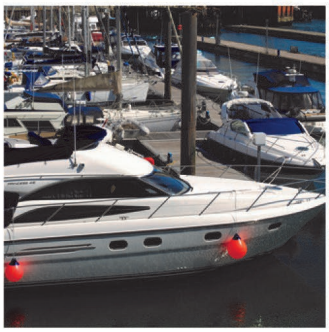
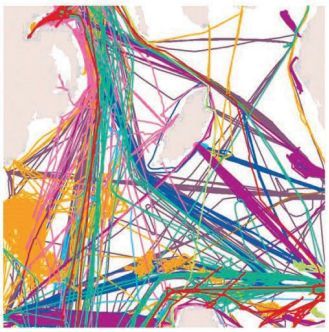
Associated British Ports

Immingham Eastern Ro-Ro Terminal

Preliminary Environmental Information
Chapter 15: Cultural Heritage and Marine Archaeology

January 2022





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15.1 Introduction

15.1.1 This chapter provides a preliminary assessment of the effects of the proposed Immingham Eastern Ro-Ro Terminal (IERRT) on cultural heritage and marine archaeology. This chapter has been prepared by Wessex Archaeology Ltd. The Port of Immingham, also known as Immingham Dock, is today a major port on the east coast of England, located on the south bank of the Humber Estuary west of Grimsby. The port was established in 1904 acting as a port for the export of coal.

15.1.2 During the First World War, Immingham was a submarine base for British D class submarines and in the Second World War functioned as a naval base and headquarters for the Royal Navy. The port was considerably expanded during the second half of the 20th century, with east and west jetties and the addition of several deep-water jetties for bulk cargo. Further extensions have been undertaken during the 21st century, improving the port infrastructure and facilities to cater for the export of bulk goods.

15.1.3 The following receptors have been considered as part of this assessment:

- Seabed prehistory (for example, palaeochannels and other features that contain prehistoric sediment, and derived Palaeolithic artefacts e.g. hand axes);
- Seabed features, including maritime receptors (such as shipwrecks and associated material including cargo, obstructions, and fishermen's fasteners) and aviation receptors (aircraft crash sites and associated debris);
- Intertidal heritage receptors; and
- The historic setting of the Port of Immingham, including the wider designated terrestrial heritage receptors (see section 15.2.5).

15.1.4 A number of figures support the description of the existing environment (baseline) and are provided in Volume 2 of this Preliminary Environmental Information Report (PEIR) document. Figure 15.1 shows the location of marine heritage receptors in relation to the proposed development and Figure 15.2 shows the location of designated terrestrial heritage receptors in relation to the proposed development.

15.1.5 Potential effects on marine heritage receptors have been assessed with reference to assessments in other chapters of this document, including Physical Processes (Chapter 7).

15.1.6 The current known baseline relating to both seabed prehistory and seabed heritage receptors such as maritime and aviation sites is based on

documentary sources only, and will be developed through future archaeological analysis of geophysical and geotechnical survey datasets.

15.2 Definition of the study area

15.2.1 The marine study area for this assessment is the area over which potential direct and indirect effects of the IERRT project are predicted to occur on marine heritage receptors during the construction and operational periods.

15.2.2 Direct effects could occur to known and potential archaeology receptors during the construction phase as a result of the piling and capital dredge.

15.2.3 Indirect effects could occur to known and potential archaeology receptors due to changes in physical processes as a result of the piling and capital dredge.

15.2.4 The marine study area therefore comprises the proposed development area of Immingham Eastern RoRo Terminal below Mean High Water Springs (MHWS). This encompasses all direct impacts from construction and dredging. A further 500 m buffer zone beyond the area of the proposed development has been included in order to capture relevant proximate heritage receptors in the assessment that could be affected indirectly.

15.2.5 The assessment of the harbour setting, including designated terrestrial heritage receptors, considers a wider area, comprising a 5 km buffer zone beyond the area of the proposed development.

15.3 Assessment methodology

Data and information sources

15.3.1 Current baseline conditions have been determined by a desk-based review of available information.

15.3.2 The main desk-based sources of information that have been reviewed to inform the current baseline description within the vicinity of the proposed development include:

- United Kingdom Hydrographic Office (UKHO) wreck database (acquired 28 July 2021);
- Historic England's National Record of the Historic Environment (NRHE), (acquired 21 October 2021);
- North East Lincolnshire Historic Environment Records (HER) (now defunct) (acquired 09 April 2020);
- Various online resources including the British Geological Survey (BGS) Geology of Britain Viewer;
- Historical maps and Ordnance Survey maps;
- Admiralty Charts; and
- Relevant primary and secondary sources in Wessex Archaeology's own library and those available through the Archaeology Data Service and

other websites. Both published and unpublished archaeological reports relating to excavations and observations in the area around the study area were reviewed.

15.3.3 The baseline relating to both seabed prehistory and seabed features such as maritime and aviation receptors, will be developed through future archaeological analysis of geophysical and geotechnical survey datasets.

Determining significance of effects

15.3.4 To facilitate the impact assessment process and ensure consistency in the terminology of significance, a standard assessment methodology has been applied. The methodology has been developed from a range of sources, including:

- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage (now Historic England) 2008, 21);
- Ships and Boats: Prehistory to Present – Designation Selection Guide (English Heritage (now Historic England), 2012); and
- The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning Note 3 (Historic England, 2017).

Assessment of Setting

15.3.5 Currently, there is no specific guidance regarding the assessment of setting for marine archaeological and cultural heritage receptors. However, Historic England's *The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning 3* (2017) provides general guidance, though this has largely been applied to terrestrial sites, noting that the importance of setting *"lies in what it contributes to the significance of the heritage asset"* (Historic England, 2015: 4). Regarding significance for heritage policy, the National Planning Policy Framework (NPPF) states that the interest of a heritage asset *"may be archaeological, architectural, artistic or historic*" (Ministry of Housing, Communities and Local Government 2021).

15.3.6 Marine heritage receptors are generally only experienced by divers, Remotely Operated Vehicle (ROV), or by geophysical survey, and the views to the receptor are often very limited due to reduced visibility in the water column. In addition, unlike many terrestrial sites, the position of the receptor on the seabed has not been deliberately chosen, and although some sites may have reached their position through military action or have been lost due to a particular navigational hazard (e.g. hitting a harbour wall or being stranded on a particular hazard), many positions are entirely arbitrary, and even with military sinking events, an attack on the surface could lead to a wreck being deposited on the seabed miles from where the event took place. Non-visual factors may include associations with specific battles, wars, minefields, and other historic events, as well as how the wreck can be appreciated in its wider context, for example through well-known trade routes, collisions, or local industry. Association between the receptor and the local social history is

another important aspect of the receptor's non-visual importance, including rescue attempts or losses occurring within modern memory.

15.3.7 It is not possible to ascertain the setting of currently unidentified marine heritage receptors, where limited information is known, for example wrecks that have not been identified or characterised to determine their period of build, use or loss. Similarly, setting cannot be assessed for geophysical anomalies of archaeological potential or potential sites that have not yet been discovered.

15.3.8 A preliminary audit of designated terrestrial heritage receptors within 5 km of the proposed development site has been undertaken (see Section 15.6). This includes both scheduled monuments and listed buildings. This will form the basis of a setting assessment which will be provided in the full Environmental Statement (ES).

Receptor Sensitivity

15.3.9 In order to assess the potential impacts of a development upon marine cultural heritage, the conceptual approach known as the 'source-pathway-receptor' model is adopted. This approach is based on the identification of the source (i.e. the origin of a potential impact), the pathway (i.e. the means by which the effect of the activity could impact a receptor) and the receptor that may be impacted (e.g. known/potential heritage receptors). For the significance of any given impact to be fully understood and for appropriate mitigation to be proposed, the sensitivity of any marine cultural heritage receptors that may be impacted need to be considered. This section outlines how the sensitivity of marine heritage receptors is ascertained.

15.3.10 The capability of a receptor to accommodate change and its ability to recover if affected is a function of its sensitivity. Receptor sensitivity is typically assessed via the following factors:

- Adaptability - the degree to which a receptor can avoid or adapt to an effect;
- Tolerance - the ability of a receptor to accommodate temporary or permanent change without significant adverse impact;
- Recoverability - the temporal scale over and extent to which a receptor will recover following an effect; and
- Value - a measure of the receptor's importance, rarity and worth.

15.3.11 Archaeological and cultural heritage receptors cannot typically adapt, tolerate, or recover from physical impacts resulting in material damage or loss caused by development. Consequently, the sensitivity of each receptor is predominantly quantified only by its value.

Value of a Receptor

15.3.12 Based on Historic England's *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage (now Historic England) 2008, 21), the significance of a historic receptor "*embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it"*.

15.3.13 Within this document, value is weighed by consideration of the potential for the receptor to demonstrate the following value criteria:

- Evidential value – deriving from the potential of a place to yield evidence about past human activity;
- 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;
- Aesthetic value – deriving from the ways in which people draw sensory and intellectual stimulation from a place; and,
- 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.

15.3.14 With regards to assessing the value of shipwrecks, the following criteria listed in English Heritage's *Ships and Boats: Prehistory to Present – Designation Selection Guide* (English Heritage (now Historic England) 2012) can be used to assess a receptor in terms of its value:

- Period;
- Rarity;
- Documentation;
- Group value;
- Survival/condition; and
- Potential.

15.3.15 These aspects help to characterise each receptor whilst also comparing them to other similar receptors. The criteria also enable the potential to contribute to knowledge, understanding and outreach to be assessed.

15.3.16 The value of known archaeological and cultural heritage receptors were assessed on a four-point scale using professional judgement informed by criteria provided in Table 15.1.

Table 15.1. Criteria to assess the archaeological value of marine receptors

Value	Definition
High	Best known, only example or above average example and / or significant or high potential to contribute to knowledge and understanding and / or outreach. Receptors with a demonstrable international or national 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; and Known submerged prehistoric sites and landscapes with the confirmed presence of largely in situ artefactual material or 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 outreach; 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; and, 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 outreach; 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; and, 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 outreach. Receptor with little or no surviving archaeological interest.

Impact Magnitude

15.3.17 The magnitude of an impact is defined by a series of factors including the spatial extent of any interaction, the likelihood, duration, frequency, and reversibility of a potential impact. The definitions of the levels of magnitude used in this assessment are described in Table 15.2.

Table 15.2. Classification of magnitude of impact

Magnitude	Definition
High	Complete or comprehensive physical damage or changes to the character of the receptor
Medium	Considerable changes that affect the character of the receptor, resulting in considerable physical damage
Low	Minor change that partially affects the character of the receptor, resulting in some physical damage
Negligible	Very minor or negligible change to the character of the receptor, with no or negligible physical damage leading to an imperceptible change to the baseline

Significance Criteria

15.3.18 The significance of effect has been assessed by comparing the sensitivity of the receptor against the magnitude of impact. Residual effects (i.e. those remaining after mitigation measures) have been taken into consideration and have been assessed. The overall significance will be assessed using the significance matrix shown in Table 15.3. Any effect that is Moderate, Minor or Negligible is not considered significant in this assessment.

Table 15.3. Significance matrix

Magnitude/ Scale of Change	Value/Sensitivity			
	High	Medium	Low	Negligible
High	Major	Major to Moderate	Moderate	Negligible
Medium	Major to Moderate	Moderate	Minor to Moderate	Negligible
Low	Moderate	Minor to Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Assumptions and Limitations

15.3.19 This chapter provides information related to the proposed development to date and to data currently available and gathered.

15.3.20 The information in respect of construction installation methods presenting within the Details of Project Construction and Operation chapter (Chapter 3) is the most current information on the likely construction methods being

considered for the proposed development and has been used to inform the assessments undertaken within this chapter accordingly.

15.4 Consultation

15.4.1 Scoping has been undertaken with responses from key archaeological Curators to establish whether there are any likely effects of the IERRT project on cultural heritage and the marine historic environment.

15.4.2 The relevant Scoping responses, and how they have influenced the marine archaeology assessment, are provided in Table 15.4.

Table 15.4. Summary of consultation to date

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
Planning Inspectorate (PINS) Historic England	Scoping Opinion, October 2021. Table ID 4.10.1 Appendix 2 Historic England response	The ES should include an assessment of the contribution of setting to the overall significance of heritage receptors, including those which are buried or submerged, or information demonstrating agreement with the relevant consultation bodies and the absence of an likely significant effect.	These elements will be developed in conjunction with baseline technical assessments scheduled prior to the ES submission. Section 15.3.5 – 15.3.8.
PINS	Scoping Opinion, October 2021. Table ID 4.10.2	The ES should explain how the final study area reflects the full zone of influence of the proposed development.	A wider 5 km buffer zone has been considered in order to undertake a heritage setting assessment, covering the full zone of influence of the proposed development. This considered a preliminary audit of designated terrestrial heritage receptors within the 5 km buffer and will be further developed and agreed following PEIR stage and subsequent

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
			discussion with key stakeholders.
PINS Historic England	Scoping Opinion, October 2021. Appendix 2 Historic England response	Impacts on terrestrial archaeological features should also be considered, in order to properly understand the marine archaeological environment. The study area in the ES must be defined in a way which allows the Examining Authority to fully understand the nature and significance of the archaeological features affected by the proposed development.	Study area consists of the area directly/indirectly impacted by proposed development and a 500 m buffer including terrestrial, intertidal, and marine datasets. Further details are provided in Section 15.2.
PINS	Scoping Opinion, October 2021. Table ID 4.10.3	Paragraph 6.11.8 of the Scoping Report refers to marine archaeological and cultural heritage *receptors* which are located within the marine works; however, Table 17 refers to marine heritage *features*. The Applicant should ensure that consistent terminology is used throughout the marine archaeology ES chapter.	Reference made to marine cultural heritage receptors throughout. "Receptor" to be used for cultural heritage assets taken forward in the Environmental Impact Assessment (EIA).
PINS	Scoping Opinion, October 2021. Table ID 4.10.4	The Applicant should seek to agree the baseline data required for the assessment with relevant stakeholders (including the requirement for site-specific survey data).	To be developed and agreed following PEIR stage and subsequent discussion with key stakeholders (Historic England, and relevant local authority archaeology advisors)
Historic England	Scoping Opinion, October 2021. Appendix 2 Historic	'Our Seas - A shared resource: High level marine objectives' is a policy document relevant to marine planning in general and	Noted. Included in Section 15.5.

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
	England response	therefore should be considered for inclusion elsewhere rather than in the desk-based assessment.	
Historic England	Scoping Opinion, October 2021. Appendix 2 Historic England response	It is not clear if a marine survey campaign will be conducted to acquire data for analysis and interpretation in any ES produced for this proposed project.	Marine geophysical survey campaign and geotechnical campaigns are planned from Q4 2021, and will form the basis of the marine archaeological baseline assessment and EIA, to be undertaken around Q1 2022.
North East Lincolnshire Council	Scoping Opinion, 23 November 2021	In addition to the underground remains we would expect a report on the potential impact on the historic landscape. North East Lincolnshire has had historic landscape character (HLC) undertaken and this should be consulted.	These elements will be developed in conjunction with baseline technical assessments scheduled prior to the ES submission. Section 15.3.5 – 15.3.8.
North East Lincolnshire Council	Scoping Opinion, 23 November 2021	Regarding setting issues, potential impacts on the settings and significance of designated and non-designated heritage assets which would experience visual change should be evidenced using accurate visual representations. Viewpoints, including views of, from, and across heritage asset receptors as well as general intervisibility, all have historic context and need to be	These elements will be developed in conjunction with baseline technical assessments scheduled prior to the ES submission. Section 15.3.5 – 15.3.8.

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
		assessed properly to determine the contribution of the setting of the heritage asset and the potential impact upon it by development or proposed mitigation measures.	

15.5 Implications of policy legislation and guidance

15.5.1 This section of the chapter sets out key aspects and implications of policy and guidance that are relevant to the assessment of likely impacts on marine cultural heritage. It builds upon the overarching chapter covering Legislative and Consenting Framework (Chapter 5). This will be kept under review as the assessment progresses.

National legislation

15.5.2 Within English Territorial Waters the following legislation applies:

- The Marine and Coastal Access Act (MCAA) 2009: the primary legislation relevant to marine development within English Territorial Waters;
- Protection of Wrecks Act 1973: Section One and Two:
  - It is an offence to carry out certain activities in a defined area surrounding a wreck that has been designated, unless a licence for those activities has been obtained from the Government. There are no protected wrecks within the footprint of the proposed development;
- Ancient Monuments and Archaeological Areas Act 1979 (as amended):
  - It is a criminal offence to carry out any works on, or near to, a Scheduled Monument without Scheduled Monument Consent. Both terrestrial and maritime sites, including wrecks, may be designated under this Act. There are no scheduled ancient monuments within the proposed development;
- Protection of Military Remains Act 1989:
  - This Act provides protection for the wreckage of military aircraft and designated military vessels. The Act provides for two types of protection: ‘protected places’ and ‘controlled sites’. Military aircraft are automatically protected, although vessels have to be specifically designated. The primary reason for designation is to protect as a ‘war grave’ the last resting place of servicemen; however, the Act does not require the loss of the vessel to have occurred during the war. There are no protected places or controlled sites within the footprint of the proposed development; and,

- Merchant Shipping Act 1995:
  - All wreck material recovered from UK waters must be declared to the Receiver of Wreck who acts to settle questions of ownership and salvage. 'Wreck' refers to all items of flotsam, jetsam, derelict, and lagan found in or on the shores of the sea or any tidal water.

15.5.3 Marine historic receptors may be designated under the Protection of Wrecks Act 1973 and the Ancient Monuments and Archaeological Areas Act 1979. Military wrecks and aircraft remains may be protected under the Protection of Military Remains Act 1986. Ownership of any wreck remains is determined in accordance with the Merchant Shipping Act 1995.

National Policy

National Policy Statement for Ports (NPSfP)

15.5.4 The NPSfP recognises the importance of the historic environment and that the construction, operation and decommissioning of port infrastructure has the potential to result in adverse impacts on it (Department for Transport 2012, Section 5.12). Therefore the significance of heritage assets and the extent of the impact of the proposed development on the significance of any heritage assets has to be understood (Department for Transport 2012, Section 5.12.9). Both designated heritage assets and undesignated heritage assets have to be considered, and the setting of a heritage asset also has to be taken into account.

15.5.5 The NPSfP advises that the ES should include:

- a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance;
- appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation;
- consideration of the possibility of damage to buried features from underwater disposal of dredged material; and
- an assessment of the extent of the impact of the proposed development on the significance of any heritage assets affected (Department for Transport 2012, Section 5.12).

15.5.6 The full archaeological assessment in the ES will comply fully with the requirements of the NPSfP.

National Planning Policy Framework (NPPF)

15.5.7 The primary planning framework relevant in England is the NPPF (Ministry of Housing, Communities and Local Government, 2021). A core planning principle is to conserve heritage receptors in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations (Ministry of Housing, Communities and Local Government, 2021, 55).

UK Marine Policy Statement (MPS)

15.5.8 UK Marine Policy Statement (MPS) was adopted in 2011 by all UK Administrations in March 2011 as part of a new system of marine planning being introduced across UK seas (HM Government, 2011). The statement was intended to facilitate and support the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with high level marine objectives.

15.5.9 Under the MCAA, England was divided into marine planning regions, with an associated authority responsible for preparing a Marine Plan for that area. The MPS sets out the framework for preparing Marine Plans and making decisions affecting the marine environment. The MPS also states that Marine Plans must ensure a sustainable marine environment that will protect heritage receptors. Marine plans must also be in accordance with other UK national policy, including the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021).

East Inshore Marine Plan

15.5.10 The Marine Management Organisation (MMO) have divided the inshore and offshore waters around England into 11 plan areas for which marine plans are to be produced. The proposed development is within the East Inshore Marine Plan Area which has been adopted as of April 2014 (Defra, 2014).

15.5.11 The East Inshore Marine Plan Policy SOC2 states that proposals that may affect heritage receptors should demonstrate, in order of preference:

(a) that they will not compromise or harm elements which contribute to the significance of the heritage asset;
(b) how, if there is compromise or harm to a heritage asset, this will be minimised;
(c) how, where compromise or harm to a heritage asset cannot be minimised, it will be mitigated against; or
(d) the public benefits for proceeding with the proposal if it is not possible to minimise or mitigate or compromise the harm to the heritage asset.

Local policy

North East Lincolnshire Local Plan 2013 to 2032

15.5.12 The North East Lincolnshire Local Plan (North East Lincolnshire District Council, 2018), adopted in 2018, recognises the significant role the historic environment plays in providing a "*sense of community identity and local distinctiveness, and enhance the aesthetic, social and cultural quality of life available to residents*" (p. 218). Policy 39 'Conserving and enhancing the historic environment' states that "*Proposal for development will be permitted where they would sustain the cultural distinctiveness and significance of North East Lincolnshire's historic urban, rural and coastal environment by protecting, preserving and, where appropriate, enhancing the character,*

appearance, significance and historic value of designated and non-designated heritage assets and their settings" (p.220).

15.5.13 Furthermore, "*Where a development proposal would affect the significance of a heritage assets (whether designated or non-designated), including any contribution made to its setting, it should be informed by proportionate historic environment assessment and evaluations*". This is undertaken by:

- *identifying all heritage assets likely to be affected by the proposal;*
- *explain the nature and degree of any effect on elements that contribute to their significance and demonstrating how, in order of preference, any harm will be avoided, minimised, or mitigated;*
- *provide a clear explanation and justification for the proposal in order for the harm to be weighed against public benefits; and,*
- *demonstrate that all reasonable efforts have been made to sustain the existing use, find new uses, or mitigate the extent of the harm to the significance of the asset; and whether the works proposed are the minimum required to secure the long-term use of the asset*.

Guidance

15.5.14 This assessment was carried out in a manner consistent with available guidance as described below in chronological order of issue:

- Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers (English Heritage (now Historic England), 1998);
- Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers (English Heritage (now Historic England), 2000);
- Military Aircraft Crash Sites: Guidance on their significance and future management (English Heritage (now Historic England), 2002);
- The Code of Practice for Seabed Developers (Joint Nautical Archaeology Policy Committee and The Crown Estate, 2006);
- Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007);
- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage (now Historic England), 2008);
- Our Seas – A shared resource: High level marine objectives (Defra, 2009);
- Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition) (English Heritage (now Historic England), 2011);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble & Leather, 2011);
- Ships and Boats: Prehistory to Present: Designation Selection Guide (English Heritage (now Historic England), 2012);
- Standard and Guidance for Historic Environment Desk-based Assessment (Chartered Institute for Archaeologists, 2014, updated 2017);
- Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes (English Heritage (now Historic England), 2013);

- Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (English Heritage (now Historic England), 2015);
- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021); and,
- Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014).

15.6 Preliminary description of the existing environment

Baseline Resource

15.6.1 The baseline resource of known and potential terrestrial, intertidal and marine cultural heritage, including consideration of their Setting and historic seascape character will be developed fully in the Marine Archaeology Technical Report which will be presented as an appendix of the ES.

Seabed Prehistory

15.6.2 The site lies on an industrialised section of the Killingholme Marshes on the Humber at Immingham. This low-lying area is known as the Outmarsh.

15.6.3 The underlying solid geology is Upper Cretaceous Chalk. Locally there are two formations: Flamborough Chalk and Burnham Chalk. The younger Flamborough Chalk has identifiable bedding surfaces, distinct marl bands and is without flint. The underlying Burnham Chalk, which subcrops along the eastern part of the site, is thinly bedded and laminated and contains continuous flint bands. The Port of Immingham is located at a point where the Burnham Chalk Formation is not covered by the Flamborough Chalk Formation (see BGS 1:50,000 Bedrock Geology mapping).

15.6.4 The chalk surface is characterised by a highly fractured zone created by glacial and periglacial processes, and overlain by Pleistocene deposits of Glacial Till. These glacial and post-glacial sequences are subsequently overlain by fine-grained (Clay and Silt) Tidal Flat Deposits.

15.6.5 Beyond areas of industrial development, the Outmarsh comprises Holocene peats, estuarine alluvium, and tidal flat deposits of sands, silts, and clays (Ellis *et al.,* 2001).

15.6.6 The seabed prehistory baseline will be expanded following archaeological analysis of geophysical and geotechnical datasets to be undertaken as part of the assessment process.

Seabed Receptors: Maritime

15.6.7 There are no sites within the study area that are subject to statutory protection from the Protection of Wrecks Act 1973, the Protection of Military Remains Act 1986 or the Ancient Monuments and Archaeological Areas Act 1979; the three principal statutes that could be used to protect marine archaeological sites.

15.6.8 There are two known wreck sites within the study area (including the 500 m buffer zone), illustrated in Figure 15.1. Wreck 2003 was listed as dead in 2004, i.e. it has not detected by repeated surveys, although wreck material still may exist at this location. This consists of the possible remains of a craft recorded between 1991 and 1999. 2006 is an unknown wreck, shown on Humber 8, April 2009 ed (Figure 15.1).

15.6.9 A number of sites relate to port infrastructure and include the jetties and dolphins associated with the 20th century port (2008, 2009, and 2012).

15.6.10 There are also a number of anomalies in the area that are as yet unidentified. Anomaly 2010 was observed in bathymetry in 2013 and measures 2 x 1 m with a height of 0.5 m. Anomaly 2011 consists of a submerged obstruction that was struck by a vessel in 1957. This measured 17.5 x 10.7 m with 1 m in height, but was amended to dead in 2013, although archaeological material still may exist at this location. Five anomalies (2001, 2002, 2004, 2005 and 2007) are seen on aerial photography possibly consisting of the remains of further jetty and dolphin structures (Figure 15.1).

15.6.11 Table 15.5 provides a description of the known maritime receptors located within the study area.

Table 15.5. Known Maritime Sites

Wessex Archaeology ID	External References	Type	Description	BNG Easting	BNG Northing	Latitude (DDM)	Longitude (DDM)
2001	UKHO 65126; HER MNL1473	Obstruction	Octagonal obstruction shown on aerial photography	520,764.57	415,966.48	53 37.58 N	0 10.525 W
2002	UKHO 65127; HER MNL1473	Obstruction	Octagonal obstruction shown on aerial photography	520,787.58	416,015.30	53 37.606 N	0 10.503 W
2003	UKHO 8576	Wreck	Possible remains of craft recorded between 1991 and 1999. No details are known and it was listed as dead in 2004	520,807.85	415,999.12	53 37.597 N	0 10.485 W
2004	UKHO 65124	Obstruction	Rectangular obstruction shown on aerial photography	520,823.54	415,903.05	53 37.545 N	0 10.473 W
2005	UKHO 65128; HER MNL1473	Obstruction	Octagonal obstruction shown on aerial photography	520,825.62	415,994.01	53 37.594 N	0 10.469 W
2006	UKHO 73629	Wreck	Shown on Humber 8, April 2009 Edition.	520,831.86	416,009.02	53 37.602 N	0 10.463 W
2007	UKHO 65125	Obstruction	Cigar shaped obstruction shown on aerial photography	520,833.42	415,905.16	53 37.546 N	0 10.464 W

Wessex Archaeology ID	External References	Type	Description	BNG Easting	BNG Northing	Latitude (DDM)	Longitude (DDM)
2008	UKHO 8505	Dolphin/Foul Ground	Remains of a Dolphin damaged or destroyed in 1973 following a collision. Dispersed to seabed level in 1984.	520,884.10	416,594.76	53 37.917 N	0 10.402 W
2009	UKHO 67016	Dolphins/Poles/Posts/Piles	Western Dolphin, Immingham Terminal - Lifted in 1975	520,920.46	416,595.69	53 37.917 N	0 10.369 W
2010	UKHO 79895	Foul ground	Observed in bathymetry in 2013. Measures 2 x 1 m with a height of 0.5 m.	521,180.79	416,806.46	53 38.027 N	0 10.128 W
2011	UKHO 8508; HOB UID 908343	Mound/foul ground	A submerged obstruction that was struck by a vessel in 1957. Measured 17.5 m by 10.7 m and 1 m in height. Amended dead in 2013.	521,230.09	416,776.19	53 38.01 N	0 10.084 W
2012	HER MNL2430	Twentieth century jetty	Eastern Jetty, Immingham Docks	520050 (Polygon)	416586 (Polygon)	(Polygon)	(Polygon)

15.6.12 Recorded Losses can be considered as an indication of the potential for archaeological maritime remains to exist within the study area and the type and number of wrecks that could be present. These records relate to vessels reportedly lost or for which no physical wreck remains have ever been identified. Table 15.6 shows the list of documented losses within the study area.

15.6.13 Recorded Losses are predominantly reported to have stranded in coastal areas, around Stallingborough or off Immingham. In general, documented losses paint a vibrant picture of the types of voyages being undertaken within the Humber. The losses across the area generally represent 19th and early 20th century vessels, consisting of a cargo sailing vessel, two fishing ketchs' and a trawler.

Table 15.6. Recorded losses

Source ID	Date	Name	Description
Hob Uid: 1302808; NMR: TA 21 NW 15	1810	*Margaret*	A wooden sailing cargo vessel was stranded at Stallingborough.
Hob Uid: 1303508; NMR: TA 21 NW 16	1880	*Aguia*	A ketch that was stranded and lost in strong wind conditions.
Hob Uid: 1550211; NMR: TA 21 NW 22	1881	*Chanticleer*	A fishing ketch or smack beached near Stallingborough on 18 Jan 1881.
Hob Uid: 943012; NMR: TA 11 NE 19	1896	*Guiding Star*	A keel that was stranded and lost in strong wind conditions.
Hob Uid: 943144; NMR: TA 21 NW 14	1920	*Singapore*	A trawler that sank off Immingham following a collision.
Hob Uid: 1341163; NMR: TA 21 NW 17	1944	HALIFAX MK III MZ576	Two engines feathered; ditched off Immingham, Lincs. 28 Oct 1944.

15.6.14 Table 15.7 shows the distribution of these documented losses according to the date of loss for those records whose position fall within the study area.

Table 15.7. Maritime recorded losses, summary by date

Date	Number of records of ships
Post-medieval	0
19th Century	4
Modern	1
Unknown	0
Total	**5**

Seabed Receptors: Aviation

15.6.15 There are no known aircraft crash sites within the study area. Nonetheless, there is the potential for aircraft or aircraft-related debris to exist on the seafloor within the proposed development. Given the identified potential of the area for military aircraft crashes, particularly relating to the Second

World War, the likelihood would be for any aircraft crash to be of military origin, which would be protected under Protection of Military Remains Act 1986 and therefore would be of High value. This would include both Allied and Axis aircraft and would relate to both complete aircraft wrecks and debris scatters.

15.6.16 The only recorded loss relating to an aircraft is a Halifax MK III, that ditched off Immingham in October 1944.

Intertidal Archaeological Receptors

15.6.17 There are no intertidal archaeological sites in the study area. However, the sites relating to coastal infrastructure, such as the jetties and dolphins associated with the 20th century port (e.g. 2008, 2009, and 2012), are not likely to be fully represented by the single points contained in the data sets. It is likely related receptors are present in the intertidal zone.

Historic Setting of the Port of Immingham

15.6.18 The Port of Immingham, also known as Immingham Dock, is today a major port on the east coast of England, located on the south bank of the Humber Estuary west of Grimsby. The port was established by the Humber Commercial Railway and Dock Company in association with the Great Central Railway, and the works were permitted by the Humber Commercial Railway and Dock Act of 1904 (subsequently modified in 1908, 1909 and 1913). Construction began in 1906 and by 1912 the dock was completed, acting as a port for the export of coal from the Derbyshire and Yorkshire coalfields. The Port facilities linked with the railways which were present at Grimsby, run by the Great Central Railway (Grace's Guide, 2020).

15.6.19 During the first decade of the 20th century the shipbuilding industry dominated the coasts of the North East of England. After the First World War trade declined, as did demands for shipping services and new ships. The onset of rearmament before the Second World War helped to revive the industry for a while, but the shipping and shipbuilding industries were severely damaged by bombing during the war itself. Many shipyards needed extensive overhauling, as did numerous ports and inland waterways, and merchant fleets suffered heavy losses. Reconstruction after the Second World War fundamentally changed the traditional economic and transport patterns of the North Sea region. Nevertheless, coal and timber remained the most important North Sea cargoes well into the 1950s.

15.6.20 During the latter part of First World War and all through Second World War coastal convoys used the East Coast War Channels, coal being a major component of the cargoes carried, essential to help keep industries in southern Britain, particularly war industries, operational. The types of losses associated with the world wars include merchant vessels that might have sailed in the escorted convoys or sailed independently, lost to a variety of enemy threats including surface vessels, submarines, and mines. During the Second World War, there was a significant loss of aircraft along the east

coast because of the relative proximity of German-held airfields on the other side of the North Sea. During both wars, large numbers of steam trawlers and drifters were bought or hired by the Admiralty to supplement the Royal Navy with significant losses due to enemy action. The most notable naval action within the region was probably the 1914 German raid on Scarborough, Whitby, and Hartlepool (Massie, 2004, 319–321).

15.6.21 During the First World War, Immingham was a submarine base for British D class submarines and was later used for cruise ships in the 1930s, accommodating vessels of the Orient Steam Navigation Company, White Star Line and Blue Star Line calling at the port. The Second World War saw further use for the Port, as a naval base and headquarters for the Royal Navy. In addition, a number of anti-aircraft batteries (heavy anti-aircraft battery Humber H21 & H22) were located around the dock during the war.

15.6.22 The dock was considerably expanded during the second half of the 20th century, with east and west jetties and the addition of several deep-water jetties for bulk cargo. The latter half of the century saw the construction of the Immingham Oil Terminal jetty on the banks of the Humber west of the dock entrance in 1969, and the Immingham Bulk Terminal commissioned in 1970 for the export of coal and import of steel. In 1985 the Immingham Gas Jetty was opened, handling Liquid Petroleum Gas. Several extensions, terminals and roll-on/roll-off berths have been added during the 21st century, improving the port infrastructure and facilities to cater for the export of bulk goods.

15.6.23 Table 15.8 shows the designated terrestrial heritage receptors within 5 km of the proposed development site. Following scoping responses from North East Lincolnshire Council an assessment of the impacts of the proposed development on the views of, from and across heritage receptors will be undertaken for the full ES. The relevant receptors will be chosen in consultation with Historic England and North East Lincolnshire Council. The three scheduled monuments and the Grade I listed Church of Saint Denys and Church of St Andrew may be relevant, as well as the views of and from the three Grade II listed lighthouses. However, it is unlikely, given the existing industrial character of the site and the low elevation of the proposed development, that there will be any material additional impacts on the setting of these designated heritage receptors during the construction or operation of the proposed development.

Table 15.8 Designated terrestrial hertiage receptors

External Reference	Name	Designation / Grade	BNG Easting	BNG Northing
1020023	Churchyard cross 20 m south of St Peter and St Paul's Church	Scheduled Monument	519494.52	411818.876
1020187	Stone Creek Heavy Anti-aircraft gunsite, at Sunk Island Clough	Scheduled Monument	523817.8013	418837.7897
1020423	Stallingborough medieval settlement, post-medieval manor house and formal gardens	Scheduled Monument	519494.9151	411688.4582
1083430	Weighbridge House at Stone Creek	II	523680	418905.3608
1083467	South Farmhouse	II	525597	417460.3608
1103467	Daisy Cottage	II	519645	411639.3608
1103468	The Mill	II	519030	410635.3608
1103469	129 Station Road	II	520582	411872.3608
1103701	Church Of Saint Denys	I	514480.51	417357.3131
1103706	Killingholme High Lighthouse	II	517834	418214.3608
1103707	Killingholme North Low Lighthouse	II	517778	418443.3608
1161587	Appletree Cottage	II	515564	414311.3608
1161628	Cross Base Approximately 8 Metres South of Church of St Andrew	II	517525	415067.3608
1161630	Churchfield Manor	II	517820	415363.3608
1161631	Belmont Cottage	II	517552.376	415043.6698
1161697	Cross Approximately 20 Metres South of Church of St Peter And St Paul	II	519492	411814.3608
1214966	The Old Vicarage	II	514434	417122.3608
1215093	Killingholme South Low Lighthouse	II	518011	418148.3608
1215113	The Nook	II	515088	416205.3608
1310011	Church Of St Andrew	I	517520.11	415081.2585
1310015	Gravestone Approximately 0.5 Metres South-West Corner of Nave of Church Of St Peter And St Paul	II	519495	411831.3608
1346858	Baptist Chapel	II	515836	415670.3608

External Reference	Name	Designation / Grade	BNG Easting	BNG Northing
1346976	Church Of St Margaret	II	515503	414310.3608
1346978	Church Of St Peter and St Paul	II*	519506	411837.3608
1391349	The Iron Bungalow	II	517821.525	414364.0242
1403218	Royal Observer Corps Monitoring Post	II	518355.0523	411782.401
1403222	Former Heavy Anti-Aircraft Gun Site	II*	518360.6466	411712.6164
1455139	Immingham War Memorial	II	519025.615	415154.5993
1455332	Healing War Memorial	II	521568.45	410307.51

Value

15.6.24 This section will apply the assessment of value criteria set out in Section 15.3 and the value criteria in Table 15.1 to the known and potential seabed prehistory, maritime and aviation cultural heritage receptors. The value of the different possible receptors is set out in Table 15.9.

Table 15.9 Significance of known and potential sites

Palaeo-land surfaces		Maritime Archaeology		Aviation Archaeology	
Type and value of site (if present)					
In-situ Prehistoric sites	High	Shipwrecks, known and unknown	Minor to High	As yet unknown aircraft wrecks (civil)	Minor to High
Submerged landscape features (without associated archaeological material)	Medium	Features indicated by post alignments and former jetties	Minor to Medium	As yet unknown aircraft wrecks (military)	High
Isolated Prehistoric finds	Medium	Isolated Maritime finds	Medium	Isolated Aviation finds	Medium
Isolated examples of Palaeo-environmental evidence	Minor				
Overall value					
Minor to High Significance		Minor to High Significance		Minor to High Significance	

15.6.25 The present assessment of value relies on descriptions of the sites from the UKHO, NRHE and the HER, and therefore the results of the assessment could be amended based on archaeological assessment of further data, such as archaeological assessment of geophysical survey data when completed in 2022.

15.6.26 Each wreck should be assessed on a case-by-case basis, in order to take into account the full range of criteria for assessing value (such as period, rarity, documentation, group value, survival/ condition, potential, build, use, loss, and investigation), however it is also possible to provide a broad assessment of the sites, based on date categories defined by the Marine Class Description and principles of selection (Wessex Archaeology, 2008).

15.6.27 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.

15.6.28 As it is currently unknown whether the remains of any aircraft are in the study area, it is not known whether there are any aircraft which crashed while in military service, and therefore automatically protected under the Protection of Military Remains Act 1986. It is known that there were a significant number of airfields in the region during the Second World War, and, therefore, it may be assumed that any aircraft material identified during the survey phase of the works will be of potential High value (Table 15.1).

15.6.29 Any further aircraft material discovered would have to be assessed on a case-by-case basis, but it should be treated as of very High value until proven otherwise.

15.7 Future baseline environment

15.7.1 In the absence of the IERRT project there would be no change to known and potential archaeological receptors beyond those caused by natural physical processes and natural deterioration.

15.8 Preliminary Consideration of Likely Impacts and Effects

15.8.1 This section identifies the potential likely effects on the marine historic environment receptors as a result of the construction and subsequent operation of the IERRT project which have been identified at this preliminary stage.

15.8.2 Cumulative impacts on marine cultural heritage which could arise as a result of other coastal and marine developments and activities in the Humber Estuary will be considered as necessary as part of the cumulative impacts and in-combination effects assessment, the approach to which is explained further in Chapter 20 of this PEIR.

Construction phase

15.8.3 This section contains an assessment of the potential impacts to marine cultural heritage as a result of the construction phase of the IERRT project. The following impact pathways have been assessed:

- Direct impacts on known and potential heritage receptors from construction activities;
- Direct impacts on known and potential heritage receptors from dredging; and
- Indirect impacts to heritage receptors due to altered sediment or hydrological processes.

Direct impacts on known and potential heritage receptors from construction activities

15.8.4 Any direct impacts to marine archaeological receptors are likely to occur during the construction stage of the proposed development. Impacts resulting in adverse effects upon archaeological receptors as part of construction works are those involving contact with the seabed. Marine archaeological receptors with height, such as shipwrecks, may also be impacted by activities that occur within the water column.

15.8.5 Activities that could have direct impacts will primarily consist of piling.

15.8.6 Any adverse effects upon marine archaeological receptors from direct impacts associated with construction activities would be permanent and irreversible. As such, the magnitude of direct impacts on known maritime and aviation receptors, and potential seabed prehistory receptors as part of construction activities, if they were to occur, would be High. As a result, if appropriate mitigation is not applied, both the sensitivity and the magnitude of direct impacts on such resources would result in Major Adverse effects considered to be significant.

Direct impacts on known and potential heritage receptors from dredging

15.8.7 Any direct impacts to marine archaeological receptors are likely to occur during dredging activities. Impacts on archaeological receptors will be adverse.

15.8.8 The dredging will be conducted using a backhoe dredger and possibly a trailer suction hopper dredger.

15.8.9 Any adverse effects upon marine archaeological receptors from direct impacts associated with dredging would be permanent and irreversible. As such, the magnitude of direct impacts on known maritime and aviation receptors, and potential seabed prehistory features as part of construction activities, if they were to occur, would be High. As a result, if appropriate mitigation is not applied, both the sensitivity and the magnitude of direct impacts on such resources would result in Major Adverse effects considered to be significant.

Indirect impacts to heritage receptors due to altered sediment or hydrological processes

15.8.10 The indirect effects upon the known and potential marine archaeological receptors 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 activities. The increased exposure of marine archaeological receptors has the potential to cause erosion and deterioration to the receptors. Conversely, should receptors be subject to increased sedimentation and burial, they may, in turn, benefit from conditions which afford higher levels of preservation.

15.8.11 Indirect impacts may affect marine archaeological baseline conditions where they result in the increased exposure or burial of marine archaeological receptors. The increased exposure of marine archaeological receptors has the potential to cause erosion and deterioration to the receptors. Conversely, should receptors be subject to increased sedimentation and burial, they may, in turn, benefit from conditions which afford higher levels of preservation.

15.9 Mitigation measures

Introduction

15.9.1 Archaeological receptors relating to seabed prehistory, maritime and aviation archaeology have been identified within the study area, as has the potential for further receptors to be discovered. The proposed development has the potential to physically and adversely impact known and potential archaeological receptors within the construction footprint and area of effect of indirect physical effects. Typically, adequate, and appropriate mitigation is required to ensure that the archaeological value of the baseline within this report is maintained.

15.9.2 Assessment of geophysical and geotechnical survey data will take place in early 2022, following the submission of the PEIR and in advance of the submission of the ES. Appropriate additional mitigation measures will be decided in consultation with Historic England following those assessments. Examples of possible mitigation measures which may be appropriate are set out below.

Avoidance

15.9.3 The primary mitigation for the protection of known archaeological receptors is avoidance. This is achieved through the implementation and monitoring of Archaeological Exclusion Zones (AEZs), which are proposed for identified High value seabed receptors of anthropogenic origin.

15.9.4 The mitigation will establish appropriately sized AEZs around receptors which have been considered to be of High archaeological potential, in consultation with Historic England. Intrusive construction activities including

the use of vessel anchors will not be undertaken within the AEZs. As part of this mitigation, where required, methods will be established for the monitoring of AEZs, such as in the case where impacts to High value receptors cannot be avoided. This mitigation will be secured through implementation of the Written Scheme of Investigations (WSI).

Reduction

15.9.5 Reduction of impact can be achieved by means of appropriate mitigation identified through potential opportunities for further investigation of receptors (e.g. during unexploded ordnance (UXO) survey and clearance works).

15.9.6 Further investigations mean that these anomalies can either have their archaeological value removed, if they prove to be of non-anthropogenic nature or modern, or their value as archaeological receptors confirmed. If their value is confirmed, in which case mitigation in the form of either avoidance (which may be enacted by the implementation of an AEZ) or through remedying or offsetting measures, secured and identified through a WSI which includes industry-standard mechanisms such as a Protocol for Archaeological Discoveries (PAD).

Offsetting and Recovery

15.9.7 In cases where avoidance is either inappropriate or impossible, the damage to archaeological receptors should be offset. In the case of seabed prehistoric receptors, this can be achieved by undertaking a palaeoenvironmental assessment of deposits with High geoarchaeological potential, principally peat deposits. Pollen and macrofossil assessment, supported by radiocarbon dating, will provide information on age and vegetation history of the terrestrial environment, providing a landscape context to any prehistoric activity within the area.

15.9.8 Recovery of artefacts and/or other archaeological receptors should be a final resort, when all other mitigation has failed. Any recovery should be completed under the supervision of an appropriately qualified and experienced marine archaeologist. If required, recovery methods will be identified through the WSI. Due to the vast differences in practice and implementation between these methods, each will be covered by a specific Method Statement agreed in consultation with the Archaeological Curator, should be implemented.

15.10 Limitations

15.10.1 The assessment has been undertaken based on the following assumptions:

- Data used to compile this report consists of secondary information derived from a variety of sources, only some of which have been directly examined for the purposes of this assessment. The assumption is made that the secondary data, as well as that derived from other secondary sources, are reasonably accurate;

- The records held by the UKHO, NRHE, local HERs and the other sources used in this assessment are not a record of all surviving cultural heritage receptors, 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 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 receptors; and
- Assessment of geophysical and geotechnical survey data will be undertaken in January 2022, further enhancing the baseline presented in the ES and receptor identification.

15.10.2 Following the assessment of geophysical and geotechnical survey data the baseline and therefore the impact assessment will be updated for the ES.

15.11 Preliminary Conclusions on Residual Effects

15.11.1 A summary of the impact pathways that have been assessed, the identified residual impacts and level of confidence is presented in Table 15.10.

15.11.2 Following the application of appropriate mitigation described in Section 15.9, any residual effects from direct impacts would be reduced to Negligible for these receptors and Moderate Adverse for unknown archaeological sites and receptors and therefore, not significant.

15.11.3 Without any mitigation, impacts on known and potential seabed heritage receptors, could result in Moderate Adverse effects. However, mitigation applied through further investigation will result in a significant major beneficial effect through contributing to the knowledge base of the marine historic environment.

15.11.4 The potential effects of operation and maintenance are likely to have occurred during construction phase, assuming the footprint of the operation and maintenance area is the same as the construction phase. Any operational and maintenance works to be carried out within the proposed development area will have a relatively small and defined footprint. With the implementation of any appropriate mitigation measures set out above the significance of any direct or indirect effects on marine archaeology receptors will be reduced considerably.

15.11.5 Accordingly, as presented in Table 15.10 below, residual effects on marine heritage receptors during the construction and operation of the proposed development are not anticipated to be significant.

15.11.6 With regards to indirect impacts, as presented in Table 15.10, residual effects on marine heritage receptors are anticipated to be not significant.

Table 15.10. Summary of potential impact, mitigation measures and residual impacts

Receptor	Impact pathway	Impact Significance	Mitigation measure	Residual Impact	Confidence
Construction Phase					
Known and potential seabed prehistory receptors	Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors	Moderate adverse	Further investigation by means of geoarchaeological assessment of geotechnical surveys	Major positive (as long as geotechnical data are retained, analysed, and reported on by a qualified geoarchaeologist)	To be confirmed post assessment of geophysical and geotechnical survey data sets
Known and recorded maritime receptors and aviation receptors	Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors	Major adverse	Further investigation by means of archaeological assessment of geophysical survey data. Implementation of AEZs. Further investigation through potential opportunities, where possible, for ROV survey; archaeological watching briefs during dredging works.	Negligible	To be confirmed post assessment of geophysical and geotechnical survey data sets

Receptor	Impact pathway	Impact Significance	Mitigation measure	Residual Impact	Confidence
Currently unknown archaeological sites and artefacts	Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors	Major adverse	Implementation of AEZs; WSI (and any supporting activity-specific Method Statements), and PAD	Negligible	To be confirmed post assessment of geophysical and geotechnical survey data sets
Known and potential seabed prehistory receptors; maritime receptors; and aviation receptors	Direct impact via use of anchors by vessels	Moderate to major adverse	Implementation of AEZs; WSI (and any supporting activity-specific Method Statements), and PAD	Negligible	To be confirmed post assessment of geophysical and geotechnical survey data sets
Known and potential seabed prehistory receptors; maritime receptors; and aviation receptors	Indirect disturbance to receptors caused by changes to the hydrodynamic and sedimentary regimes due to dredging and sediment distribution	Negligible	No mitigation is recommended	Negligible	To be confirmed post assessment of geophysical and geotechnical survey data sets

15.12 References

Chartered Institute for Archaeologists (CIfA). (2014). Standard and guidance for historic environment desk-based assessment. Reading, CIfA (updated 2020)

Department for Environment, Food and Rural Affairs. (2009). Our Seas- a shared resource [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/182486/ourseas-2009update.pdf (accessed November 2021)

Department for Environment, Food and Rural Affairs. (2014). East Inshore and East Offshore Marine Plans. London.

Department for Transport. (2012). National Policy Statement for Ports. [Online] Available at: https://www.gov.uk/government/publications/national-policy-statement-for-ports (accessed November 2021).

Ellis, S., Fenwick, H., Lillie, M. and Van de Noort, R. (Eds.). (2001). Wetland Heritage of the Lincolnshire Marsh. An Archaeological Survey. Part 1. English Heritage.

English Heritage (now Historic England). (1998). Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers. London, English Heritage [Online] Available at https://content.historicengland.org.uk/images-books/publications/identifying-protecting-palaeolithic-remains-archaeological-guidance-planning-authorities-developers/IdentifyingAndProtectingPalaeolithicRemains.pdf/ (accessed November 2021)

English Heritage (now Historic England). (2000). Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers. London, English Heritage [Online] Available at: https://content.historicengland.org.uk/images-books/publications/managing-lithic-scatters/managing-lithic-scatters.pdf/ (accessed November 2021)

English Heritage (now Historic England). (2002). Military Aircraft Crash Sites: archaeological guidance on their significance and future management. London, English Heritage [Online] Available at: https://content.historicengland.org.uk/images-books/publications/military-aircraft-crash-sites/milaircsites.pdf/ (accessed November 2021)

English Heritage (now Historic England). (2008). Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment [Online] Available at: https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/ (accessed January 2022)

English Heritage (now Historic England). (2011). Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition) [Online] Available at: https://historicengland.org.uk/images-books/publications/environmental-archaeology-2nd/environmental_archaeology/ (accessed January 2022)

English Heritage (now Historic England). (2012). Ships and Boats: Prehistory to Present: Designation Selection Guide. London, English Heritage [Online] Available at: https://content.historicengland.org.uk/images-books/publications/dsg-ships-boats/ships-boats-sg.pdf/ (accessed November 2021)

English Heritage (now Historic England). (2013). Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes [Online] Available at: https://content.historicengland.org.uk/images-books/publications/dsg-ships-boats/ships-boats-sg.pdf/ (accessed November 2021)

Grace's Guide. (2020). Immingham Dock [Online] Available at: www.gracesguide.co.uk/Immingham_Dock (accessed 05 November 2021)

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).

Historic England. (2015). Geoarchaeology – Using earth sciences to understand the archaeological record [Online] Available at: https://historicengland.org.uk/images-books/publications/geoarchaeology-earth-sciences-to-understand-archaeological-record/heag067-geoarchaeology/ (accessed January 2022)

Historic England. (2017). The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning Note 3 (second edition). Available at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/ (accessed January 2022).

HM Government. (2011). Marine Policy Statement. [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf (accessed November 2021)

Joint Nautical Archaeology Policy Committee and The Crown Estate. (2006). JNAPC Code of Practice for Seabed Development. York, Joint Nautical Archaeology Policy Committee [Online] Available at: http://www.jnapc.org.uk/jnapc_brochure_may_2006.pdf (accessed November 2021)

Massie, R. K. (2004). Castles of Steel: Britain, Germany, and the Winning of the Great War at Sea. London: Jonathan Cape.

Ministry of Housing, Communities and Local Government. (2021). National Planning Policy Framework. [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf (accessed November 2021).

North East Lincolnshire District Council. (2018). Local Plan 2013 to 2032 [Online] Available at: http://www.nelincs.co.uk/wp-content/uploads/2018/05/20180518-AdoptedLocalPlan2018-WEB.pdf (accessed January 2022).

The Crown Estate. (2014). Protocol for Archaeological Discoveries: Offshore Renewables Projects. The Crown Estate.

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

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

Wessex Archaeology. (2008). Aircraft Crash Sites at Sea: A Scoping Study. London. English Heritage. Available at: http://blogs.wessexarch.co.uk/aircraftcrashsitesatsea/files/2008/03/aircraft_crash-sites_at_sea_report.pdf (accessed 26 November 2021)

Websites

British Geological Survey: GeoIndex - British Geological Survey (bgs.ac.uk) (last accessed 05/11/2021).

Grace’s Guide to British Industrial History (https://www.gracesguide.co.uk/Immingham_Dock) (last accessed 05/11/2021)

15.13 Abbreviations/Acronyms

Acronym	Definition
AEZ	Archaeological Exclusion Zone
BGS	British Geological Survey
BNG	British National Grid
DDM	Degrees Decimal Minutes
EIA	Environmental Impact Assessment
ES	Environmental Statement
HER	Historic Environment Record
HLC	Historic Landscape Character
ID	Identification
IERRT	Immingham Eastern Ro-Ro Terminal
MCAA	Marine and Coastal Access Act
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement
NPPF	National Planning Policy Framework
NRHE	National Record of the Historic Environment
PAD	Protocol for Archaeological Discoveries
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
ROV	Remotely Operated Vehicle
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigations

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

15.14 Glossary

Term	Definition
Archaeological interest	There will be archaeological interest in a heritage asset if it holds, or potentially may hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
Conservation (for heritage policy)	The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance.
Designated heritage asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.
Heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing).
Historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.
Historic environment record	Information services that seek to provide access to comprehensive and dynamic resources relating to the historic environment of a defined geographic area for public benefit and use.
Setting of a heritage asset	The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
Significance (for heritage policy)	The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

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