. Therefore, the overall character of the area will remain predominantly the same during the construction and operation and maintenance of the Proposed Offshore Scheme.

26.6.55 Furthermore, the HSC will be able to tolerate and recover from the activities associated with the Proposed Offshore Scheme and therefore has an overall medium-low sensitivity.

Future baseline

26.6.56 If undisturbed by the Proposed Offshore Scheme, there would be no change to the baseline conditions discussed above beyond those caused by natural physical processes and natural deterioration, as well as those associated with potential changes to the coastline or sediment processed caused by climate change (as outline in Historic England's Heritage and Climate Change Strategy, 2022) (Ref 47).

26.6.57 Impacts of climate change on marine archaeology could result from a number of inter-related factors, including wind, waves and storms, relative sea level rise and coastal flooding, increased seawater temperatures, changes in salinity and dissolved oxygen, ocean acidification and changes in ocean circulation. The considered climate variables on marine archaeology include storm surges, wave height and frequency and sea level rise. Based on the UK Climate Projections (UKPC) 18 data (Ref 48), there is potential for changes in the severity of future storm surge events. However, no evidence for this was made. Similarly, model predictions for wave height and frequency is variable along coastal locations and simulations suggest an overall decrease in mean significant wave height around most of the UK coastline. The baseline annual time-mean sea level is projected to

increase over time. Direct impact pathways from the above factors could lead to exposure and/or damage to coastal features, notably the Second World War features identified at the proposed landfall (see **paragraph 26.6.3**).

26.6.58 Other factors that could lead to indirect impact pathways are biologically related aspects of acidity, dissolved oxygen and changes to sea temperature. Based on Gregory et al. (2022)(Ref 49), it was noted that a general trend of increasing water temperatures and ocean acidity may lead to a small increase in corrosion rates for metal elements of wreck sites on centennial timescales. Warmer seas, in conjunction with complex interactions of environment, physical, chemical and human factors may indirectly influence the expansion of species which degrade wooden wreck material (e.g. wood-boring organisms). However, it was noted that a decrease in dissolved oxygen is likely to decrease corrosion rates affecting metal elements of wreck sites and limit wood-degrading organisms.

26.6.59 In response to the climate crisis, Historic England collated a Heritage and Climate Change strategy detailing climate action ambitions for the historic environment. The strategy sets out three key areas of climate action including climate mitigation, managing risk and climate adaptation. Due to projected increases in sea levels and storm surge which could result in increased frequency of coastal flooding and erosion, there could be significant impacts for coastal and heritage sites situated in proximity to the coast and on estuaries.

26.6.60 When considered the Proposed Offshore Scheme alongside other developments in the region, it is possible that the Proposed Offshore Scheme could have a cumulative impact on the current baseline resource. A cumulative assessment will be carried out and reported within the ES to be submitted with the application for development consent.

26.7 Embedded design mitigation and control measures

Design and embedded mitigation measures

26.7.1 As described in **Chapter 2 Description of the Proposed Scheme** of this PEIR, a range of measures have been embedded into the Proposed Offshore Scheme design to avoid or reduce environmental effects. These mitigation measures form part of the design that has been assessed, which for marine archaeology are listed in **Table 26.12**.

Table 26.12: Design and embedded mitigation measures for marine archaeology

Commitment Reference Code	Measure	Compliance Mechanism
OD01	All cables will be installed in one trench.	CEMP secured by DML
OD03	Horizontal directional drilling (HDD) will be used to avoid disturbance to surface sediments and habitats, with the exit point seaward of the 0m LAT water depth contour.	CEMP secured by DML
OD04	The intention is to bury the cables in the seabed, except in areas where trenching is not possible e.g. where ground conditions do not allow burial or at infrastructure crossings.	CEMP secured by DML
OD05	External cable protection shall only be used where it can be demonstrated that adequate burial depth cannot be achieved (e.g., where ground conditions do not allow burial or at infrastructure crossings); the footprint of any external protection shall be the minimum required to ensure adequate cable protection and stability.	CEMP secured by DML
OD08	Micro-routeing within the Order Limits to avoid sensitive environmental, archaeological and other constraints and minimise the risk of exposure by seabed mobility	CEMP secured by DML
OD09	The profile of rock berms used for cable protection will be designed to minimise the potential for scour to occur as much as possible (including alignment with flow and profiling).	CEMP secured by DML

Control measures

26.7.2 Control measures are set out in **Appendix 2.2 Outline Offshore Construction Environmental Management Plan** of this PEIR which will manage the effects of construction. The measures of particular relevance to marine archaeology are listed in **Table 26.13**.

26.7.3 Several management plans will be provided as Outline Management Plans with the development consent order application to support the Deemed Marine Licence. These will include an Outline Written Scheme of Investigation (WSI), including a Protocol for Archaeological Discoveries (PAD). The purpose of the WSI is to set out the environmental measures and further work of the Proposed Offshore Scheme in relation to marine archaeology. As part of the WSI, a PAD will be implemented; this sets out the procedure for reporting discoveries of potential archaeological interest during the lifetime of the Proposed Offshore Scheme.

26.7.4 The Outline WSI is provided as **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR**,** and following consultation with Historic England, will be refined as necessary and submitted with the development consent order application.

26.7.5 Of relevance to marine archaeology, is the Marine Pollution Contingency Plan (MPCP). This document would outline measures to be implemented to comply with legislation in relation to the prevention of oil and chemical spills, during all phases of the Proposed Offshore Scheme. Final management plans will be submitted in accordance with the Deemed Marine Licence to discharge the licence conditions.

26.7.6 The Applicant would ensure that all work that is undertaken during construction, operation and maintenance and decommissioning complies with the requirements of relevant national and international legislation.

Table 26.13: Control measures for marine archaeology

Commitment Reference Code	Measure	Compliance Mechanism
OC01	An offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan (ESRP), Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Biosecurity Plan and Marine Mammal Mitigation Plan (MMMP) and a dropped objects procedure will be produced prior to installation.	DML secured through application for development consent order
OC09	The designation of (as minimal as possible) anchoring areas and implementation of protocols during marine operations to minimise physical disturbance of the seabed.	CEMP secured by DML
OC33	A Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries (PAD) will be developed with the Archaeological Curator via the Regulator and implemented prior to works commencing (**Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR). The WSI will include any recommended AEZs (for example in relation to seabed preparation, construction, operation and maintenance, and decommissioning activities), along with recommendations for further schemes of investigation (for example if anomalies likely to be impacted), and a PAD for reporting and investigating unexpected archaeological	WSI and CEMP secured through DML

Commitment Reference Code	Measure	Compliance Mechanism
	discoveries encountered during construction activities, with a Retained Archaeologist providing guidance and advising industry staff on the implementation of the PAD. The WSI will also include offsetting of archaeological impact where necessary through the completion of a palaeoenvironmental assessment of deposits of high geoarchaeological potential which may be disturbed.	
OC34	Locations of known marine archaeological interest/value within the marine environment will be avoided by all marine vessels by the implementation of appropriately sized AEZs. No works that impact the seabed will be undertaken within the extent of an AEZ during construction, operation and maintenance, or decommissioning phases. AEZs may be amended (enlarged, reduced, moved or removed) because of further data assessment or archaeological field evaluation and must be undertaken in consultation with the Archaeological Curator, Historic England. The locations and extents of all recommended AEZs are shown in **Table 26.14**, and are presented in **Appendix 26.4 Outline Written Scheme of Investigation** of this PEIR.	WSI and CEMP secured through DML
OC35	Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the Applicant will inform the MMO, as advised by Historic England, and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.	WSI and CEMP secured through DML
OC36	Archaeological features of lower archaeological value will be avoided where practicable. Micro-routeing within the Order Limits and siting of infrastructure and temporary works will help to avoid seabed features, such as geophysical anomalies of archaeological potential. It is recommended that consultation with the archaeological consultant is undertaken with regards to routeing around such anomalies of archaeological potential.	WSI and CEMP secured through DML
OC37	Archaeological input at the planning stages of any further survey work should be undertaken.	WSI and CEMP secured through DML

Commitment Reference Code	Measure	Compliance Mechanism
	Archaeological method statements will be prepared for the following works: ground truthing of anomalies (e.g. Remotely Operated Vehicle (ROV), diver survey or coordination with UXO campaigns); marine geophysical or geotechnical surveys; intertidal or marine watching briefs; measures to protect marine heritage assets from indirect impacts (e.g. physical buffers); and post-construction monitoring works. Archaeological method statements will be prepared by a suitably qualified, experienced, and accredited marine archaeological consultant and will require approval by the Regulator (the MMO), and the Archaeological Curator (Historic England for marine works and the respective local authority curatorial bodies that serve Suffolk for works in the intertidal zone).	

26.7.7 The following **Table 26.14** lists the recommended AEZs located within the Draft Order Limits or whose buffer overlaps with the Draft Order Limits.

Table 26.14: Recommended AEZs within the Draft Order Limits

WA ID	Classification / Wreck Category	Position (ETRS89 UTM31N)		Exclusion Zone
		Easting	Northing	
70090	Dangerous wreck – *Rochester City*	416561.8	5799582	100m around recorded position. AEZ partially overlaps the Draft Order Limits
70098	Dangerous wreck - *Sunniside*	417006.5	5800718	100m around recorded position. AEZ partially overlaps the Draft Order Limits.

26.8 Assessment of effects

26.8.1 This section presents the preliminary assessment of likely significant effects on marine archaeology resulting from the construction, operation and maintenance, and decommissioning of the Proposed Offshore Scheme. The likely significant effects of the Proposed Offshore Scheme are identified taking into account the embedded design mitigation and control measures presented in **Section 26.7**.

26.8.2 Following assessment further mitigation is proposed as required which is presented in **Section 26.9.**

Construction

26.8.3 As part of construction activities, direct and indirect impacts resulting in potential adverse effects upon archaeological receptors could occur because of activities involving contact with the seabed or the removal of seabed sediments. Marine archaeological receptors with height, such as shipwrecks, may also be impacted by activities that occur within the water column.

26.8.4 All seabed receptors have the potential to be damaged or destroyed if they directly interact with seabed preparation or construction activities. All damage to archaeological sites or material is permanent and recovery is limited to stabilisation or re-burial, limiting further interactions.

26.8.5 Direct impacts can include direct damage to structures, features, deposits and artefacts, and the disturbance of relationships between these elements and the wider surroundings. The setting of known and named wreck sites may also be impacted and in turn this could potentially affect the significance of such receptors.

26.8.6 In the intertidal area, direct and indirect impacts are unlikely to occur during cable installation at the proposed Landfall Site, due to the application of HDD.

26.8.7 Any indirect interactions upon the known and potential marine archaeological receptors could occur as a result of changes to hydrodynamic patterns and sediment transport regimes, where these changes have occurred as a consequence of activities and structures associated with the construction activities.

26.8.8 Scour has an adverse impact on marine archaeological receptors whereby it can expose material which leads to increased rates of deterioration through biological, chemical, and physical processes. Alternatively, the redeposition of sediments following settling of sediment plumes can be beneficial to the preservation of marine archaeological receptors as greater sediment cover increases the potential for anaerobic environment, which inhibits a range of biological, chemical, and physical degradation processes. These interactions may occur from the clearance works during route preparation but may also occur through sediment deposition or the placement of non-burial cable protection on the seabed.

26.8.9 A summary of the potential environmental impacts arising from the construction of the Proposed Offshore Scheme are provided in **Table 26.6**. These could include the following direct impacts:

a. seabed preparation including pre-installation surveys (including grab sampling), unexploded ordnance (UXO) identification and clearance, boulder clearance, pre-lay grapnel run (PLGR), sand wave clearance (using controlled

flow excavator (CFE) or trailing suction hopper dredger (TSHD)), and preparation for infrastructure crossings;
b. trenched cable installation methods including cable lay and post lay burial, ploughs, jet trenching, mechanical trenching, CFE, and simultaneous cable lay and burial;
c. external cable protection where burial cannot be achieved including rock placement, concrete mattresses, flow dissipation devices, rock bags and/or protective coverings;
d. infrastructure crossings, whereby the separation and protection structures may comprise concrete mattresses, protective sleeves and/or pre and post rock placement;
e. cable installation at the proposed Landfall Site, using HDD (a trenchless technique); and
f. contact with seabed from installation vessels including cable laying barges, anchor handling tug, jack-up barge, guard vessels, construction and dive support vessels and rock placement vessels.

26.8.10 The following indirect impacts could occur during the construction phase:

a. Seabed sediment movement and deposition resulting in changes to hydrodynamic and sedimentary regimes.

26.8.11 The preliminary assessment of the effects of the Proposed Offshore Scheme described in this section considers the design and embedded mitigation measures, control measures listed in **Section 26.7**.

26.8.12 A description of the potential effect on marine archaeology receptors caused by each identified impact is given below.

Direct damage to subtidal marine archaeology heritage assets and their setting

Sub-seabed heritage receptors (known and potential palaeogeography)

26.8.13 All seabed assets have the potential to be damaged or destroyed if they are directly impacted during the construction phase of the Proposed Offshore Scheme. Furthermore, all damage to archaeological sites or material is permanent and recovery is limited to stabilisation or re-burial to limit further impact. Once archaeological deposits and material, and the relationships between deposits and material and their wider surroundings, have been damaged or disturbed it is not possible to reinstate or reverse those changes. There is no potential for the recoverability of any seabed assets if they are affected following a direct impact. As such, all seabed prehistory receptors should be regarded as having very high/high sensitivity.

26.8.14 Physical disturbance activities causing direct damage and/or loss to the sub-seabed heritage could be caused by pre-installation and installation activities for the Proposed Offshore Scheme. As a result, without embedded control measures the impact magnitude is assessed as high on such resources.

26.8.15 During the construction phase, activities could also cause temporary or permanent change to the setting of a heritage receptor.

26.8.16 The application of embedded control measures described in **Section 26.7** including further investigation by means of geoarchaeological assessment of geotechnical samples means that direct impacts to sub-seabed heritage receptors are likely to be avoided, therefore, reducing the magnitude of impact to negligible.

26.8.17 As the receptor value and sensitivity is assessed as very high/high and the magnitude is assessed as negligible, it is concluded that the significance of effect to sub-seabed heritage receptors during construction is **Minor** and **Not Significant**.

26.8.18 The resulting significance of effect is likely to be of beneficial significance because samples were retained and analysed by a qualified geoarchaeologist as part of Stage 2 geoarchaeological recording, allowing for recommendations for further geoarchaeological works.

Seabed heritage receptors (known and potential maritime and aviation features)

26.8.19 All seabed assets have the potential to be damaged or destroyed if they are directly impacted during the construction phase of the Proposed Offshore Scheme. Furthermore, all damage to archaeological sites or material is permanent and recovery is limited to stabilisation or re-burial to limit further impact. Once archaeological deposits and material, and the relationships between deposits and material and their wider surroundings, have been damaged or disturbed it is not possible to reinstate or reverse those changes. There is no potential for the recoverability of any seabed assets if they are affected following a direct impact. Therefore, all wrecks, aircraft, associated material and debris should be regarded as having very high/high sensitivity.

26.8.20 Physical disturbance activities causing direct damage and/or loss to the seabed features could be caused by seabed clearance and construction activities, including cable protection and vessel activities, for the Proposed Offshore Scheme. As a result, without embedded control measures the impact magnitude is assessed as high on such resources.

26.8.21 The application of embedded control measures described in **Section 26.7** including the implementation of AEZs around high value receptors, avoidance of features of archaeological potential, further investigation of any sites that cannot be avoided, and the implementation of a PAD, means that direct impacts to known and potential maritime and aviation receptors will be avoided, reducing the magnitude of impact to negligible.

26.8.22 As the receptor value and sensitivity is assessed as very high/high and the magnitude is assessed as negligible, it is concluded that the significance of effect on seabed heritage receptors during construction is **Minor** and **Not Significant**.

Direct damage to intertidal marine archaeology heritage assets and their setting

26.8.23 All intertidal heritage assets are fragile and non-renewable and have the potential to be damaged or destroyed if they are directly impacted during the seabed preparation and construction phases at the proposed Landfall Site of the Proposed Offshore Scheme. Any damage to archaeological sites or material is permanent and recovery is limited to stabilisation or reburial, limiting further impact. There is no potential for the recoverability of any intertidal heritage assets if they are affected by a direct impact. Therefore, the overall sensitivity of known and potential intertidal heritage assets should be regarded as high.

26.8.24 Physical disturbance activities causing direct damage and/or loss to the buried intertidal and onshore cultural heritage features could be caused by construction activities, including HDD (a trenchless technique), for the Proposed Offshore Scheme. However, the depths at which HDD is being applied at the proposed Landfall Site, means that impacts to known and unknown intertidal and onshore heritage receptors would be minimal, and therefore the magnitude of impact is expected to be low, prior to the consideration of embedded control measures.

26.8.25 The application of embedded control measures described in **Section 26.7** including the avoidance of all known intertidal and onshore cultural heritage assets within the study area, further investigation by means of geoarchaeological assessment of geotechnical samples, and the implementation of the PAD to mitigate against adverse effects to any new discoveries, means that direct impacts to buried intertidal and onshore heritage receptors are likely to be avoided, reducing the magnitude of impact to negligible.

26.8.26 As the receptor value and sensitivity if assessed as high and the magnitude is assessed as negligible, it is concluded that the significance of effect to intertidal and onshore cultural heritage assets during construction is **Minor** and **Not Significant**.

Indirect impacts on marine archaeology heritage assets because of changes to hydrodynamic and sedimentary regimes

26.8.27 The indirect effects upon the known and potential marine archaeological assets considered here are those which occur as a result of changes to hydrodynamic and sediment transport regimes, where these changes have occurred as a consequence of activities and structures associated with the construction phase.

26.8.28 Physical disturbance activities causing indirect damage and/or loss to the seabed features may occur subsequent to the clearance of areas of sand waves during route preparation but may also occur through sediment dispersal/deposition or the placement of cable protection on the seabed. Construction activities that could potentially create indirect physical impacts include:

a. Clearance of areas where sand waves are present, potentially resulting in changes to local hydrodynamics;
b. Dispersal of suspended sediment (during installation of cables) potentially resulting in increased suspended sediment concentrations (SSC) and deposition; and
c. Scour associated with the disturbance from installation activities and structures.

26.8.29 Following an appraisal of the locally hydrodynamic and SSC, a review of data available from similar/nearby projects and preliminary calculations, **Chapter 18 Marine Physical Environment** of this PEIR concludes that the magnitude of impact from increases in SSC and modifications to seabed morphology will be negligible. Consequently, the magnitude of impact on marine archaeology would be low as seabed disturbance will be temporary and localised. During the construction phase, the primary means by which SSC and seabed morphology could be impacted is through the interruption of sediment transport patterns via seabed preparation activities (including pre-sweeping by CFE or TSHD) and cable installation (including cable burial by jet trenching). The study indicated that cable burial operations will result in localised and temporary re-suspension and subsequent settling of sediments.

26.8.30 For nearshore installation activities at the proposed Landfall Site, the worst-case scenario assessed within **Chapter 18 Marine Physical Environment** of this PEIR is excavation of HDD exit pit(s) and cable protection measure. The results of the assessment indicated that seabed disturbance due to excavated pits will impact a relatively small area and temporary, and therefore the magnitude of impact is assessed to be negligible.

26.8.31 Indirect impacts may affect marine archaeological baseline conditions where they result in the increased exposure or burial of marine archaeological assets. **Chapter 18 Marine Physical Environment** of this PEIR suggests that the predicted increased in SSC and sedimentation are small in comparison to natural processes in the area and so the sensitivity of the receptors to sediment erosion is low, as it is in effect protecting receptors as presently or to a greater extent.

26.8.32 The low sensitivity to continued sediment deposition and low magnitude of indirect impacts on archaeological receptors would result in a significance of effect which is **Negligible** and **Not Significant**.

Historic Seascape Character (HSC) of the region

26.8.33 Throughout the duration of the Proposed Offshore Scheme, works could temporarily or permanently change the character of the historic seascape. However, due to the medium sensitivity of this receptor and the likely low magnitude of impact, the assessment has concluded that the significance of effect is **Minor** and **Not Significant**.

Operation and maintenance

26.8.34 Activities undertaken as part of operation and maintenance phase have the potential to impact marine archaeology directly and indirectly, located on or under the seabed, resulting in their loss or the disruption of relationships between receptors and their wider surroundings.

26.8.35 Operational interactions will generally be limited to non-intrusive inspections. Such inspections will not lead to direct or indirect impacts on the marine archaeological receptors assuming there is no contact with the seabed. However, the propellers of operations vessels, depending on seawater depth, may still cause sediment movement on the seabed leading to indirect impacts to the marine archaeological resource, but these impacts are likely to be limited to very shallow coastal waters.

26.8.36 Some activities associated with the maintenance phase may give rise to impacts similar to those considered during the construction phase. Maintenance will include cable repairs and replacement, where necessary, along with potential for deployment of anchors. Remedial burial may be required which will use methods similar to those used during the construction phase, in particular jetting and placement of external cable protection.

26.8.37 These interactions may result in the alteration of sediment transport regimes, indirectly interacting with marine heritage receptors, but may also lead to potential direct damage to known and unknown heritage receptors from sediment disturbance and deposition. Potential direct impacts on marine archaeology during operation of the Proposed Offshore Scheme may arise from:

a. re-burial of cables;
b. repair/replacement of cables;
c. placement of additional cable protection; and
d. use of vessels (from anchors and jack-up legs) (e.g., jack-up barge; multi cat; workboat; dive-support vessel; crane-barge; tug) used for maintenance activities (although these are likely to be minimal).

26.8.38 As a result of the proposed embedded control measures, which remain applicable during both the construction phase and operation and maintenance phases (see **Section 26.7**), direct impacts to known archaeological receptors would not occur. Unavoidable direct impacts to potential archaeological

receptors may occur at any point where maintenance activities disturb the seafloor, subject to implementation of additional mitigation.

26.8.39 A description of the potential effect on marine archaeology receptors caused by each identified impact is given below.

Direct damage to subtidal marine archaeology heritage assets and their setting

26.8.40 Although the operation of the Proposed Offshore Scheme, and associated maintenance works, is anticipated to occur within areas already disturbed during the construction phase, seabed assets have the potential to be damaged or destroyed if they are directly impacted during the operation and maintenance phase of Proposed Offshore Scheme. As such, all wrecks, aircraft, associated material and debris and seabed prehistory should be regarded as having very high/high sensitivity.

26.8.41 The magnitude of unavoidable direct impacts on potential maritime and aviation receptors, and potential seabed features as part of operation and maintenance activities, if they were to occur, would be high. Any impact upon marine archaeology, including any unknown archaeology would be permanent and irreversible.

26.8.42 In areas where impact has already occurred during the construction phase, there is unlikely to be further effect.

26.8.43 As a result of the application of embedded control measures described in **Section 26.7**, which remain applicable during both the construction phase and operation and maintenance phases, direct impacts to known and potential archaeological receptors would not occur, reducing the magnitude of impact to negligible.

26.8.44 As the receptor value and sensitivity is assessed as very high/hight and the magnitude is assessed as negligible, it is concluded that the significance of effect on subtidal marine archaeology heritage assets during operation and maintenance is **Minor** and **Not Significant**.

Direct damage to intertidal marine archaeology heritage assets and their setting

26.8.45 As mentioned above in **paragraph 26.8.42**, in areas where impact has already occurred during the construction phase, there is unlikely to be further effect. It is anticipated that no remedial works will be undertaken in the intertidal area, between MHWS and MLWS. It is therefore concluded, that the significance of effect on intertidal marine archaeology heritage assets during operation and maintenance is **Negligible** and **Not Significant**.

Indirect impacts on marine archaeology heritage assets caused by additional cable protection used during repair and maintenance

26.8.46 The effects upon known and potential marine archaeological assets considered here are those which occur as a result of secondary scour from the associated protection measures. Such impacts cause effects which could cause deterioration of archaeological receptors. The following indirect impacts could occur during the operational phase:

a. changes in local scouring and sedimentation patterns as a result of installed cable;
b. scour associated with installation structures.

26.8.47 The magnitude of effect of indirect impacts to marine archaeological assets during operation and maintenance is expected to be low.

26.8.48 Following an appraisal of the local hydrodynamic and SSC, and a review of existing literature and evidence base, **Chapter 18 Marine Physical Environment** of this PEIR concludes that the magnitude of impact on seabed morphology from cable protection measures and sediment transport regimes from maintenance activities will be negligible. This is because the presence of cable protection on the seabed and potential changes are highly localised.

26.8.49 Indirect impacts may affect marine archaeological baseline conditions where they result in the increased exposure or burial of marine archaeological assets. The increased exposure of marine archaeological assets has the potential to cause erosion and deterioration of the assets. Conversely, should assets be subject to increased sedimentation and burial, they may, in turn, benefit from conditions which afford higher levels of preservation. **Chapter 18 Marine Physical Environment** of this PEIR suggests that the predicted increased in SSC and sedimentation are small in comparison to natural processes in the area and so the sensitivity of the receptors to sediment erosion is low, as it is in effect protecting receptors as presently or to a greater extent.

26.8.50 The low sensitivity to continued sediment deposition and low magnitude of indirect impacts on archaeological receptors would result in a significance of effect which is **Negligible** and **Not Significant**.

Historic Seascape Character (HSC) of the region

26.8.51 Throughout the duration of the Proposed Offshore Scheme, works could temporarily or permanently change the character of the historic seascape. However, due to the medium sensitivity of this receptor and the likely low magnitude of impact, the assessment has concluded that the significance of effect is **Minor** and **Not Significant**.

Decommissioning

26.8.52 The Proposed Scheme is expected to have a life span of 40 years. If decommissioning requires cessation of operation and removal of visible infrastructure at this point, then activities and effects associated with the decommissioning phase are expected to be no worse than during construction; and with the removal of visible infrastructure, effects would reduce over the course of that period. The Proposed Scheme could also remain operational for a period after the 40 years or be taken out of service and left within the Draft Order Limits after 40 years. Acknowledging the complexities of completing a detailed assessment for decommissioning works up to 40 years in the future, based on the information available, the project has concluded that impacts from decommissioning would be no greater than those during the construction phase. The following conclusions reached for construction are therefore applicable.

26.8.53 If the Proposed Offshore Scheme is left in-situ any likely significant effects from decommissioning would be avoided. If the Proposed Offshore Scheme is removed at decommissioning this appraisal assumes that impacts from decommissioning activities are of similar nature to construction activities and would be of a similar or lesser scale, and therefore the significance of effect on marine archaeology heritage assets during decommissioning is **Minor** and **Not Significant**.

Transboundary effects

26.8.54 A transboundary effect is any significant adverse effect on the environment resulting from human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of another State.

26.8.55 All works associated with the Proposed Offshore Scheme fall within the UK jurisdiction. Predicted disturbance from the Proposed Offshore Scheme is short term and local and are therefore not anticipated to be sufficient to influence marine archaeological receptors outside UK waters. However, potential transboundary impacts that extend across international boundaries could include damage to known and potential shipwrecks, aircraft crash sites and other material of other nations that is now located in UK waters.

26.8.56 With the application of embedded control measures described in **Section 26.7**, which remain applicable for the duration of the Proposed Offshore Scheme lifetime, effects on archaeological receptors should be reduced to a manageable and workable level for the adequate protection of the marine archaeological resource. Therefore, it is considered that transboundary impacts will not occur.

26.9 Mitigation and monitoring and enhancement

26.9.1 Mitigation measures are defined in **Chapter 5 EIA Approach and Methodology** of this PEIR, with embedded control measures for marine archaeology being presented in **Section 26.7** of this chapter.

Additional mitigation

26.9.2 Additional mitigation is not required as it is already included within the WSI and control measures in **Table 26.13.**

Monitoring

26.9.3 There are no likely significant adverse effects related to the marine archaeology assessment identified either during construction, operation and maintenance, or decommissioning stages of the Proposed Offshore Scheme that require monitoring.

26.10 Summary of residual effects

26.10.1 The preliminary assessment has concluded that no significant effects on marine archaeology are expected from the Proposed Offshore Scheme during construction, operation and maintenance, and decommissioning, with the implementation of design and control measures. No additional mitigation has been proposed at this stage.

Topic Glossary

Acronym/Phrase/Abbreviation	Definition
AEZ	Archaeological Exclusion Zone
BGS	British Geological Society
CFE	Controlled Flow Excavation
CIfA	Chartered Institute for Archaeologists
CITiZAN	Coastal and Intertidal Zone Archaeological Network
DCO	Development Consent Order
dML	Deemed Marine Licence
EEZ	Exclusive Economic Zone
EIA	Environment Impact Assessment
ES	Environment Statement
GIS	Geographical Information System
HDD	Horizontal Directional Drilling
HER	Historic Environment Record
HSC	Historic Seascape Character
JNAPC	Joint Nautical Archaeology Policy Committee
km	Kilometre
LAT	Lowest astronomical tide
m	metre
MAG.	Magnetometer
MBES	Multibeam echosounder
MCAA	Marine and Coastal Access Act 2009
MHWS	Mean high water springs
MLWS	Mean low water springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement
MPCP	Marine Pollution Contingency Plan
NM	Nautical Miles
NMHR	National Marine Heritage Record
NPPF	National Planning Policy Framework
NPS	National Policy Statement
PAD	Protocol for Archaeological Discoveries

Acronym/Phrase/Abbreviation	Definition
PEIR	Preliminary Environment Information Report
PLGR	Pre-lay grapnel run
ROV	Remotely Operated Vehicle
SBP	Sub-bottom Profiler
SSC	Suspended Sediment Concentration
SSS	Sidescan Sonar
TEZ	Temporary Exclusion Zone
TSHD	Trailing Suction Hopper Dredger
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigation

References

Ref 1 Gov.uk (2008) Planning Act 2008. (Online) Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents (Accessed 17 September 2024)

Ref 2 Gov.UK (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. (Online) Available at: https://www.legislation.gov.uk/uksi/2017/572/contents https://www.legislation.gov.uk/uksi/2017/572/contents (Accessed 17 September 2024)

Ref 3 Gov.UK (2007) The Marine Works (Environmental Impact Assessment) Regulations 2007. (Online) Available at: https://www.legislation.gov.uk/uksi/2007/1518/contents/made (Accessed 7 January 2025)

Ref 4 Gov.uk (2009) Marine and Coastal Access Act 2009. (Online) Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents (Accessed 7 August 2024)

Ref 5 Legislation.gov.uk (1973) Protection of Wrecks Act 1973, Section One and Two (Online) Available at: https://www.legislation.gov.uk/ukpga/1973/33 (Accessed 13 August 2025)

Ref 6 Legislation.gov.uk (1979) Ancient Monuments and Archaeological Areas Act 1979 (Online) Available at: https://www.legislation.gov.uk/ukpga/1979/46 (Accessed 13 August 2025)

Ref 7 Legislation gov.uk (1986) Protection of Military Remains Act 1986 (Online) Available at: https://www.legislation.gov.uk/ukpga/1986/35/contents (Accessed 13 August 2025)

Ref 8 Legislation.gov.uk (1995) Merchant Shipping Act 1995 (Online) Available at: https://www.legislation.gov.uk/ukpga/1995/21/contents (Accessed 13 August 2025)

Ref 9 Department for Energy Security & Net Zero. (2023) Overarching National Policy Statement for Energy (EN-1). (online) Available from: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf (Accessed January 2025).

Ref 10 Department for Energy Security & Net Zero. (2025). National Policy Statement for Electricity Networks Infrastructure (EN-5). (online) Available from: https://assets.publishing.service.gov.uk/media/65a78a5496a5ec000d731abb/nps-electricity-networks-infrastructure-en5.pdf (Accessed January 2025).

Ref 11 Ministry of Housing, Communities and Local Government (2024). National Planning Policy Framework. (online) Available from: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf (Accessed January 2025).

Ref 12 HM Government (2020). East Suffolk Council – Suffolk Coastal Local Plan. (online) Available from: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf (Accessed January 2025).

Ref 13 National Grid (2024) LionLink Environmental Impact Assessment Scoping Report Volume 1 Main Text. (Online) Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020033/documents (Accessed 28 May 2025)

Ref 14 National Infrastructure consenting planning inspectorate (2024) Scoping Opinion: Proposed LionLink Multi-purpose Interconnector (Online) Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020033-000103-LION%20-%20Scoping%20Opinion.pdf (Accessed 11 August 2025)

Ref 15 LionLink Multi-Purpose Interconnector (August 2023) Interim Non-Statutory Consultation Feedback Summary Report. (Online) Available at: https://www.nationalgrid.com/national-grid-ventures/lionlink/library#230548828-3684997351 (Accessed 19 June 2025)

Ref 16 LionLink (March 2024) Supplementary Non-Statutory Consultation Summary Report. (Online) Available at: https://www.nationalgrid.com/national-grid-ventures/lionlink/library#230548828-3684997351 (Accessed 19 June 2025)

Ref 17 National Infrastructure consenting planning inspectorate (2024) LionLink Interconnector Documents. (Online) Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020033/documents (Accessed 11 August 2025)

Ref 18 NextGeo 2024a. LionLink Seabed Survey: MOBILISATION & CALIBRATION REPORT - SHORE PRESENCE. unpublished report, report reference P2066-009-MCR-003.

Ref 19 NextGeo 2024b. LionLink Seabed Survey: OFFSHORE GEOPHYSICAL SURVEY PROCEDURE, MOBILISATION AND CALIBRATION PLAN. unpublished report, report reference P2066-008-OFS.

Ref 20 NextGeo 2025. LionLink Seabed Survey: Volume 1 - Results Report - Geophysical Survey. unpublished report, report reference P2066-010-REP-001.

Ref 21 English Heritage (now Historic England). 2008. Conservation principles, policies and guidance for the sustainable management of the historic environment. London: English Heritage.

Ref 22 Historic England. 2015. Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record. Swindon, Historic England.

Ref 23 Historic England. 2020. Deposit Modelling and Archaeology. Guidance for Mapping Buried Deposits. Swindon: Historic England.

Ref 24 Historic England. 2021. Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15. Swindon: Historic England.

Ref 25 English Heritage (now Historic England) (2000). Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers. English Heritage.

Ref 26 English Heritage (now Historic England) (2002). Military Aircraft Crash Sites – Archaeological Guidance on their Significance and Future Management. English Heritage.

Ref 27 Joint Nautical Archaeology Policy Committee (JNAPC) (2006). Code of Practice for Seabed Development. The Crown Estate.

Ref 28 Gribble, J. and Leather, S. for EMU Ltd. (2011). Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Commissioned by COWRIE Ltd (project reference GEOARCH-09).

Ref 29 English Heritage (now Historic England) (2012). Ships and Boats: Prehistory to Present - Designation Selection Guide. English Heritage.

Ref 30 Historic England (2025). Marine Geophysics: Data Acquisition, Processing, and Interpretation Guidance Notes (2nd Edition). Historic England, Swindon.

Ref 31 English Heritage (now Historic England) (2015). Managing Significance in Decision-Taking in the Historic Environment. English Heritage.

Ref 32 Historic England (2016). Preserving Archaeological Remains: Decision-Taking for Sites under Development. Swindon: Historic England.

Ref 33 Historic England (2017). The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning: 3 (Second Edition). Swindon: Historic England.

Ref 34 Historic England (2019). Statements of Heritage Significance: Analysing Significance in Heritage Assets: Historic England Advice Note 12. Swindon: Historic England.

Ref 35 Wessex Archaeology (2007). Historic Environment Guidance for the Offshore Renewable Sector. Commissioned by COWRIE Ltd. (project reference ARCH-11-05). COWRIE Ltd.

Ref 36 COWRIE (2008). Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy. Commissioned by COWRIE Ltd. Project contractors: Oxford Archaeology with George Lambrick Archaeology and Heritage.

Ref 37 The Crown Estate (2021). Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects. The Crown Estate.

Ref 38 Chartered Institute for Archaeologists (CIfA) (2014). Code of Conduct. October 2019, updated 2022. Reading: CIfA.

Ref 39 Historic England (2023). Curating the Palaeolithic. Historic England.

Ref 40 Historic England (2024). Managing Lithic Sites. Archaeological guidance for commercial and research projects, planning authorities, land management agencies and developers. Swindon, Historic England.

Ref 41 European Commission (2014). Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report. Directive 2011/92/EU as amended by 2014/52/EU.

Ref 42 CITiZAN (2025). Coastal Map. (online) Available from: https://citizan.org.uk/interactive-coastal-map/#zoom=1&lat=7000000.42789&lon=-449143.99347&layers=B00000FT (Accessed January 2025).

Ref 43 Land Use Consultants Ltd (LUC) (2017). Historic Seascape Characterisation (HSC): Consolidating the National HSC Database. Commissioned by Historic England.

Ref 44 English Heritage (now Historic England) (1998). Identifying and Protecting Palaeolithic Remains: archaeological guidance for planning authorities and developers. English Heritage.

Ref 45 Fjordr (2014). East Coast War Channels in the First and Second World War. (online) Available from: https://historicengland.org.uk/research/results/reports/103-2014 (Accessed January 2025).

Ref 46 Wessex Archaeology. 2024. Suffolk Geophysical Survey Walberswick, Suffolk. Detailed Gradiometer Survey Report. Salisbury: Unpublished report ref: 288491.04

Ref 47 Historic England (2022) Historic England – Our Climate Strategy (Online) Available at: https://historicengland.org.uk/advice/climate-change/our-strategy/ (Accessed August 2025)

Ref 48 Met Office (2018) Met Office – UK Climate Projections 2018 (UKCP18), (online) Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp (Accessed August 2025)

Ref 49 Gregory D, Dawson T, Elkin D, et al. (2022). Of time and tide: the complex impacts of climate change on coastal and underwater cultural heritage. *Antiquity*. 2022;96(390):1396-1411.

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