



Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

**Annex 13-1: Marine Archaeological Desk-
Based Assessment Technical Report**

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Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Annex 13-1: Marine Archaeological Desk-Based Assessment Technical Report

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Thanet Extension Offshore Wind Farm

Marine Archaeological Desk-Based Assessment
Technical Report

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October 2017



Thanet Extension Offshore Wind Farm

Marine Archaeological Desk-Based Assessment Technical Report

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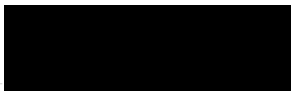




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Summary

Wessex Archaeology was commissioned by GoBe Consultants Ltd on behalf of Vattenfall Wind Power Ltd (VWPL) to provide Lead Environmental Impact Assessment (EIA) Consultancy services in relation to the marine archaeological environment for the proposed Thanet Extension Offshore Wind Farm (Thanet Extension). The proposed development site (hereafter 'the Site') is located approximately 8 km from the Isle of Thanet off the east Kent coast, covering an area of approximately 70 km². Under the role of marine archaeological consultant, Wessex Archaeology is to prepare a Preliminary Environmental Information Report (PEIR) and subsequent Environmental Statement (ES), supported by the production of a technical report. This study is intended to support a planning application for a proposed wind farm extension.

This document comprises the technical report outlining the marine archaeological baseline data, in support of the forthcoming PEIR and ES documents. The aims of the document were to assess the known and potential marine archaeological resource within the study area, comprising a 500 m buffer around the Site, up to the Mean High Water Spring (MHWS), and to assess the likely impacts of the development proposals on this resource. The effect of the development proposal on the marine archaeological environment resource will be a material consideration in the determination of the planning application.

This assessment has established that there are the following marine archaeological environmental assets:

- *Potential for prehistoric archaeological material, particularly in areas with palaeochannels;*
- *35 records of terrestrial sites and find spots in the intertidal zone;*
- *100 known shipwrecks, aircraft crash sites and obstructions within the study area; comprising two known aircraft, 45 shipwrecks, four possible wrecks, and 49 obstructions. There is also potential for additional currently unknown sites to exist;*
- *The two aircraft were lost while in military service, and therefore are automatically protected under the Protection of Military Remains Act 1986; and*
- *The historic seascape character of the area comprises the following character types: coastal infrastructure; ports and docks; recreation; communications; cultural topography; fishing; industry; military; and navigation.*

The need for, scale, scope and nature of any further assessment and/ or archaeological works should be agreed through consultation with the statutory authorities.



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Acknowledgements

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Wessex Archaeology would also like to acknowledge the assistance of John Mabbitt and Amy Roberts of Amec Foster Wheeler, for providing information on the onshore archaeology and cultural heritage technical report, to ensure a consistent approach across both study areas.

Data was provided by the United Kingdom Hydrographic Office (UKHO), the National Record of the Historic Environment (NRHE), the Kent Historic Environment Records (KHER), and Cotswold Archaeology. Wessex Archaeology is grateful to the staff of all the above organisations for their co-operation during the project.

The report was researched and compiled by Diana Donohue and Andrea Hamel, with illustrations prepared by Kitty Foster. Euan McNeill managed the project on behalf of Wessex Archaeology.



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1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by GoBe Consultants Ltd (the Client) on behalf of VWPL to prepare a marine archaeological desk-based assessment for the marine element of the proposed Thanet Extension, off the Kent coast (Figure 1). This desk-based assessment forms a technical report that has been prepared in support of an upcoming PEIR and ES which will ultimately be submitted as part of a planning application for the proposed wind farm extension.

1.2 The Site

1.2.1 The Site is located, at its nearest point, approximately 8 km from the Isle of Thanet off the east Kent coast and covers an area of approximately 70 km² (Figure 1). Water depths in the Site range from between 13 and 43 m.

1.3 Development proposal

1.3.1 The proposal includes provision for a maximum of up to 34 wind turbine generators encircling the current Thanet Offshore Wind Farm (TOWF). It is anticipated that the total capacity of the proposed Thanet Extension will be up to 340 MW. The proposed development includes turbines, foundations, inter-array cabling and sub-sea export cabling. During the research process for this Technical Report, there were two possible landfall location points under consideration, termed Pegwell Bay North and Sandwich Bay South (Figure 1). However, only the more northerly landfall was taken through to the PEIR.

1.4 Scope of document

1.4.1 This assessment was requested by the Client in order to determine, as far as is possible from existing information, the nature, extent and significance of the marine archaeological resource within the Site and its environs. This baseline will inform the impact assessment for the forthcoming PEIR and the ES, as required by the *Overarching National Policy Statement for Energy* (NPS EN-1) (Department of Energy and Climate Change (DECC, 2011).

1.4.2 The marine element of the Site is considered to comprise the area offshore up to the MHWS. The onshore elements of the project are considered as part of a separate document (Amec Foster Wheeler, 2017).

1.4.3 The Historic Environment, as defined in the National Planning Policy Framework (NPPF, 2012): Annex 2, comprises:

'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.'

1.4.4 NPPF Annex 2 defines a Heritage Asset as:

'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 assets include designated heritage assets and assets identified by the local planning authority (including local listing).'

1.4.5 Further definitions of terminology and chronology can be found in Appendix 1.

1.5 Aims

1.5.1 The specific aims of this assessment are to:

- *Outline the known and potential marine heritage assets within the study area based on a review of existing information within a defined study area;*
- *Assess the significance of known and potential heritage assets through weighted consideration of their valued components; and*
- *Assess the significance of the historic seascape character of the study area.*

2 LEGISLATION, POLICY AND GUIDANCE

2.1 Introduction

2.1.1 Historic England (HE) is responsible for the archaeological resource within England's Territorial Waters (to the 12 nautical miles (nm) limit) and is consultee for the resource in the UK Exclusive Economic Zone (EEZ). The Marine Management Organisation (MMO) is responsible for licencing, regulating and planning marine activities in the seas around England to ensure they are carried out in a sustainable way.

2.1.2 The following section provides a summary of the national, regional and local planning and legislative framework which governs the treatment of the marine historic environment in the planning process. More comprehensive details are provided in Appendix 2.

2.2 Marine Legislation

2.2.1 The Site is located in the English territorial sea (up to 12 nm from the coast). The following legislation applies:

- *Protection of Wrecks Act 1973: Section One and Two;*
- *Ancient Monuments and Archaeological Areas Act 1979 (as amended);*
- *Protection of Military Remains Act 1986; and*
- *Merchant Shipping Act 1995.*

2.2.2 There are two known archaeological sites that are military aircraft and are designated under the Protection of Military Remains Act 1986. In addition, the potential for as yet undiscovered archaeological features to exist within the study area cannot be discounted. The above legislation provides protection for wrecks of high historical, archaeological or artistic value, as well as allowing military wrecks and aircraft remains to be protected. Ownership of any wreck remains is determined in accordance with the Merchant Shipping Act 1995.

2.3 International Conventions

- 1.1.1 The United Nations Educational, Scientific and Cultural Organisation (UNESCO) Convention was concluded in 2001, and is a comprehensive attempt to codify the law internationally, with regards to underwater cultural heritage. The UK abstained in the vote on the final draft of the Convention, however it has stated that it has adopted the Annex of the Convention, which governs the conduct of archaeological investigations, as best practice for archaeology. Although the UK is not a signatory, the Convention entered into force on 2 January 2009, having been signed or ratified by 20 member states.

2.4 National Planning Policy Framework (NPPF)

- 2.4.1 The NPPF was published by the Department for Communities and Local Government (DCLG) in March 2012 (DCLG, 2012), replacing Planning Policy Statement 5.

- 2.4.2 Section 12 of the NPPF entitled 'Conserving and enhancing the historic environment' sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process. The aim of NPPF Section 12 is to ensure that Regional Planning Bodies and Local Planning Authorities, developers and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them. The government guidance provides a framework that:

- *Recognises that heritage assets are an irreplaceable resource;*
- *Requires applicants to provide proportionate information on the significance of heritage assets affected by the proposals and an impact appraisal of the proposed development on that significance;*
- *Takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting;*
- *Places weight on the conservation of designated heritage assets;*
- *Requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible; and*
- *Promotes the conservation of heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life for this and future generations.*

2.5 Marine Policy

- 2.5.1 The Marine and Coastal Access Act 2009 (MCAA) is the primary legislation relevant to marine development plans. Under this legislation, marine plans must be consistent with the UK Marine Policy Statement (MPS; HM Government, 2011) and fully reflect the requirements of the MPS at a local level. Marine plans must also be in accordance with other UK national policy, including the National Planning Policy Framework (DCLG, 2012).

- 2.5.2 Under the MCAA, the UK 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 assets.

2.5.3 In England, the MMO have divided the inshore and offshore waters into 11 plan areas for which marine plans are to be produced. The Site is within the South East Inshore Marine Plan Area. An initial iteration of the South East Inshore Marine Plan has been published and is awaiting feedback. Until the plan is formally adopted, the MMO refer developers to adhere to the MPS.

2.6 Marine Guidance

2.6.1 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, 1998);*
- *Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers (English Heritage, 2000);*
- *Military Aircraft Crash Sites: Guidance on their significance and future management (English Heritage, 2002);*
- *Wind Energy and the Historic Environment (English Heritage, 2005);*
- *Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007a);*
- *The Code of Practice for Seabed Developers (Joint Nautical Archaeology Policy Committee (JNAPC), 2008);*
- *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008);*
- *Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy (Oxford Archaeology with George Lambrick Archaeology and Heritage, 2008);*
- *Our Seas – A shared resource: High level marine objectives (Department for Environment, Food and Rural Affairs (DEFRA), 2009);*
- *Model Clauses for Archaeological Written Schemes of Investigation (Wessex Archaeology and The Crown Estate, 2010);*
- *NPS EN-1 (DECC, 2011);*
- *National Policy Statement for Renewable Energy Infrastructure (EN-3) (DECC, 2011);*
- *Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes (Gribble and Leather, 2011);*
- *Ships and Boats: Prehistory to Present: Designation Selection Guide (English Heritage, 2012); and*
- *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning: 3 (Historic England, 2015).*

3 METHODOLOGY

3.1 Introduction

3.1.1 The methodology employed during this assessment reflects the requirements of an EIA as set out in European Council Directive 85/337/EEC as named by Directive 97/11/EC and follows best practice professional guidance outlined by the Chartered Institute for Archaeologists' *Standard and guidance for historic environment desk-based assessment* (CIfA, 2017).

3.2 Study Area

3.2.1 The study area comprises a 500 m buffer around the Thanet Extension array area as well as the export cable corridor, as provided in the 'Site Investigation Boundary' as supplied by the Client on 8 March 2017 (Figure 1). This buffer incorporates the 500 m vessel turning buffers and creates a comprehensive search area for obtaining records from relevant archive databases, which provides not only context for the discussion and interpretation of the known and potential marine archaeological resource within the study area, but also allows for potential inaccuracies in positional data that could be present in archival records. With regards to terrestrial features in the intertidal zone, the 500 m buffer was not applied, and only sites and material within the Site Investigation Boundary to MHWS are discussed.

3.2.2 The study area was amended in June 2017, and a new shapefile released for the export cable corridor (THET2_OffshoreCableCorridor170629). Marine archaeological features within the extents of the new cable corridor have been archaeologically reviewed, however a 500 m buffer was not applied (Figure 1).

3.3 Sources

3.3.1 A number of sources of primary and synthesised information were consulted in order to compile this report.

- *The UKHO data for charted wrecks and obstructions;*
- *The National Record of the Historic Environment (NRHE) maintained by Historic England, comprising data for marine archaeological sites, find spots and archaeological events;*
- *The Kent Historic Environment Record (KHER), comprising a database of recorded archaeological sites, find spots, and archaeological events within the county;*
- *The National Heritage List for England 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;*
- *Historical maps and Ordnance Survey maps;*
- *Admiralty Charts; and*
- *Grey literature reports relating to TOWF:*
 - *Thanet Offshore Wind Farm Project: Archaeological Assessment: Technical Report (Wessex Archaeology, 2005);*
 - *Thanet Offshore Wind Farm Project: Archaeological Assessment of Marine Geophysical Data (Wessex Archaeology, 2006a);*

- Thanet Offshore Wind Farm: Stage 1 Borehole Assessment (Wessex Archaeology, 2006b);
 - Thanet Offshore Wind Farm: Stage 2 Archaeological Recording (Wessex Archaeology, 2007b);
 - Thanet Offshore Wind Farm: Borehole Assessment: Stage 3 Sample Assessment (Wessex Archaeology, 2007c);
 - Thanet Offshore Wind Farm: Archaeological Monitoring and Mitigation: Written Scheme of Investigation (Wessex Archaeology, 2007d);
 - Thanet Offshore Wind Farm Project: Walkover Survey (Wessex Archaeology, 2007e);
 - Thanet Offshore Wind Farm: Wind Farm Area: Geotechnical Logs and Samples: Stages 1 and 2: Archaeological Report (Wessex Archaeology, 2008a);
 - Thanet Offshore Wind Farm: Archaeological Assessment of Marine Geophysical Data: Pre-development Monitoring Report: Offshore Wind Farm Site: Volume 1 (Wessex Archaeology, 2008b);
 - Thanet Offshore Wind Farm: Archaeological Assessment of Marine Geophysical Data: Pre-development Monitoring Report: Thanet Offshore Wind Farm Export Cable Route (Wessex Archaeology, 2008c);
 - Thanet Offshore Wind Farm: Archaeological Diver Assessment of Anomaly 7069 (Wessex Archaeology, 2008d);
 - Thanet Offshore Wind Farm Onshore Cable Works: Archaeological Watching Brief (Wessex Archaeology, 2009);
 - Thanet Offshore Wind Farm: Archaeological Watching Brief: Offshore Cable Installation Pre-Lay Grapple Run (Wessex Archaeology, 2010a); and
 - Thanet Offshore Wind Farm: Archaeological Watching Brief: Onshore and Intertidal Zone Cable Installation (Wessex Archaeology, 2010b).
- *Relevant primary and secondary sources and grey literature held 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 vicinity of the Site were studied.*

3.3.2 Following the alteration of the export cable corridor to include part of the NEMO cable route, additional data were requested from the UKHO, NRHE and KHER. The data were received and have been integrated into this report.

3.4 Walkover Survey Methodology

3.4.1 In July 2017, Wessex Archaeology undertook a walkover survey to confirm the location of an aircraft crash site (**2101**). The site consists of the remains of a B-17G 42-31243 Flying Fortress that ditched in Pegwell Bay, Kent, after running out of fuel. The site is recorded in the NRHE at one location, but survey work in the 1990s suggests the site is in fact at a different location.

3.4.2 The walkover survey took place on 24 July at low tide. It comprised a visual inspection, positioning, identification of material and photographic record of visible features.

3.5 Marine Archaeological Desk-based Assessment

3.5.1 The marine themes relevant to marine archaeological baseline as assessed in this report are:

- *Seabed prehistory;*
- *Terrestrial features located within the intertidal zone;*
- *Seabed features, including maritime sites and aviation sites; and*
- *Historic seascape character.*

Data Handling

3.5.2 In order to compile the marine archaeological baseline as presented in this report, where possible, the sources in section 3.3 of this document were incorporated into a project Geographic Information System (GIS) using ArcGIS 10.2, enabling the data to be spatially analysed. The data were subsequently compiled into gazetteers and will be used to inform the archaeological assessment of geophysical data that is presently being undertaken.

3.5.3 The NRHE and KHER records have been discriminated between records for which there is known material on the seabed and 'recorded losses' (vessels that are known to have been lost, but do not, except by chance, have material on the seabed at their recorded loss location). The records with known material on the seabed are included in the 'wrecks and obstructions' gazetteer along with data from the UKHO. The recorded losses are in a separate gazetteer, and have been used to assess the potential for further discoveries.

3.5.4 For the purposes of this report, the gazetteers are compiled and illustrated in Universal Transverse Mercator (UTM) zone 31 north projected from a ETRS89 datum. Information relating to the archaeological and cultural heritage that did not include location or positional information were used to inform the marine archaeological baseline assessment where relevant.

3.5.5 For archaeological sites that were recorded in the UKHO, NRHE and KHER datasets, the co-ordinates from the UKHO are the ones used in the gazetteer and GIS. As these relate to survey co-ordinates, they have been assessed as likely to be more accurate.

3.5.6 Many of the known shipwreck, aircraft and obstruction sites discussed in this report have been reported on previously during the TOWF assessment. In order to minimise confusion with records, the sites have been provided with a new WA ID, commencing with **2100** (see Appendix 5) .

Chronology

3.5.7 Archaeological material is generally studied within a framework of 'periods' or 'ages' that reflect the activities and cultural changes taking place over time. All dates are referred to as BCE (Before Common Era), BP (Before Present) or AD (*Anno Domini*) within the text. BCE refers to calibrated radiocarbon chronology that can be considered equivalent to calendar years. BP dates are used for periods of time older than circa 10,000 years ago.

3.5.8 A list of the main archaeological periods in Britain referred to in the text, along with their broadly defined dates are presented in Appendix 1.

Seabed Prehistory

- 3.5.9 The baseline summary for seabed prehistory was based on a review of geological mapping of seabed sediments, solid geology and bathymetry from published BGS sources. This has been enhanced by the geoarchaeological review of geotechnical and geophysical datasets and core samples gathered for the TOWF project to produce a stratigraphic framework for understanding the archaeological potential of the Quaternary geology within the Site. This assessment was further supported by the examination of models of past sea level, palaeoshorelines and submerged prehistoric landscapes. This palaeogeographic review, alongside the known archaeological record, formed the basis upon which the potential for submerged prehistory could be developed and discussed in support of the subsequent PEIR and ES. An archaeological assessment of geophysical survey data within the Site is presently underway, and the results of this work will be used to update the baseline summary for the PEIR and ES.

Terrestrial, Maritime and Aviation Archaeology

- 3.5.10 The baseline summary for maritime and aviation archaeology was assessed by means of accessing any records of sites, find spots, wrecks, casualties and seabed features obtained from the UKHO, NRHE and KHER within the study area. The baseline assessment of maritime and aviation archaeology was further supplemented by a review of relevant primary and secondary source material in order to provide an indication on the nature of maritime and aviation activity across the region. As well as summarising the known archaeological resource, the baseline assessment underlines the potential for encountering unknown shipwreck and aircraft crash sites within the study area. The assessment has reviewed the results of previous work undertaken for TOWF, and sites have been correlated where applicable. An archaeological assessment of geophysical survey data within the Site is presently underway, and the results of this work will be used to update the baseline summary for the PEIR and ES.

Historic Seascape Characterisation

- 3.5.11 The baseline summary for character of the historic seascape within the study area was assessed using the results of the Historic Seascape Characterisation (HSC) undertaken by Cotswold Archaeology in 2012-2013. These include ArcGIS shapefiles of the character areas and reports including a regional and national assessment of the historic seascape character types. The assessment reflects the approach to Seascape Character Assessment (Natural England, 2012).

3.6 Determining Value and Sensitivity

- 3.6.1 This report will ultimately inform an EIA for the Site that will be presented within the ES. In order to assess the potential impacts of a development upon the marine environment, EIAs typically adopt the conceptual approach known as the 'source-pathway-receptor' model. 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 assets). In order for the significance of any given impact to be fully understood, the sensitivity of any receptors that may be impacted need to be considered. This section outlines the means by which the sensitivity of marine heritage assets is ascertained.
- 3.6.2 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.*

3.6.3 Since archaeological receptors cannot adapt, tolerate or recover from physical impacts caused by a proposed development for the purpose of this assessment, the sensitivity of each asset will be quantified only by its value. The UK Marine Policy Statement (HM Government, 2011) describes a heritage asset as holding a degree of significance. Significance is the value of a heritage asset to this and future generations because of its heritage interest, which may be archaeological, architectural, artistic or historic.

3.6.4 NPS EN-1 (DECC, 2011) 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. Once lost heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact.’

3.6.5 It should be noted that while designation indicates that an asset has been identified as being of high value, non-designated archaeological assets are not necessarily of lesser value. There are very few designated archaeological sites offshore. Therefore, non-designated assets that can be demonstrated to be of equivalent value to designated sites are considered to be of equivalent significance.

3.6.6 The value of known archaeological and cultural heritage assets was assessed on a five point scale using professional judgement informed by the criteria provided in table 1 of this document.

Table 1: Criteria to assess the archaeological value of offshore assets

Value	Definition
High	<ul style="list-style-type: none"> • Best known, only example, or above average example and/ or high potential to contribute to knowledge and understanding and/ or outreach. • Receptors 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. • Known submerged prehistoric sites and landscapes with the confirmed presence of largely <i>in situ</i> artefactual material. Palaeogeographic features with demonstrable potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.

Value	Definition
Medium	<ul style="list-style-type: none"> • Average example and/ or moderate potential to contribute to knowledge and understanding and/ or outreach. • Receptors 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	<ul style="list-style-type: none"> • Below average example and/ or low potential to contribute to knowledge and understanding and/ or outreach. • Receptors with a demonstrable local 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	<ul style="list-style-type: none"> • Poor example and/ or little or no potential to contribute to knowledge and understanding and/ or outreach. Assets with little or no surviving archaeological interest.
Unknown	<ul style="list-style-type: none"> • There is not presently enough information available about the site to assess its value.

3.6.7 Based on Historic England's *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (Historic England 2008: 21), the significance of a historic asset 'embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it'. Value can be assessed using the following 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.*

3.6.8 Value in terms of wreck sites, which are often the most commonly encountered marine archaeological receptor for offshore developments, can be further refined by the following

criteria. In relation to Historic England's *Designation Selection Guide for Ships and Boats* (English Heritage, 2012), the criteria used to assess an asset in terms of its value are:

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

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

3.6.10 *On the Importance of Shipwrecks* (Wessex Archaeology, 2006c) suggests another avenue of enquiry, based on the notion that the importance of a wreck site can be assessed through the 'BULSI' system (Build, Use, Loss, Survival and Investigation). To further supplement this approach, the Aggregate Levy Sustainability Fund (ALSF) funded Marine Class Description and principles of selection for aggregate producing areas project (ALSF 5383), undertaken by Wessex Archaeology (Wessex Archaeology, 2008e), proposed a composite timeline that considers wrecks in five distinct date ranges. The timeline takes into account the broad chronology of shipbuilding, thus drawing out generalisations regarding the age and special value of sites. The timeline is summarised as follows:

- *Pre-1508 AD: this covers the period from the earliest Prehistoric evidence for human maritime activity to the end of the medieval period, circa 1508. Little is known of watercraft or vessels from this period and archaeological evidence of them is so rare that all examples of craft are likely to be of special value;*
- *1509-1815: this encompasses the Tudor and Stuart periods, the English Civil War, the Anglo-Dutch Wars and later the American Independence and French Revolutionary Wars. Wrecks and vessel remains from this date are also quite rare, and can be expected to be of special value;*
- *1816-1913: this period witnessed great changes in the way in which vessels were built and used, corresponding with the introduction of metal to shipbuilding, and steam to propulsion technology. Examples of watercraft from this period are more numerous and as such, it is those that specifically contribute to an understanding of these changes that should be regarded as having special value;*
- *1914-1945: this period encompasses the First World War, the Interwar years and the Second World War. This date range contains Britain's highest volume of recorded boat and ships losses. Those which might be regarded as having special interest are likely to relate to technological changes and to local and global activities during this period; and*
- *Post 1945: the final period extends from 1946 through the post-war years to the present day. Vessels from this date range would have to present a strong case if they are to be considered of special interest.*

3.6.11 According to this composite timeline, vessels that pre-date 1816 are likely to be considered of special value on the basis of their rarity and subsequent national and international value in our understanding of maritime activity and shipping movements during these periods.

3.6.12 Wrecks dating from 1816 to the present day are more plentiful amongst known wrecks. The Marine Class Description and Principles of Selection project (Wessex Archaeology, 2008e) further revealed that a total of 96% of known and dated wrecks were lost in the period between 1860 and 1950. Due to their predominance in the known marine archaeological record, the special value of wrecks of this period thus depends upon their ability to exhibit both integral and relative factors based on attributes relating to the Wessex Archaeology 'BULSI' system of wreck assessment. The ALSF-funded project Assessing Boats and Ships 1860-1950 (Wessex Archaeology, 2011 a, b, and c) explored this further by providing a national stock-take of known wrecks in territorial waters off England and review it in the light of the framework for assessing special interest prepared in the Marine Class Description and Principles of Selection project (Wessex Archaeology, 2008e) and historical thematic studies. The Early Ships and Boats Prehistory to 1840 provided further information about earlier vessels (Wessex Archaeology 2013). Through undertaking a national stock-take of wrecks dating to this period within English territorial waters, this project provides supplementary guidance on the key themes and interests represented by such wrecks, in order to inform decisions regarding importance and mitigation.

- *Illustrate a key narrative of the period;*
- *Represent a distinct and tangible link to significant persons or events;*
- *Be representative of significant loss of life or related responses in seafaring safety;*
- *Have made a distinct cultural contribution; and*
- *Have current relevance or parallels.*

3.6.13 The perceived value of each marine archaeological asset is generally assessed and assigned on a case-by-case basis, depending on the criteria listed in table 1 of this document and in accordance with the additional wreck-assessment methods outlined above, where relevant.

3.6.14 Furthermore, the nature of the archaeological resource is such that there is a high level of uncertainty concerning the distribution of potential, unknown archaeological remains 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.

3.7 Assessment of Setting

3.7.1 The NPPF (Department for Communities and Local Government, 2012) defines setting as '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.'

3.7.2 Currently, there is no specific guidance regarding the assessment of setting for offshore archaeological and cultural heritage assets. However, Historic England's *The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning 3* (2015) provides general guidance, largely applicable to terrestrial sites, and notes that the importance of setting 'lies in what it contributes to the significance of the heritage asset' (Historic England, 2015: 4). With regards to significance for heritage policy, the *National Planning Policy Framework* notes that the interest of a heritage asset 'may be archaeological, architectural, artistic or historic' (DCLG, 2012).

- 3.7.3 Historic England states that setting depends on a 'wide range of physical elements within, as well as perceptual and associational attributes pertaining to, the heritage asset's surroundings' (Historic England, 2015: 4). One aspect that contributes to the setting of a heritage asset is referred to as 'views', which includes not only views that can contribute to its significance, but also intended views between heritage assets, and planned views. In addition, the guidance suggests that the appreciation of the setting of a site does not depend on the ability to access it (*ibid.*) Reference in the guidance is also made to the setting associated with buried heritage assets which may not be readily appreciated by a casual observer, but retains a presence in the landscape such as, for example, wreck sites that are periodically, partly or wholly submerged. In addition, the location and setting of historic battles, with otherwise no visible traces, may include important strategic views, routes by which opposing forces approached each other and a topography that played a part in the outcome (*ibid.*: 4-5).
- 3.7.4 In order to assess whether, how and to what degree setting makes a contribution to the significance of heritage assets, the following must be considered: the physical surroundings of the asset including its relationship with other heritage assets; the way the asset is appreciated, and the asset's associations and patterns of use.
- 3.7.5 The assessment of setting in this document follows the guidance discussed in the paragraphs above, is based on the baseline assessment of the seabed prehistory, terrestrial, maritime and aviation assets, and is described using the following two factors:
- *Physical surroundings and Views – which includes the physical presence of the asset on the seabed, its surroundings, and relationship with other assets and navigational hazards in the immediate area. Views to and from the asset, and how the asset is experienced in its immediate physical surroundings are also considered; and;*
 - *Non-visual factors – including the way the asset is appreciated in a broader historical, artistic and intellectual capacity, and the asset's associations.*
- 3.7.6 It should be noted that for heritage assets offshore, sites are generally only experienced by divers, remotely operated vehicle (ROV), or by geophysical survey, and the views to the asset are often very limited due to reduced visibility in the water column. In addition, unlike many terrestrial sites, the position of the asset on the seabed has not been deliberately chosen, and although some sites may have reached their position through military action (e.g. hitting a mine within a known minefield or in a battle) or have been lost due to a particular navigational hazard (e.g. hitting a harbour wall or being stranded on a particular sandbank for instance in the Goodwin Sands), 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 particular 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 asset and the local social history is another important aspect of an asset's non-visual importance, including rescue attempts or losses occurring within modern memory.
- 3.7.7 It is not possible to ascertain the setting of currently unidentified marine heritage assets, 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.

- 3.7.8 As setting is integral to the understanding of assets and their significance, the assessment of setting is included within the baseline, rather than as a separate section, which would result in a duplication of information.

3.8 Assessment of Historic Seascape Character

- 3.8.1 In accordance with the European Landscape Convention, 'landscape' can be defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/ or human factors' (Council of Europe, 2000: Article 1). The term 'seascape' can be defined as a subset of 'landscape', and has 'an area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land and sea, by natural and/ or human factors' (Council of Europe, 2000).
- 3.8.2 Seascape assessment reflects the holistic approach to landscape of the European Landscape Convention, extending it to the sea. Seascape Character Areas include coastal land, intertidal and marine environments and cover the offshore environment to the territorial limit (12 nm). HSC assessment is the identification and interpretation of the historic dimension of the present day coastal and marine environment (<https://historicengland.org.uk/research/methods/characterisation-2/historic-seascapes/> accessed 07/05/2017).

3.9 Assumptions and limitations

- 3.9.1 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 study. The assumption is made that the data, as well as that derived from other secondary sources, are reasonably accurate.
- 3.9.2 The records held by the UKHO, NRHE, KHER and the other sources used in this assessment are not a record of all surviving cultural 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 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.

3.10 Copyright

- 3.10.1 This report may contain material that is non-Wessex Archaeology copyright (e.g. Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the Copyright, Designs and Patents Act 1988 with regard to multiple copying and electronic dissemination of the report.

4 MARINE ARCHAEOLOGICAL BASELINE: PREHISTORY

4.1 Geological Baseline

- 4.1.1 The solid geology of Thanet is characterised by Upper Cretaceous Chalk (98-65 million years ago), overlain by deposits of silts and sands known as the Thanet Beds, the oldest Tertiary formation of the Palaeocene era in the region (BGS, 1989). The chalk and overlying Thanet beds were then thrust upward over the next 65 million years to form folds in the landscapes. During the Pleistocene (1.6 million to 10,000 years BP), successive phases of glaciation scoured the landscape, stripping the Thanet Beds from the chalk bedrock and redepositing eroded material to form new landscapes. A projection of

surviving tertiary beds extends eastwards from Pegwell Bay, but apart from this, the Thanet Beds do not survive within the area of the proposed cable corridor (BGS, 1990). The proposed wind farm development lies upon Thanet Beds, and the later tertiary deposits of the Woolwich and Oldhaven Beds covered by deep layers of quaternary sediments.

4.1.2 The seabed sediments comprise areas of sand, sandy gravel, and gravel (BGS, 1990).

4.1.3 Previous archaeological assessments of the geology of the wider area for TOWF, through geophysical and geotechnical assessment, provide further details (Wessex Archaeology, 2006a, 2006b, 2007b, 2007c, 2008a, 2008b, 2008c), and will be discussed with regards to archaeological potential, below.

4.2 Designated Prehistoric Sites

4.2.1 There are no designated prehistoric sites within the study area.

4.3 Known Prehistoric Sites

4.3.1 There are no known prehistoric sites within the study area.

4.4 Prehistoric Archaeological Potential

4.4.1 Although there are no known prehistoric sites within the study area, the potential for archaeological material of a prehistoric date to exist within the area cannot be discounted.

4.4.2 Archaeological investigations of the North Sea basin have revealed that considerable areas of what is now seabed were once dry land during the Middle and Late Pleistocene and the Holocene (Bicket and Tizzard, 2015; Dix and Sturt, 2011; Gaffney *et al.*, 2007; Gupta *et al.*, 2004; Momber, 2000; Momber *et al.*, 2012). These palaeolandscapes provided habitable environments for hominins (human ancestors).

4.4.3 The occupation of Britain has now been dated back to almost one million years ago, as the site at Happisburgh has been dated to between 970,000-850,000 BP (Parfitt *et al.* 2005, 2010). Occupation of the area and exploitation of resources was limited to the broad time periods when the area was habitable, which were influenced by fluctuating cycles of glacial periods of low sea levels and inter-glacial high sea levels. During the Anglian period, sea levels were much lower, and there is evidence of the effects of ice sheet advance in the study area. During the following Hoxnian interglacial, archaeological evidence indicates that there was considerable activity, and finds from around the Thames Estuary form one of the largest assemblages of Palaeolithic material in England, with Kent having one of the largest concentrations of Lower Palaeolithic handaxes in Britain (Wymer, 1982: 9; Wymer 1999). The majority of these handaxes appear to have been deposited on the edges of river valleys between 432,000 and 130,000 BP, suggesting that early hominins preferred areas along major river valleys. During the Lower Palaeolithic, the Thames had a northerly route through Essex into Norfolk and developed a complex fluvial system with the palaeo-Medway in what is now the outer Thames Estuary (EMU, 2009). At the time, the coastal environment was cool, with boreal forest and estuarine marshland.

4.4.4 The Middle Palaeolithic is generally divided into the Early Middle Palaeolithic and the Late Middle Palaeolithic, as there was a break in human activity of around 100,000 years between the two (Bicket and Tizzard, 2015). During this period there were considerable developments in lithic technology (Bicket and Tizzard, 2015). Evidence of submerged prehistory dating to Middle Palaeolithic landscapes is very rare, however there have been

discoveries of stone tools made in marine Licence Area 240, approximately 11 km east of Great Yarmouth in Norfolk (Bicket and Tizzard, 2015).

- 4.4.5 In the Early Upper Palaeolithic, at the end of the Late Pleistocene, there was a transition period for hominins. Neanderthals died out around 40,000 BP, and modern humans then colonised 'Doggerland', arriving in Britain around 34,000 BP (Bicket and Tizzard, 2015). Archaeological evidence for this period is relatively sparse, but submerged palaeolandscapes provide key contextual evidence. Due to changing glacial conditions, the environment was relatively poor for human colonisation, with the Thames Estuary region lying at the north-western extents of possible habitation. During the Devensian glacial maximum (approximately 22,000 BP), ice sheets extended as far south as Norfolk, and sea levels had dropped to approximately 120 m below current levels, exposing much of the North Sea basin and the English Channel (Shennan, 1989: 77-89). However there was increasing human exploitation after 15,000 BP. Humans at this time were hunting game, such as mammoth and deer, and evidence of these animals has been reported through marine aggregate dredging, and the associated reporting requirements (Bicket and Tizzard, 2015).
- 4.4.6 The Mesolithic period began in the early Holocene. Around 10,000 BP, sea levels were still more than 60 m below current levels, and during this period, an extremely large area of the southern North Sea and English Channel was dry land, suitable for human occupation. However, between 7,000 and 5,000 BP, much of the land was inundated by eustatically driven sea level change (Bicket and Tizzard, 2015); by 6,000 BP, sea level was only approximately 7 m below the present level (Cameron *et al.*, 1992: 120). Around this time, Britain became an island again (Coles 1998: 67), and the Isle of Thanet was formed as water filled the Wantsum syncline and joined with the River Stour. From this time until the medieval period, Thanet was an island. As sea levels rose, communities were forced further inshore, and as temperate climates returned, the open plains were gradually replaced by forested areas, and the large herds of reindeer, buffalo and horse hunted during the Palaeolithic were replaced by forest dwelling animals such as red deer, roe and wild cattle. Mesolithic hunters and gatherers also began to rely on the gathering of shellfish and vegetable foods. Settlements at the time were often transitory and seasonal, and therefore leave little trace in the archaeological record, however, new types of stone tools were introduced during this period.
- 4.4.7 The archaeological assessments of geophysical and geotechnical survey data for TOWF (Wessex Archaeology, 2006a, 2006b, 2007b, 2007c, 2008a, 2008b, 2008c) provide an indication of the prehistoric archaeological potential for the wider area.
- 4.4.8 The archaeological assessment of geophysical survey data for TOWF (Wessex Archaeology, 2006a) identified 13 features of archaeological interest, of which nine are within the present Thanet Extension study area (Appendix 3, Figure 2). Most of the palaeochannels were detected within the palaeo-valley sequence identified by the BGS (Cameron *et al.*, 1992). All of the features are characterised by their strong boundary reflectors of gravelly sand together with fine-grained in-fills. All of the features start just below the surface of the seabed and do not exceed a depth of 15 m. The report concluded that the palaeo-features identified in the shallow seismic data had a high potential for the presence of palaeo-environmental evidence. It is likely that the last human contact with this area as a terrestrial environment occurred during the Mesolithic, however, as the channels are all believed to be potential watercourses, there is also potential for the deposition of derived Lower, Middle and Early Upper Palaeolithic material. Early human activities often occurred on the edge of rivers, and archaeological material may be retained within these sediments.

- 4.4.9 The geoarchaeological Stage 1 assessment of boreholes in 2006 for TOWF (Wessex Archaeology, 2006b) revealed four sedimentary units.
- *Unit 1: Shallow marine seabed sediment;*
 - *Unit 2: Pleistocene fluvial sediments;*
 - *Unit 3: Tertiary bedrock; and*
 - *Unit 4: Chalk bedrock.*
- 4.4.10 Unit 1 is interpreted as seabed sediments that possibly formed during the last Holocene transgression, when the area (a former terrestrial landscape) was submerged for the last time (Wessex Archaeology, 2006b). Unit 2 is interpreted as Pleistocene palaeochannel sediments of high archaeological potential as the sediments relate to fluvial and possibly terrestrial environments dating from the known occupation of north-western Europe (c. 900,000 BP) to the last Holocene transgression. It is also possible that wood and organics could be discovered in the Unit, and may allow for dating. Units 3 and 4 are of little archaeological interest.
- 4.4.11 The sediments relating to possible Pleistocene palaeochannels are regarded as highly significant, as these palaeochannels form part of submerged landscapes considered to be of great interest in the study of prehistoric archaeology (Wessex Archaeology, 2006b). The pollen, diatom, foraminifera and ostracod samples taken from borehole BH2A, from within the TOWF array area, underwent Stage 3 assessment. In this instance, the results of the Stage 3 geoarchaeological assessment (Wessex Archaeology, 2007c) were largely negative, providing no evidence of archaeological interest.
- 4.4.12 Further work was undertaken in 2008 on cores recovered from the TOWF area (Wessex Archaeology, 2008a). Stage 1 comprised an assessment of 101 Cone Penetrometer Test (CPT) logs. As a result of the Stage 1 work, samples were requested from the boreholes most likely to yield samples representative of Pleistocene fluvial sediments, located at the following turbine locations: B3, B5, C2, D1, E2, E4, E5, G5, and G6, and the offshore substation. In spite of this, the samples revealed evidence of Unit 1 and Unit 4, but no sediments of Unit 2 were identified. The depths of Unit 1 ranged from 0.5 m to 7.19 m.
- 4.4.13 Although the previous investigations have had largely negative results, Unit 2 is still considered to be of high archaeological potential.
- 4.4.14 The setting of seabed prehistory features is integral to their value and importance. Although there are no views to the features nor ways they can be experienced on the seabed, their position is critical to how palaeolandscapes were experienced by past peoples, and their non-visual setting includes international research into the Palaeolithic and Mesolithic periods across Europe. If further relevant information regarding these features becomes available in the future then an assessment of their setting may be undertaken.

5 MARINE ARCHAEOLOGICAL BASELINE: TERRESTRIAL FEATURES

- 5.1.1 The following assessment of the intertidal and terrestrial archaeological baseline resource is based on records of known features recorded in the NRHE and KHER databases. It refers only to features that are located within the Site, not the wider study area. Terrestrial features in the wider landscape have been assessed in the terrestrial archaeology desk-based assessment (Amec Foster Wheeler, 2017). The offshore study area overlaps with the terrestrial archaeology study area, and is covered by 'Parcel 15' (*ibid*).

5.2 Designated Terrestrial Sites

5.2.1 There are no designated terrestrial sites within the intertidal zone of the study area.

5.3 Known Terrestrial Sites and Findspots

5.3.1 There are 35 records of known terrestrial sites and findspots situated within the intertidal area of the Site (Appendix 4) (Figure 3).

5.3.2 There are no records of evidence from the Palaeolithic to the Bronze Age in the intertidal area, although records for sites of these periods are present in the wider landscape.

5.3.3 The KHER has records of five Iron Age copper alloy coins that were recovered (**1000-1004**). However, although the co-ordinates given for these features plot them within the study area, the records make no mention of being recovered from the intertidal area, and their location within the Site may be due to vague locational coordinates. In any case, the presence of these coins indicates Iron Age activity in the area, and therefore informs the potential of the area.

5.3.4 Evidence from the Romano-British period is limited to findspots (**1005-1008**). However, all of the discoveries were recovered from the sea in Pegwell Bay, and these include: a first century Samian Acetabulum recovered in 1902 (**1005/ 1008**), a possible Roman water bottle (**1006**), and a Samian bowl (**1007**).

5.3.5 Evidence from the Anglo-Saxon period is also limited to findspots, three silver pennies (**1009, 1010** and **1011**). None of the records indicate whether the discoveries were terrestrial, intertidal or from the sea.

5.3.6 Evidence from the medieval period is also slight. It comprises evidence for a possible medieval wall (**1012**), for which the position is possibly vague, as it should likely be located in the terrestrial zone. The other record is a findspot of a medieval copper alloy mace (**1013**), that was reported through the Portable Antiquities Scheme, as coming from Little Cliff-end Farm.

5.3.7 The post-medieval period is represented by a single findspot of a fine earthenware (**1014**), reported through the Portable Antiquities Scheme as coming from the inter-tidal zone.

5.3.8 The 19th century is represented by the Grade II listed lighthouse on West Pier (**1015**), and three rifle ranges (**1016, 1017** and **1018**) that extended into the intertidal area. Although the ranges were out of use by the early 20th century, it is possible that spent munitions from the rifle ranges could be present in the intertidal area.

5.3.9 The majority of sites from the 20th century (**1019-1032**) relate to the Second World War. Ramsgate Pier Battery (**1020**) was an anti-motor torpedo boat battery established by 1942 at the eastern pier-arm, and evidence from aerial photographs taken in 1979 suggest that some of the buildings were still visible.

5.3.10 The remaining Second World War sites are no longer visible, however, it is possible that material from these features could remain, buried, although, any material is likely to be fragmentary. A post-alignment (**1021**) extended into the intertidal zone of Pegwell Bay, and comprised 81 circular posts. A concrete pillbox (**1024**) is recorded as being near the coast, east of Sandwich, and this feature is unlikely to be within the intertidal area. A line of anti-tank pimples with integrated military structures (**1025**) extended along the beach at Sandwich Bay, however they had been removed by 1950. A length of beach scaffolding (**1026**) was developed in the intertidal zone of Pegwell Bay, and it was visible in aerial

photographs taken in the 1940s, however by 1950 the feature had been removed. A wire obstacle (**1027**) was developed in the intertidal zone in the 1940s, however by 1946 the feature was barely visible. Beach scaffolding along the coast at Pegwell Bay (**1028**) was visible in aerial photographs taken in 1942, however the feature had been removed by 1946. A coastal defence feature comprising beach fencing (**1029**) was visible in aerial photographs in the early 1940s, however it had been removed by 1950. An area of beach scaffolding (**1030**) along Sandwich Bay from Great Stonar to Deal was mapped from aerial photographs and was first visible in 1941, however it had been removed by 1950. A possible training area (**1031**) was situated on and around the sand dunes of Sandwich Flats, Stour Valley, however it was removed after the war. Coastal defences (**1032**) at Ramsgate Harbour included anti tank blocks, barbed wire, gun pits and military structures, however the features were removed after the war.

- 5.3.11 Features that are unlikely to have relic material in the intertidal zone include the following two examples. A defended house is recorded as near Deal (**1022**), and it is likely that the positional data for this site is vague and that the feature is not in the intertidal zone. The Sandwich Bay coastal battery (**1023**) was an emergency battery built during the Second World War as part of the Eastern Command's coastal defences, however aerial photographs from 1978 indicate that the site is now occupied by a golf course and no features of the battery remain.
- 5.3.12 In 1969 the Pegwell Bay Hoverport (**1019**) opened, however it ceased operation in 1982 or 1983 and was demolished by 1999.
- 5.3.13 Records of unknown date include timber posts in the intertidal zone near Cliffsend (**1033**), which could date from the prehistoric to the modern period, and the findspot of a perforated stone macehead (**1034**), likely dating to the prehistoric period.
- 5.3.14 With regards to the setting of features, the setting for the lighthouse at the end of the pier must be considered. The lighthouse has views to and from the shore, the other piers, and passing boats and ships, and is experienced by people in these locations. Its position was deliberately selected and its landscape setting includes the pier, the harbour, and other 19th century features in Ramsgate. Its non-visual setting includes: the history of the construction of the lighthouse; its use as a key navigational aid for the harbour, the coast, and the wider seascape; 19th century maritime safety and shipping; and its association with other 19th century lighthouses around the coast that can be understood as group-setting. Therefore the setting of the lighthouse is integral to its importance and value.
- 5.3.15 However, the majority of the terrestrial sites in the intertidal zone have been removed (such as the findspots and Second World War features), and therefore these features do not have setting. For the features where it is unknown if any material survives, these features would have setting in line with other buried features, and, for example, if any Second World War material is discovered to remain, it would have to be assessed within its wider setting of military events and coastal defences.

5.4 Terrestrial Archaeological Potential

- 5.4.1 The presence of known material from the intertidal and coastal areas suggests the potential for the discovery of further archaeological remains. Material could include: archaeological material that was terrestrial but is now submerged due to sea level rise or erosion; and material relating to human use of the intertidal zone, from fish traps to jetties. An assessment of the terrestrial archaeological material in the intertidal zone was also undertaken as part of the terrestrial archaeology desk-based assessment (Amec Foster Wheeler, 2017), which indicated that there is potential for further archaeological remains.

- 5.4.2 The present sea levels were reached during the medieval period, and post-Romano British marine transgression led to the deposition of deep-alluvial layers, therefore there is potential for now buried material from the Palaeolithic to the Romano-British period.
- 5.4.3 Since the Romano-British period, the north Kent coast has also seen considerable erosion, and therefore it is possible that terrestrial material could have reached the intertidal zone due to erosion of terrestrial sites. Therefore there is potential for derived evidence from the Palaeolithic to the modern period.
- 5.4.4 The evidence of Iron Age coins in the area (**1000-1004**) and Romano-British material recovered from the bay (**1005-1008**) could be evidence of erosion, although alternatively, the material could have been lost overboard from ships in the bay, or even from a shipwreck. A possible Romano-British occupation site nearby is mentioned in the terrestrial archaeological desk-based assessment (Amec Foster Wheeler, 2017), and further material from this site could also be present.
- 5.4.5 The terrestrial archaeology desk-based assessment also notes the presence of an early-medieval shell midden in Parcel 15, which indicates the potential for discoveries from what may have been an extensive settlement along the coast of Thanet during this period (Amec Foster Wheeler, 2017).
- 5.4.6 There are records of undated timber posts in the intertidal area, indicating human activities in this zone, and suggest the potential for further, similar discoveries.
- 5.4.7 Although the majority of features in the intertidal zone relating to the Second World War were removed by the middle of the 20th century, there is still some potential for remnant material from these features, and fragmentary material that was associated with them.

6 MARINE ARCHAEOLOGICAL BASELINE: MARITIME AND AVIATION

- 6.1.1 The following assessment of the maritime and aviation marine archaeological baseline resource is based on records of known shipwrecks, aircraft crash sites and obstructions.

6.2 Designated Maritime and Aviation Sites

- 6.2.1 There are no designated shipwrecks within the study area, however there are two known aircraft crash sites, and both of these are protected under the Protection of Military Remains Act 1986.
- 6.2.2 An American B-24 Liberator bomber crashed off Broadstairs (**2100**) (Figure 3). The Liberator bomber had a wingspan of 30.5 m, and the fuselage was 19.2 m. The aircraft could carry 8,000 lb of bombs and a crew of 6 men. The site has been dived, and has been described as lying upside down (McDonald, 1994: 129). The wheels are down and the tyres are still inflated. Because the wheels are down, it is possible the aircraft was trying to land at nearby Manston when it was lost. It should be noted that the position of the aircraft, according to McDonald has been recorded in WGS84 lat/ long degrees minutes seconds (**2100b**), but the position has been transcribed into the NRHE as WGS84 lat/ long degrees decimal minutes (**2100**). In addition, there is possibility for slight inaccuracy in the exact position of the site. This site has setting related to views, as it has been explored by divers on the seafloor, and the underwater nature of the site is key to the way it is experienced. The position of the site, although somewhat arbitrary on the seabed, has wider non-visual associations with military activities during the Second World War, and in particular with activities at Manston airport.

- 6.2.3 B-17G 42-31243 was a Flying Fortress (**2101/ 1035**) that ditched on 1 December 1943 near Pegwell Bay, off Walmer, Kent after running out of fuel (Figure 3). Built in 1943, the aircraft crashed on its first mission. The crew of ten were rescued by Air Sea Rescue. Remains of the aircraft were discovered in the 1990s in marshland in Sandwich Flats, near Pegwell Bay, and material recovered from the site at this time was handed over to the British Breznetz Aeronautical Museum. Remains of the aircraft are still visible in the intertidal area at extremely low tide (<http://www.americanairmuseum.com/media/23049> Accessed 04/05/2017). It is reported that both wings are present and the second engine nacelle is intact with a damaged propeller. A Tokyo tank is also visible. There is a field of debris around the wreck site. Unfortunately, positional data received from the NRHE for this site is not precise, but rather was limited to a circle 1 km in diameter. The recorded position for the aircraft crash site (**2101**) in Appendix 5 provides the centrepoint for the circle, not the precise location of the wreck site, and may relate to the recorded loss location of the aircraft rather than its position in the intertidal zone. Another position for the aircraft, approximately 1.5 km to the south has recently been provided by Elliott Smock (pers. comm.) who was involved in the recovery of material in the 1990s. This location would place the aircraft crash site well outside the Site Investigation Boundary and study area. This feature has setting related to its physical surroundings, as it has been experienced by surveyors in the intertidal zone. The position of the site, although not deliberate due to association with landscape, is deliberate in relation to the crash itself. In addition, the site has non-visual associations with military activities during the Second World War, and with other aircraft that were attended by Air Sea Rescue. Following on from discussions with Elliott Smock, a walk over survey was undertaken by Wessex Archaeology in Pegwell Bay in order to confirm the location of the wreck site and to assess its condition. The site and its related debris were successfully located and recorded by archaeologists in July 2017 on Sandwich Flats to the South of Pegwell Bay. The location of the aircraft site (**1035**) in Appendix 4 provides the centrepoint of the actual wreck site while the debris is scattered around the area (Sheet 1). On balance, it is recommended that the NRHE footprint for this anomaly be reduced to a 100 m buffer since the original 1 km buffer around the position was in place due to the uncertainty surrounding the location of the aircraft, which is now considered to have been determined, the details of the loss actually being consistent with that of site **1035**.

6.3 Known Maritime and Aviation Sites

Introduction

- 6.3.1 A search of records in the UKHO, NRHE and HER datasets revealed 100 sites (**2100-2199**) (Appendix 4). Two of these have been discussed above. Of the remaining 98, 45 can be described as wreck sites, four are possible wreck sites, and the remaining 49 are obstructions. Of the 97 records, 39 are located within the array study area while the remaining 59 are within the cable corridor. Some of these sites have been previously recorded during the TOWF assessments, however, new ID numbers (**2100s**) have been applied to minimise confusion between datasets, and any former ID numbers are recorded in Appendix 4, where appropriate.

Shipwrecks within the array study area

- 6.3.2 There are 16 shipwrecks and one possible wreck in the array study area (Figure 4, Appendix 5). These are discussed below based on their date of sinking.
- 6.3.3 Within the array study area, there are six wrecks that have been named through UKHO survey (**2102-2107**).
- 6.3.4 The *Empress of Midland* (possibly) (**2102**) was a British steamship, built in 1907. The vessel measured 76.8 m x 13.1 m x 7 m and was 2,224 gross tons. The vessel had two

boilers, a triple expansion engine and a single shaft propeller. At the time of loss, it was owned by Canada SS Lines, Montreal, and was en-route from Tyne to Rouen with a cargo of coal. On 27 March 1916, the vessel struck a mine laid by UC 1. A UKHO survey in 1996 indicated a large magnetic anomaly and an intact wreck in substantial scour. The wreck measures 80 m x 12 m x 6.6 m.

- 6.3.5 Another position for the *Empress of Midland*, described above, is located 1.1 km to the NNW (2103). Although this position is named the '*Empress of Midland*' in the UKHO dataset, it is unlikely that wreck material from this ship is present in the area. The UKHO surveyed this location in 1953 and 1973, however, in 1996, nothing was found and the record was amended to 'dead'. The record has been maintained as a reference for the geophysical survey presently being undertaken.
- 6.3.6 The *Menapier* (2104) was a Belgian steamship. The vessel was built in 1908 by the Short Brothers of Sunderland, a medium sized shipbuilding yard that began in 1850 and built boats until it closed in 1964 (http://www.gracesguide.co.uk/Short_Brothers_of_Sunderland Accessed 04/05/2017). In 1900, the yard had a workforce of 1500 workers, and took over the neighbouring yard of the North of England Shipbuilding Co. The *Menapier* measured 85.6 m x 12.5 m x 5.5 m and was 1,886 gross tons. At the time of loss, the vessel was owned by Brys & Gylsen. On 7 June 1915, while en-route from Algiers for Middlesborough, the vessel was torpedoed and sunk by German submarine UB 10. A UKHO survey in 1996 indicated that the wreck has a very strong magnetic anomaly. The wreckage measures 95 m x 20 m x 4.3 m, and appears to be relatively cohesive.
- 6.3.7 The *Saidieh* (2105) was a British steamship built 1878 by William Denny & Brothers, a shipbuilding company sometimes referred to simply as Denny (http://www.gracesguide.co.uk/William_Denny_and_Brothers Accessed 04/05/2017). The company was based in Dumbarton, Scotland, on the River Clyde, and had the highest output of any Clyde shipbuilder, producing over 22,000 vessels. A wide range of ships were produced at the yard, but the company was particularly known for cross-channel steamships and ferries. By the 1870s, Denny's had a private test tank, and began to produce iron steamers, including the first ocean-going steel steamer in the world (*ibid*). The yard was active until 1963. The *Saidieh* measured 106.7 m x 12.2 m with a draught of 7 m, and was 3,303 gross tons. At the time of loss, it was owned by Khedivial Mail Steamship Co. The Khedivial Mail Steamship Company was formed in 1898 and operated ships and docks owned by various departments of the Egyptian government (<http://www.theshipslist.com/ships/lines/khedivial.shtml> Accessed 04/05/2017). On 1 June 1915, it was sunk by German submarine UB 6 while on passage from Alexandria to Hull. Eight of the 47 crew were lost. A UKHO survey in 1996 indicates that the wreck measures 110 m in length, 15 m in width, 6.2 m in height, and it has a strong magnetic anomaly. The wreck appears to be well broken up.
- 6.3.8 The *Woodtown* (2106) was a British steamship. It was built in 1915 by R. Williamson & Son of Workington. The vessel measured 56.7 m x 8.8 m with a draught of 3.7 m. It was 794 gross tons. At the time of loss it was owned by Woodtown Shipping Co. On 15 November 1939, the vessel struck a mine and sank, while en-route from Newlyn to London. Eight of the crew were lost. The wreck was surveyed various times between 1940 and 1996. The 1996 survey indicated a large area of debris, approximately 100 m x 30 m x 1.5 m. The wreck had a very strong magnetic anomaly. The UKHO survey suggests that there are probably nets or buoys spread throughout the debris.
- 6.3.9 The *Cedrington Court* (2107) was a British steamship that was built in 1918 by Harland & Wolff, Belfast. The company formed in 1861 and became a large company and very important (http://www.gracesguide.co.uk/Harland_and_Wolff Accessed 04/05/2017). Well

known for producing high-class transatlantic passenger liners, the company was considered one of the best in the world (*ibid*). It is one of only two yards left in the UK that is still capable of producing large merchant ships (*ibid*). During the First World War, the company was one of the main shipbuilders for standard war designs during the war. The *Cedrington Court* was built to the 'B' type set of plans and was completed as the *War Viper* (McDonald, 1994: 133). The vessel measured 125.6 m x 15.8 m with a draught of 9.4 m, and 5160 gross tons. It had three boilers, a triple expansion engine of 518 HP, a single shaft. The vessel was renamed the *Cabotia* in August 1919 and the *Cedrington Court* in February 1925 (McDonald, 1994: 133). At the time of loss, it was owned by Court Line. The Court Line was formed in 1905, and by the 1920s the fleet owned 26 ships (http://www.mariners-list.com/site_pages.php?section=Shipping+Companies&category=English&page_name=Court+Line Accessed 04/05/2017). The vessel's final voyage was carrying a cargo of 7,100 tons of wheat to Britain (McDonald 1994: 133). On 7 January 1940, the vessel struck a mine laid by a German aircraft (UKHO record). All of the crew were saved (McDonald, 1994: 134). A UKHO survey in 1995 indicated that the site comprises a scattered wreck, covering approximately 180 m x 40 m, with a maximum height of 1.5 m. It has a strong magnetic signature.

- 6.3.10 In addition to these six named wrecks, there are seven further wrecks (**2108-2114**) and four possible wrecks (**2105-2118**) that have not yet been identified. These are discussed in as much detail as is available in Appendix 5. Based on the descriptions available in the UKHO, NRHE and KHER records it is highly likely that material will be discovered on the seabed at seven of these locations (**2108-2114**), as these sites have been surveyed by the UKHO. **2108** is a small wreck measuring approximately 14 m in length. **2109** is thought to have a length of 12 m. **2110** is an intact wreck measuring 79 m x 14 m. **2111** is an intact and upright wreck, measuring 45 m in length. **2112** is a small wreck lying in an area approximately 18 m x 18 m. **2113** is a broken up measuring approximately 97 m in length. **2114** is a dispersed wreck in an area measuring 90 m x 30 m x 3.6 m.
- 6.3.11 The remaining sites include a sonar contact thought to be a possible wreck (**2115**), however it was not relocated in subsequent survey and the record has been amended to 'dead'. Another possible small wreck (**2116**) was located in 1970, but not during survey work in 1996 and the record has been amended to 'dead'. A possible wreck (**2117**) was discovered by a fisherman on sonar in 1969 however the site could not be relocated and the record was amended to 'dead'. Although classed as 'dead' by the UKHO, there still remains the potential for material from these sites to be discovered on the seabed, and they have been retained to be proven or disproven by the archaeological assessment of geophysical survey data. A possible wreck (**2118**), classed by the UKHO as an obstruction or foul ground, was surveyed in 1995, and was described as possible wreckage.
- 6.3.12 The setting 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. All of the ships were lost during the First or Second World War, 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. The specific loss events also provide information to how their position setting can be understood: two vessels (**2104** and **2015**) were sunk by German submarines UB 10 and UB 6, respectively, while four of the vessels (2102, 2013, 2106 and 2107) were lost having hit mines. 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.

- 6.3.13 It is not possible to assess the setting of the ten unidentified wrecks or four possible wrecks. However, should further information come to light regarding their character, their settings should be reviewed.

Wrecks within the cable corridor study area

- 6.3.14 There are records of 29 wrecks within the cable corridor study area (**2141-2169**), and three possible wrecks (**2170-2172**) (Appendix 5, Figure 3). These are discussed below based on their date of sinking, where known. Of the 29 wrecks, 22 have been named through UKHO survey.
- 6.3.15 The *Cathay* (part of) (**2141**) was a steamship built in 1898, and previously named the *Kitai*. The shipbuilders were Ramage & Ferguson Ltd., Leith, a company established in 1877 and open until 1934 (http://www.gracesguide.co.uk/Ramage_and_Ferguson Accessed 04/05/2017). In the late 1890s, the company began building deep sea vessels, coasters, steam yachts and undertook repair and salvage work. The vessel had three boilers, a triple expansion engine of 327 NHP, and a single shaft. It was owned at the time of loss by Akties Det Ostasiatisk Kompagni. On 5 May 1915, while en-route from Copenhagen to Newcastle and Singapore, the vessel struck a German submarine laid mine 4 miles ENE of North Goodwin LTV. The UKHO record indicates that a 1932 survey showed the wreck broken in two. A survey in 1998 indicated that the wreck measured 30 m x 25 m. The wreck has a small magnetic anomaly. Wreckage on the seabed consists of partially buried wreckage with small quantities of scattered debris lying immediately adjacent to it.
- 6.3.16 Another part of the *Cathay* is recorded at a different location (**2142**), approximately 345 m to the east. A UKHO survey in 1932 indicated that the wreck had broken in two. However, in 1979 nothing was found during an area search, and in 1985, although a magnetic anomaly was present, the wreck was considered to be completely buried in the seabed. The UKHO amended the record to 'dead' however it has been retained here due to the potential for buried material.
- 6.3.17 The *Klar* (**2143**) was a Norwegian steamship. The vessel measured 45.7 m x 7.6 m x 5.2 m and was 518 gross tons. The vessel was en-route from Tyne to Rouen when it struck a mine and sunk on 27 November 1915. The site was surveyed in 1997, and it measured 50 m x 45 m. There may be fishing tackle entangled with the wreck. The wreck has been described as very broken up and scattered in 12 m of water (McDonald, 1994: 130). An additional foul lies 40 m to the SSW and is considered to form part of this wreck site (UKHO record).
- 6.3.18 The *Selma* (**2144**) was a Norwegian steamship. The vessel measured 82.3 m x 11.9 m x 5.5 m, and was 1,654 gross tons. Its final voyage was en-route from Middlesbrough to Nantes with a mixed cargo of 1,500 tons of coal, pig iron and iron plates (McDonald, 1994: 134). It was mined on 25 October 1915. UKHO surveys of the site indicate a very broken up wreck. The site measures 60 m x 45 m. It has a small magnetic anomaly. The wreck has been reported by divers as being very broken up, and lying in a 2 m scour (McDonald, 1994: 134).
- 6.3.19 The *Ben Ardna* (**2145**) was a British trawler. It measured 35.1 m x 6.7 m x 3.7 m and was 197 gross tons. At the time of loss, the vessel was owned by Richard Irvin & Sons Ltd. of North Shields. On 8 August 1915, the vessel hit a mine. Although the first UKHO record indicates that a buoy was placed over the wreck, the wreck was deleted from charts in 1932, and was not located during surveys in 1979, 1995 or 1998. The record was amended to 'dead'.

- 6.3.20 German submarine UC 7 (**2146**). Launched in July 1915, UC 7 was a UC I type (<http://uboat.net/wwi/boats/index.html?boat=UC+7> accessed 05/05/2017). The mine-laying submarine was built by Vulkan, Hamburg, in 1915. The submarine measured 34.1 m x 3.1 m with 183 tons displacement. It went on 34 patrols, and sunk 31 ships and damaged two. It was sunk by MB *Salmon* with a depth charge on 6 July 1916. The bodies of two crew members subsequently washed up on the Flanders coast while other bodies were recovered by Dutch fishing boats near the Schowen bank (*ibid*). A survey in 1979 indicated that nothing was found in the area. Record amended to 'dead'.
- 6.3.21 Possible wreck of the German submarine UB 12 (**2147**). UB 12 was ordered on 15 October 1914, and was launched on 2 March 1915 (<http://uboat.net/wwi/boats/index.html?boat=ub+12> accessed 05/05/2017). UB 12 was a UB I type, and measured 28 m x 3 m with 142 tons displacement. It was the only one of its class converted to carry mines (McDonald, 1994: 129). The U-boat went on 98 patrols, and sunk 22 ships. It sank during a minelaying operation, in August 1918, possibly due to one of its own mines (McDonald 1994; 130). All hands were lost (*ibid*; <http://uboat.net/wwi/boats/index.html?boat=ub+12> accessed 05/05/2017). In 1986, a small object was located protruding from a sandbank, and the site had a large magnetic anomaly. In 1994 the site was examined again, and it had a strong magnetic anomaly.
- 6.3.22 The *Correct* (**2148**) was a steamship built in 1908 by J. Myers' SB. Co, Zalt-Bommel. The vessel measured 65.2 m x 10.2 m with a draught of 4.7 m and 1,036 gross tons. It had two boilers, a triple expansion engine of 127 HP and a single screw. The vessel was owned at the time of loss by Skibsacties 'Correct'. The vessel sank following a collision with SS *Moldavia* in 1916. The most recent UKHO survey in 2010 indicated that the wreck measures 65 m x 14 m with a height of 3.5 m. It is upright, and generally intact with some collapsed sections. It has a large magnetic anomaly. It is reported that divers visited the site in 1984, who described the ship as in 13 m of water, well broken up, with the stern the largest part remaining intact, and standing upright 2 m proud of the seabed (McDonald, 1994: 123).
- 6.3.23 The *Roam* (**2149**) was a British steamship that foundered on 28 October 1926, off North Foreland, between Elbow Buoy & the Goodwins. The ship was en-route from London to Bruges when it was lost. UKHO surveys have failed to discover anything in the area, in spite of intensive investigations. Record amended to 'dead'.
- 6.3.24 The *Mazi* (**2150**) was a yacht, recorded in 1936 as having sunk 1 mile N of North Goodwin LTV. Survey in 1979 could not locate the wreck. The record has been amended to 'dead'. It is unlikely that there is material at this location, however the record has been included for the purposes of the archaeological assessment of geophysical survey data.
- 6.3.25 There are two records for the *Merel* (**2151** and **2152**), with the second lying approximately 895 m to the south-east of the first. The vessel was a British merchant steamship. The vessel was built in 1925 by Ayrshire Dockyard Company, of Irvine, Scotland. The company was founded in 1888 and in the 1920s the main customers of the yard were Clan Line Steamers (http://www.gracesguide.co.uk/Ayrshire_Dockyard accessed 04/05/2017). The vessel had two boilers, a triple expansion engine of 298 horsepower, and a single shaft propeller. The vessel measured 74.7 m x 11 m x 3.7 m and had a gross tonnage of 1,088. At the time of loss, the vessel was owned by the General Steam Navigation Co., and was carrying a general cargo of 1,000 tons, including brass rods, aniline and casein. The General Steam Navigation Co. was founded in 1824, and although it was taken over by P&O Steam Navigation Co in 1920, the company continued under its own management (<http://www.theshipslist.com/ships/lines/generalsnc.shtml> accessed 04/05/2017). The company became wholly owned by P&O Line in 1972. The

Merel was en-route from Le Havre to London, when it hit a mine on 12 December 1939 (although the other record (**2152**) notes that the vessel sunk on 8 December 1939). Sixteen crew were lost. The UKHO record for **2151** indicates that the vessel lies in two pieces. The pieces are thought to be 35 m apart, and the northern section is partially covered in sand (McDonald 1994, 122). A UKHO survey in 2015 indicates that the wreck measures 5.23 m x 4.56 m with a height of 2.5 m and an orientation of 100 degrees. It has a strong magnetic anomaly.

- 6.3.26 The UKHO record for **2152** suggests that the wreck was not located by surveys in 1960, 1972 or 1974, however a survey in 1969 suggested the foul position could indicate the presence of dispersed wreckage. This record was amended to 'dead' in 1972, however due to the potential for dispersed wreckage, this record has been maintained.
- 6.3.27 HMS *Elizabeth Angela* (**2153**) was a trawler. Built in 1928 as the *Hannah Reynolds* by William Beardmore & Co. Ltd. Dalmuir, Glasgow. The company produced commercial vehicles, armaments (including shells and tanks), aircraft, airships and motorcycles ([http://www.gracesguide.co.uk/William Beardmore and Co](http://www.gracesguide.co.uk/William_Beardmore_and_Co) accessed 04/05/2017). The company began around 1890 and was active until 1930, and at its peak it employed around 40,000 people (*ibid*). The vessel had a single boiler, triple expansion engine, single screw, and was 253 gross tons. The vessel was completed in 1928 and registered at Aberdeen. In 1928 the vessel was sold to W.A. Leith in Aberdeen. The vessel stranded in 1931 on Holm of Aikerness, Westray, but was refloated. (*ibid*). Sold in 1937 to the Boston Deep Sea Fishing Co., Fleetwood (<http://bostondeepsea.shippedia.com/vessel2.php?id=261&n=Hannah%20E%20Reynolds&r=A322> accessed 04/05/2017). The vessel was renamed *Elizabeth Angela* in December 1938. The vessel was requisitioned as a minesweeper in November 1939, for a rate of £112.15.11d/month. (*ibid*). The vessel was armed with one 12-pounder gun, but was attacked and sunk by German aircraft in Margaret's Bay on 13 August 1940. One crew member was lost. The most recent UKHO survey in 2015 indicated that the vessel was not located, but that there was a strong magnetic anomaly. A UKHO survey in 2013, indicated that the wreck measured 20 m x 8 m with a height of 1.3 m. The wreck is reported to be 3 m proud of the seabed, on the edge of a bank in 12-14 m of water. The vessel is occasionally covered by sand, and the stern appears to be missing (McDonald, 1994: 122-123). There are reports of shell cases on the wreck (*ibid*).
- 6.3.28 The *Harcalo* (**2154**) was a British merchant steamship. The vessel measured 127.4 m x 17.1 m with a draught of 7.3 and was 5,081 gross tons. The vessel was mined while on passage from Benisaf to London on 6 June 1940, while carrying a cargo of 7,500 tons of iron ore (McDonald, 1994: 121). The vessel beached near Gull Buoy and later dispersed. The wreck has been described as broken in two, about 80 m apart (*ibid*). The most recent UKHO survey indicated that the wreck is poorly defined, and a more substantial item lies 50 m SW.
- 6.3.29 HMS *Arctic Trapper* (**2155**) was a 352 gross ton British trawler, built in 1928. The vessel was originally a Grimsby owned trawler, requisitioned by the Admiralty in May 1940 as an armed patrol trawler. The vessel had one boiler, a triple expansion engine, single shaft propeller, and carried one 12-pounder gun. HMS *Arctic Trapper* was attacked and sunk by German aircraft in 1941. The most recent UKHO survey, in 2015, indicated that the wreck measures 3.09 m x 2.74 m x 2.0 m. It has a strong magnetic anomaly. The wreck has been described as well broken up, standing proud at most 1 m (McDonald, 1994: 122).
- 6.3.30 The *Yvonne* (**2156**) was a Belgian steamship built in 1899 by W. Harkess & Son. It measured 56.1 m x 8.5 m x 4.3 m, with 668 gross tons. It was owned at the time of loss by Armement L. Hermans S.A., and was on passage from London to Cardiff on 12 June 1940

when it struck a mine. Ten crew members were lost. The UKHO indicates that the wreck is broken up and scattered. In 1979 numerous sonar contacts were identified and small pieces of wreckage were found during an examination of the area. It was found again in 1985. However, surveys in 1991 and 1997 failed to locate the wreck, and the record is thought to be related to a wreck which lies 40 m NNE (UKHO record – but according to the plotted positions in ArcGIS, 160 m apart), the *Klar* (2143). This record was amended to dead. Other sources suggest that material from the *Yvonne* is intermingled with wreck material from the *Klar* (2143) (McDonald, 1994: 130-131), and therefore material from both wrecks could be present in the general area.

- 6.3.31 The *Alfred Colebrook* (2157) and the *Harvest Moon* (2158) were two ships sunk in 1940 as blockships in Richborough Channel to block off the River Stour, as part of England's defences against a possible German invasion. The *Alfred Colebrook* (2157) was a 56 gross ton British drifter that had been requisitioned by the Admiralty. The *Harvest Moon* (2158) was a 72 gross ton trawler requisitioned by the Admiralty. In the 1940s the wrecks were visible at low water, and indeed, they are described as visible as late as 1994, when the *Harvest Moon* was clearly visible at low water and the HMS *Alfred Colebrook* was visible as a mass of tangled pipes (McDonald, 1994: 120). However a 2001 UKHO survey indicated that nothing was found, and the records were amended to 'dead'. The records have been maintained here as material relating to the wrecks could be found in the vicinity.
- 6.3.32 LCP 586 (2159) was a British landing craft that broke away from ASA Lothrop on 17 June 1946. The area has been surveyed by the UKHO, and in 1995 a small wreck was located in the vicinity of the position, although not investigated.
- 6.3.33 The *Daisy Bell* (2160) sunk at its moorings by gales on 10 September 1974. A 1981 survey by the UKHO indicated nothing was found at this location - the wreck was assumed removed and the record updated to 'lift'. The record has been included here as it is possible that material from the wreck still lies on the seabed.
- 6.3.34 The *Neg Chieftain* (2161) was a Panamanian tug that capsized on 11 August 1983 while towing the barge *Stonecarrier*, which also capsized, while en-route to Ramsgate (UKHO record, McDonald, 1994: 121). The wreck was raised by barge crane *Taklift I* in 1984, but a survey in 1986 indicated that small sections of wreckage remain on the seabed. The cargo of *Stonecarrier*, comprising stones, masonry and rubble, is recorded as an obstruction (2173).
- 6.3.35 A barge (2162) foundered while in tow of tug *Influence* on 30 August 1986. The barge was moved closer to shore and salvaged. The record was amended to 'lift'. While it is possible that material from the barge remains on the seabed in the general vicinity, as a modern barge it would not be of archaeological interest.
- 6.3.36 The *Pisces* (2163) was a British fishing vessel that sank on 8 December 1995. The one crew member was recovered. A 1995 survey indicated that the hull lies flat on the seabed in sand, and a diver's report indicated that the engine block lies in a trench by a chalk ridge below the surrounding depth. Although the record indicates that salvage would be attempted, the wreck was still positioned in 2005. There is no record as to whether the wreck has been lifted, however, if it is discovered on the seabed, it is unlikely to be of archaeological interest due to its date.
- 6.3.37 There are two records that likely relate to the same material (2164 and 2165). The first relates to an 'abandoned four wheel drive vehicle' and the second refers to an 'abandoned Suzuki Jeep'. Both records are described as being visible at low tide in August 2007. The

second record notes that the vehicle was recovered in September 2007 and the record was amended to 'lift'. It is unlikely that material from this vehicle is still present, and if material remains, it is unlikely to be of archaeological interest.

- 6.3.38 There are four wreck sites that do not have associated dates of sinking (**2166-2169**), and these are discussed below.
- 6.3.39 The *Earl of Sheerness* (**2166**) was identified by Robert Peacock, and the site was surveyed by Wessex Archaeology as part of the East of England Designated Wrecks: Marine Geophysical Survey and Interpretation (Wessex Archaeology, 2010c). There is limited information available as to the history of the vessel, and no date or build or loss has been recorded. Further searches have not revealed any further detail. According to the archaeological assessment of geophysical survey data, the site consists of a mound 24.5 m x 19.6 m x 3 m with a large magnetic signature.
- 6.3.40 A barge (**2167**) was surveyed by the UKHO in 2016.
- 6.3.41 Two sites (**2168** and **2169**) were identified by the Archaeological Diving Unit (ADU) and recorded as 'POLA' wreck site and 'POLA+POKA' wreck site. The names were assigned by the ADU, and it is how they are referred to in the KHER database.
- 6.3.42 There are three possible wreck sites. One is classed as an obstruction by the UKHO, but described as an elongated item, possibly a wreck (**2170**). The second comprises a timber, possibly from a wreck, that was recovered from Sandwich Bay (**2171**). If the timber did derive from a wreck site, there is potential for further material to be discovered in the immediate area. The third possible wreck site is a feature described in a UKHO survey as a possible inverted boat (**2172**) that measures 19 m x 11 m with a height of 0.6 m.
- 6.3.43 The setting of the known wrecks has been assessed. The view of the majority of these sites is limited in the underwater context. The vessels lost during the First and Second World War have settings determined by these major international conflicts. For example, vessels lost due to striking mines (**2141-2145**, **21151**, **2152**, **2154** and **2156**), were lost specifically due to their unfortunate position within a mine field, and therefore reflect 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. Other vessels were lost due to depth charges or by enemy aircraft (**2146**, **2153** and **2155**), and their position reflects deliberate events in the military conflict and its theatre. One vessel was lost during the war due to collision (**2148**), indicating the high level of vessel traffic in the area, and therefore has setting in the wider navigational routes. For two ships scuttled as defences against German invasion (**2157** and **2158**), their setting is intrinsically important as the vessels were deliberately sunk at these locations. For the more modern wrecks that have been lost for various reasons, their locations are co-incidental rather than intentional, and therefore setting is less important, however the more modern wrecks may have some setting within recent memory and experience.
- 6.3.44 It is not possible to assess the setting of the three un-named shipwrecks (**2167-2172**), the three possible wrecks (**2170-2172**) or the obstructions discussed in the following section.

Obstructions within the Offshore Wind Farm study area

- 6.3.45 There are 22 obstructions in the Offshore Wind Farm study area (**2119-2140**) (Figure 4 Appendix 5).

- 6.3.46 One of these (**2119**) has been surveyed by the UKHO and described as a small obstruction less than 1 m in height.
- 6.3.47 There are six unidentified seabed obstructions reported by fisherman that are possibly indicative of wreckage or a submerged feature, but these have not been surveyed by the UKHO (**2120-2125**).
- 6.3.48 The remaining 15 obstructions (**2126-2140**) relate to features that were surveyed by the UKHO in the 1970s and 1980s but have been amended to 'dead' when they were not re-located during surveys in the 1990s. One of these (**2130**) relates to a small wreck that was reported in 1918, a small piece of wreckage was found in 1970 and it was reported as a small wreck in 1982, however it was not re-located in 1996, and the record was amended to 'foul'. This record exemplifies the potential for further material to be present either on or under the seabed at these locations, simply not picked up as a shipping hazard during the UKHO surveys in the 1990.

Obstructions within the cable corridor

- 6.3.49 There are 27 obstructions within the cable corridor study area (**2173-2199**) (Figure 3, Appendix 5).
- 6.3.50 One of the obstructions, comprising stones, masonry and rubble (**2173**) has been identified as the cargo of the stone carrier barge that capsized along with the tugboat *Neg Chieftain* (**2161**).
- 6.3.51 Many other obstructions have also been identified through UKHO survey, such as: a steel tank (**2174**); a probable joint in an outfall pipe (**2175**); a small piece of pipeline or cable (**2176**); a destroyed beacon (**2177**); former beacon supports (**2178, 2179** and **2180**); ironwork (**2181**); and an area of debris (**2182**).
- 6.3.52 Other sites are described simply as obstructions, or with limited detail about the geophysical survey dimensions (**2183-2188**) (Appendix 5).
- 6.3.53 Five sites (**2189, 2190, 2191, 2192** and **2193**) were recorded by the UKHO through aerial photography, and confirmed in 2005.
- 6.3.54 Some sites have been identified as natural, and therefore unlikely to be of archaeological interest: a possible boulder (**2194**); a probable rocky area (**2195**) and a natural feature with no magnetic signature (**2199**).
- 6.3.55 Three obstructions have been amended to 'dead' (**2196, 2197** and **2198**). **2196** was recorded as a magnetic anomaly in 1985, but was amended to 'dead' in 1998. **2197** was recorded in 1976 but could not be relocated in 1979. **2198** was identified in 1985 but deleted in 1989 as a result of coastline changes. These records have been included for the sake of completeness, and because there is potential for material from the first two to remain on the seabed.

Geophysical Survey Data

- 6.3.56 The archaeological assessments of geophysical survey data undertaken for the TOWF project (Wessex Archaeology 2006a, 2008b and c) were consulted for this report. However, the data have not been included in this report or in the figures because of differences in the study areas. Where ever geophysical survey work has been undertaken, there are significantly more anomalies identified on the seabed, and therefore, the surveyed areas would appear to have major concentrations of potential archaeological material on the seabed, while the areas that have not yet undergone an archaeological

assessment of geophysical survey data would appear comparatively scarcely populated. In reality, there is likely to be material across the study area. In addition, any geophysical anomalies within the present study area will be reassessed during the archaeological assessment of geophysical survey data currently being undertaken, and therefore will be considered with the most recent available data (Wessex Archaeology, forthcoming).

6.4 Maritime and Aviation Archaeological Potential

Introduction

6.4.1 There is potential for discoveries of maritime craft from the Mesolithic to the modern period. Post-medieval and modern wrecks, as they were generally made of more substantial material, are more likely to have been discovered through surveys undertaken by the UKHO and others, and thus recorded in the archaeological record. However, there is still potential for discovery of previously unrecorded wreck sites, particularly of wooden wrecks, broken up wrecks or partially buried wrecks that are more difficult to detect through geophysical survey.

6.4.2 There is also potential for 20th century aircraft, particularly in relation to the Second World War. Aircraft crash sites are also difficult to identify through archaeological assessments of geophysical survey, although past experience indicates material from the site, such as engines or other material may be recorded as small obstructions or anomalies.

Recorded Losses

Introduction

6.4.3 The UKHO, NRHE and KHER datasets have 243 records of recorded losses (Appendix 6). These are records for which although a vessel (or vessels) is known to have been lost in the general area, no material has been encountered on the seabed at the recorded location. The Recorded Losses are categorised based on the date ranges used in the *Selection Guide: Boats and Ships in Archaeological Contexts* (Wessex Archaeology 2008e). Very few losses are recorded prior to the beginning of the post-medieval period, and while this to some extent represents a significant increase in shipping during the post medieval period, it also reflects the fact that record keeping, and the maintaining of those records, had improved significantly. Therefore, although the numbers of early recorded losses are small, their very presence suggests the potential for the discovery of material relating to that period. A more detailed discussion on the development of recording losses can be found in *England's Shipwreck Heritage: From logboats to U-boat* (Cant, 2013: vii-xi).

Table 2: Recorded Losses – summary by date

Date	Number of records of ships	Number of records of aircraft
Pre-1508	5	N/A
1508-1815	133	N/A
1816-1913	79	N/A
1914-1945	6	16
Post 1945	4	N/A
TOTAL	227	16

Ship Recorded Losses

- 6.4.4 The recorded losses date from the early 13th century to the modern period, cover a wide range of vessel types and provide information about the causes of loss. The earliest record (**2742**) relates to an unknown number of French vessels that were sunk by the English during the Battle of Sandwich in 1217, while the two most recent comprise English spritsail barges lost in 1957 (**2740** and **2741**).
- 6.4.5 Of the 227 records of vessels that were lost, 138 have a recorded vessel type. These include: an armed boarding vessel, five barques, a barquentine, 17 brigs, two brigantines, 41 cargo vessels, four colliers, three cutters, a dogger, an East Indiaman, 12 fishing vessels, a galleon, two ketches, a landing craft, a lugger, a merchant barque, a merchant schooner, a merchant vessel, a passenger vessel, a polacre, a sailing vessel, eight schooners, six sloops, nine smacks, three spritsall barges, two steam ships, a submarine, three transport vessels, a whelk boat, and six yachts. The types of vessels highlight the wide range of maritime activities in the study area over time. One is simply described as a 'vessel', 77 are described as 'craft', and 11 have no type recorded.
- 6.4.6 Of the 227 records of vessels that were lost, 177 records indicate a cause of loss. The cause of loss can indicate whether there is potential for the remains of vessels to be discovered within the study area, but also provides an indication of how vessels that were not recorded may also have been lost. The causes of loss can be generally grouped based on where the vessel ended up. In this area, 18 are described as 'ashore', 13 'driven ashore', seven went ashore following a storm, five 'ran aground', three hit rocks, two are described as 'aground', one 'grounded', and one grounded after parting from anchors. For the vessels that reached the shore, it is possible that some were refloated, or if identified as a total loss, the wrecks were likely salvaged. There are 47 records of vessels that 'stranded', although whether this occurred near shore or in the Goodwins followed by sinking elsewhere is not always readily apparent. Other causes of loss include striking a pier or wall while entering harbour (19 losses), and while it is possible that remains of these vessels may still exist around the harbour, it is likely that if they constituted a navigational hazard, the wreckage would have been cleared. An unknown number of French sailing vessels were lost due to English attack during the Battle of Sandwich. One wreck sunk in the harbour after running aground, and another was lost in the bay. Other vessels were lost further from shore, for reasons such as being abandoned (1), burnt (4), capsized (6), collision (10), foundered (1), storm (25), sprung a leak (1) and sunk in deep water (1). Losses due to collision are not surprising as there has been considerable traffic in the area from early periods onwards, and losses due to storm would have been a threat not only for the vessels recorded here, but also for those lost and not recorded. A submarine was lost due to a depth charge, the only recorded loss due to enemy action.

Aircraft Recorded Losses

- 6.4.7 The aircraft recorded losses are particularly important, as any aircraft that was lost while in military service is automatically protected under the Protection of Military Remains Act 1986, and therefore, if remains from any of these aircraft are discovered, they would be protected.
- 6.4.8 The 16 aircraft recorded losses include three bombers (Appendix 6): a British Blenheim Mk I L8665 (**2724**); an American B-17 (**2734**); and a German Heinkel HE111H-2 A1+FR (**2727**). Ten fighters are recorded to have been lost: two British Spitfires (**2733** and **2736**); two British Defiant Mk Is (**2725** and **2726**); one German Bf109E-4 (**2730**), and five German Messerschmitts (**2728**, **2729**, **2731**, **2732**, and **2735**). A British fighter bomber was lost, a Typhoon (**2737**). Two reconnaissance aircraft were lost, British Anson MK Is (**2722** and **2723**).

- 6.4.9 All of the aircraft were lost while in military service. One was abandoned, two crashed, three ditched, and ten were shot down.

Potential for Losses that were not Recorded

- 6.4.10 Many vessels were lost without a record being made, and sometimes even the records that were created have since been lost (Cant, 2013). Examining the recorded losses discussed above, provides an indication to the potential for further discoveries, as do the factors discussed below.
- 6.4.11 The exploitation of the marine environment could have begun in the Mesolithic, at the earliest time of inundation of the coast, when people would have started to use boats to access the available resources and maintain links with other communities. Certainly maritime traffic was being undertaken during the Neolithic, with the importation of domesticated animals and other goods from the Continent. The discovery of a dugout canoe thought to date to the Late Neolithic, at Westgate-on-Sea on the north coast of Thanet (Perkins, 1997:7) highlights the potential for early maritime activity.
- 6.4.12 Kent, Pegwell Bay and Sandwich have been important landing places for thousands of years. During the Bronze Age, contact with the Continent led to the introduction of new pottery styles and bronze items, and the Kent coastline would have been a convenient place for landfall. Evidence of this trade is provided by the discovery of 363 Middle Bronze Age objects at Langdon Bay, Dover, thought to relate to a shipwreck (Fenwick and Gale, 1998: 26). Thanet has been described as a Gateway Community in the Bronze Age and the Iron Age (Perkins, 1997: 9), as it was a prehistoric centre of social and economic activity. In addition, there is evidence on Thanet of trade with the Continent in the first century BCE (Cunliffe, 1982: 44). It is probable that there were relatively high volumes of prehistoric maritime traffic, and therefore there is potential for the discovery of vessels and their cargoes within the study area. Vessels may have been similar to the Bronze Age boat discovered at Dover (McGrail, 2001).
- 6.4.13 This coastline is where Caesar and Claudius launched the Roman invasion and Britain in the 1st century AD, and following this, London became the political and economic centre of Roman Britain, and the Thames became the main access route to the continental empire. Smaller ports on the coast of Kent may have served as intermediate offloading and loading centres for cargo (Milne, 1990: 83-84). The construction of Roman forts at Richborough and Reculver, at either end of the Wantsum Channel, a straight separating the Isle of Thanet from the rest of Kent, and connecting the English Channel and the Thames Estuary, suggests the importance of trade through the Wantsum Channel during the Romano-British period. These forts were redeveloped in the late 3rd century as Saxon Shore forts, to stave off the threat from Saxon raiders. No remains of vessels dated to the Roman period have been recorded within the study area, however there is high potential for the discovery of such remains within the alluvial deposits of the area. Known examples of Romano-British boats come from London, and these illustrate the type of merchant vessels active on the Thames at this time (Marsden, 1994). Roman pottery has been discovered in the intertidal zone within the Site, in Pegwell Bay (**1005-1008**) (Figure 3, Appendix 4). Although this material could have derived from a terrestrial context and been washed out to sea through erosion, it is also possible that it represents material thrown overboard, or even material from a previously undiscovered Roman shipwreck in the area. Outside of the study area, Roman pottery (such as NRHE 469465) has been recovered between Pudding Pan Rock and Pan Sand, suggesting the presence of a previously unidentified wreck site

- 6.4.14 The potential for Roman (and later) wrecks in the area is highlighted by the presence of a Roman lighthouse at Dover, which suggests that the dangers of the Goodwin Sands and the approaches to Dover were already considered hazards by this time (Cant, 2013: 15).
- 6.4.15 The port of Richborough remained important until the medieval period. Ebbsfleet is also of historical note, and is said to be the site of the arrival of the Saxons and Hengist and Horsa in AD 499, who led the English in their conquest of Britain, and the landing place of the Augustinian mission returning Christianity to England in AD 597. In the wider area, there was ongoing maritime traffic in the Anglo-Saxon period, as highlighted by the Saxon migration from overseas into Britain. There were likely a number of types of vessels in use at this time, from log-boats for transport along inland waterways, to larger planked boats propelled by oar or sail and used for estuary, coast or cross-channel work (Milne, 2003: 37). Remains of a 7th century dugout have been found at Walthamstow and dated to the 7th century AD (Marsden, 1996: 222), and remains of a clinker-built sea-going vessel have been identified at Graveney (Care-Evans and Fenwick, 1971: 89-96), other clinker-built vessels include the boat burials of Sutton Hoo and Snape (Carver, 1998).
- 6.4.16 The NRHE records the Battle of Sandwich (AD 851) within the study area, as one of the continuing 9th century battles against the frequent Danish incursions (NRHE 1572811). The battle is recorded in the Anglo-Saxon Chronical, and it resulted in a Mercian retreat against 350 ships, and the Battle of Aclea. The Battle of Sandwich is important, because it is the first battle in which the Chronicle explicitly refers to the Saxons as fighting in ships and it resulted in a victory for King Aethelstan's forces. However, in AD 1046, the Danes raided Sandwich with 25 ships and sailed round Thanet.
- 6.4.17 A second Battle of Sandwich (1217) is recorded in the NRHE (NRHE 1572699), and comprised a battle between the French and English in a decisive battle of the First Barons' War. The French fleet set out from Calais, and consisted of around 80 vessels, including ten fighting ships and various supply and support vessels. The English fleet comprised only 40 vessels but they managed to gain the advantage. French vessels were captured and boarded, and an unknown number of vessels were lost.
- 6.4.18 The Wantsum Channel appears to have been navigable until the beginning of the medieval period, however by 1650 even smaller vessels were not able to pass through, due to the level of silt that had accumulated. This was partly caused and exacerbated by the development of a shingle spit, the Stonar Bank, which developed across the eastern mouth of the Wantsum Channel (Hearne *et al.*, 1995: 243). The process was further hastened by large scale reclamation undertaken during the medieval period by the monks of St. Augustine's, Canterbury. Beginning in about the 12th or 13th centuries, the monks constructed a series of sea defences. Eventually, the Stonar Bank completely closed off the eastern entrance to the Wantsum Channel at Ebbsfleet, and forced the River Stour to the south of the Stonar Bank, exiting via the Sandwich Haven.
- 6.4.19 As the old ports of the Wantsum Channel, such as Minster, Ebbsfleet and Sarre, silted up, the tiny fishing villages of Ramsgate, Margate and Broadstairs now began to flourish (Perkins, 1997: 16). In addition, the ports around the Thames Estuary continued to be a major focus for maritime trade and shipbuilding throughout the medieval and later periods. Thus, the large volume of shipping suggests the potential for unreported losses from the medieval period to the present day. Many more types of vessels were developed from the medieval period onwards, with the introduction of carvel-built boats and ships, and the ongoing specialisation of ships.
- 6.4.20 There is potential for vessels to be related to military conflict at sea, such as the One Hundred Years' War (1337-1453) (Wessex Archaeology, 2004). Other conflicts included

the Spanish Armada in the 16th century, and the Franco-Spanish and Anglo Dutch wars in the 17th century (*ibid.*, Cant, 2013: 61-62).

- 6.4.21 The port of Ramsgate grew after the town was associated with the Cinque Ports in the reign of Richard III in 1483 as a limb of Sandwich. As Sandwich declined due to increasing levels of silt in the harbour, Ramsgate continued to grow. During the reign of Henry VIII, a small pier or breakwater was constructed at Ramsgate, big enough to protect a fleet of small vessels (Huddleston, 1937: 13). In 1560 the pier was extended. In 1565, there were 978 people, 25 houses and 14 boats employed in carrying grain and fishing from Ramsgate (Clarke, 1967: 12). In 1626, there were 20 ships belonging to Ramsgate (Huddleston, 1937: 13). In the late 17th century, the pier was extended to accommodate increasing trade with Russia and the Baltic (Clarke, 1967: 13).
- 6.4.22 In 1744, Sandwich was chosen as a haven of refuge for ships in the Downs, the strip of sea between the coast of Kent and the Goodwin Sands. However, following the great storm of 1748, the haven was moved to Ramsgate, where many of the vessels had sought safety from the storm. The threat of loss from storm is highlighted by the number of recorded losses that were lost during storms, as discussed above.
- 6.4.23 A new harbour was built at the end of the 18th century, and the importance of the port continued to grow. In 1750 only 54 ships were recorded entering Ramsgate, however by 1835 that number had increased to 1500. Ramsgate became a major centre for merchant ships of both large shipping companies and coastal trading.
- 6.4.24 In the late 18th and early 19th century, Ramsgate had the largest and most important fishing fleet in the UK. The fishing fleet peaked by 1875, and numerous smacks, luggers, dandys, open boats, gaff sails, lug sails, cutters, bolleys, yawls, ketches and sloops were involved in the industry. From the 1880s, fishermen began exploiting Dogger Bank, and smaller boats gave way to trawlers.
- 6.4.25 Ramsgate was used during the Napoleonic wars (1803-1815) for the embarkation of troops and stores (Huddleston, 1937: 19), and for many years after was used for a place of debarkation of troops from India.
- 6.4.26 The shipbuilding industry thrived in Margate, Broadstairs and Ramsgate, and records of vessels operating out of Ramsgate suggest that most were locally built in Thanet.
- 6.4.27 The development of the steam ship brought a new type of maritime traffic to ports. Ships were no longer at the mercy of wind and tide, and new industries and leisure activities were developing. By 1831, about 120,000 passengers travelled annually from London to Margate, and seaside towns became day excursion destinations.
- 6.4.28 In the 20th century, commercial and fishing activities in Ramsgate were in decline (Clarke, 1967: 24).
- 6.4.29 During the First World War, Ramsgate was taken over as a naval base, and was of major importance in guarding and patrolling the English Channel.
- 6.4.30 During the Second World War, Ramsgate operated as the No. 1 Contraband Control Base (Humphreys, 1997: 74). All types of vessels were stopped off the coast and searched for spies and contraband. The Royal Naval Patrol Service, responsible for recovering Germany's magnetic mines, was also active off Ramsgate. Towards the end of the war, the harbour operated as a base for many vessels carrying soldiers to France for the Allied invasion of Normandy on 6 June 1944.

- 6.4.31 There is a high potential for the discovery of unrecorded losses, due to Ramsgate's importance as a port throughout medieval and post medieval periods and during the First and Second World Wars. The extensive silting since the post-Roman period indicates that any remains could be well preserved within the thick layers of waterlogged alluvium.
- 6.4.32 There is also potential for the discovery of losses within Pegwell Bay, due to the rapid alluviation and highly mobile sediments. In addition, an assessment of the Ordnance Survey maps from 1877 to 1946 (Wessex Archaeology, 2005: Figures 4 and 5) indicates how the course of the River Stour has changed over time, and it is possible that remains of vessels lost or abandoned on the riverbanks could be discovered in the intertidal area.
- 6.4.33 In the 20th century, there is also potential for aircraft remains. Since the first fixed wing flight across the English Channel in 1909 (Wessex Archaeology, 2008f), there have been aircraft crossing the study area. Prior to the First World War there was limited commercial civil aviation, however the First World War saw the early development of military aviation and the beginnings of naval aviation. During this period, aircraft were lightweight, and made of wood and other light materials. In the inter-war years, there was increasing cross-channel services to various European and worldwide destinations, and metal largely replaced wood in airframe construction.
- 6.4.34 By the Second World War, airplane technology had developed considerably. Early in the war, there were Luftwaffe attacks on the UK, and these were the predominant reason for flights over the English Channel. By the middle of the war, this emphasis had shifted and the Allies were attacking Continental Europe, principally by bomber fleets based in eastern England, and maritime patrols. There was mass production of aircraft, leading to considerable quantities of aircraft, and a significant amount of flying occurred over the sea.
- 6.4.35 The recorded losses, discussed above, provide some indication of the quantity of aircraft lost in the area. In addition, RAF losses illustrate that around Kent, there were almost twice as many losses as any other county in the southern and eastern English coastal areas (Wessex Archaeology, 2008f: 18). During the Battle of Britain, many aircraft crashed off Thanet and the Ramsgate lifeboat service rescued many airmen from the treacherous waters. The distribution of Second World War British Air/ Sea Rescue operations also highlights the vast number of aircraft lost in the general vicinity (Wessex Archaeology, 2008f).
- 6.4.36 From the end of the war to the present, civilian air travel has increased. Military aircraft was, until the 1990s, dominated by the Cold War. These aircraft crash events are more likely to have been accurately recorded and positioned, however there is still potential for material.

Navigational Hazards

- 6.4.37 An assessment of navigational hazards undertaken by Bournemouth University (Merrit *et al.*, 2007) has identified the study area as an area of high navigational hazard.
- 6.4.38 The mudflats of Pegwell Bay present a considerable navigational hazard. In addition within the Bay, there are numerous other obstructions such as posts and stakes.
- 6.4.39 Based on the recorded losses discussed above, a considerable navigational hazard was Ramsgate Pier itself.
- 6.4.40 The Goodwin Sands, lying just off the coast of Kent and stretching from Ramsgate in the north to Kingsdown in the south, represent a significant navigational hazard. The area has

been identified as an ‘Area of Maritime Archaeological Potential (AMAP)’ (Merritt *et al.*, 2007), based on its high grade of hazard combined with a high potential for preservation. Over the years, over 800 wrecks have been recorded on the Goodwin Sands, either as recorded losses or as wreck remains on the seabed (Cant, 2013: 15). The sands act as a barrier running north to south and form an enclosed area of sheltered water known as the Downs. The Goodwins are exposed at low water, and due to the constant shifting of the sands, it has not been possible to mark the area with a lighthouse, and the area has become a ship graveyard over the centuries (Merritt *et al.*, 2007). The mobility of the Goodwin Sands posed additional challenges (Cant, 2013: 17). It is possible that vessels that stranded on the Goodwins, but were refloated on a higher tide, could have been lost due to damage within the study area.

- 6.4.41 The Goodwin Sands are considered to have international and localised significance, not only as the gateway to the Continent, and as a major navigational hazard, but also for the way they have become embedded in historical narratives of the area and in present consciousness, through art and literature (Cant, 2013: 20).

Potential for Preservation

- 6.4.42 The potential for preservation is influenced by the composition of the seabed, and areas of deep mud afford far greater protection for organic materials than bedrock (Gregory, 2006; Merritt *et al.*, 2007). Therefore, the mudflats of Pegwell Bay provide an opportunity for high levels of preservation. Areas of sand, and to a slightly lesser extent, areas of gravelly sand, the predominant seabed types of the study area, also provide some degree of protection. The areas of gravel seabed are less likely to afford protection for organic remains, however there is still potential for aluminium and other metal wreckage to be present.

7 HISTORIC SEASCAPE CHARACTERISATION

- 7.1.1 As part of the National Heritage Protection Plan (NHPP), Historic England (formerly English Heritage), commissioned an HSC for the Thames Estuary and Kent. The work was undertaken by Cotswold Archaeology (<http://www.cotswoldarchaeology.co.uk/seascape/>, <http://www.cotswoldarchaeology.co.uk/seascape-2/> accessed 11/05/2015). The project completed HSC in accord with the national HSC Method that extends and applies the principles already in use for Historic Landscape Characterisation (HLC) to the coast and seas.
- 7.1.2 The method assesses and defines areas with HSC types that promote an understanding of historic trends and processes, in order to inform the sustainable management of change over time. This is achieved by addressing the multi-level character of the sea, by splitting the marine zone into five tiered levels: the coastal area, the sea surface, the water column, the sea floor and the subsea floor. The characterisation is GIS based, enabling key characteristics to be identified. The results of the characterisation of each level is summarised in the five following tables (table 3-7).
- 7.1.3 The known and potential prehistoric, maritime and aviation heritage assets that form part of the HSC have been discussed in the relevant baseline characterisations above.

Table 3: Seascape Characterisation – coastal area

Broad Character Types	Character Types	Character Sub-Types
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Broad Character Types	Character Types	Character Sub-Types
Coastal Infrastructure	Flood and erosion defences	Sea defence
Communications	Telecommunications	Submarine telecommunications cable
Cultural topography	Cultural topography (inter-tidal)	Shingle foreshore Sandy foreshore
	Cultural topography (marine)	Coarse sediment plains Fine sediment plains
	Cultural topography (landward)	Cliff Dunes
	Palaeolandscape component	Palaeolandscape component Palaeochannel
Fishing	Fishing	Fixed netting Bottom trawling
Industry	Energy industry	Submarine power cable Renewable energy installation (wind)
	Shipping industry	Commercial shipping route
Navigation	Navigation activity	Navigation route Anchorage
	Maritime safety	Buoyage
	Navigation hazard	Shoals and flats Wreck hazard
Ports and docks	Ports and docks	Dockyard (Civilian) Landing point Harbour Port
Recreation	Recreation	Leisure beach Parks and gardens Wildlife watching Leisure sailing Town

Table 4: Seascape Characterisation – sea surface

Broad Character Types	Character Types	Character Sub-Types
Coastal Infrastructure	Flood and erosion defences	Sea defence
Fishing	Fishing	Fixed netting Drift netting Pelagic trawling
Industry	Shipping industry	Commercial shipping route
	Energy industry	Renewable energy installation (wind)
Military	Military facility	Military practice area
Navigation	Navigation activity	Navigation route Anchorage
	Maritime safety	Buoyage Safety area

Broad Character Types	Character Types	Character Sub-Types
	Navigation hazard	Hazardous water Water turbulence
Ports and docks	Ports and docks	Harbour
Recreation	Recreation	Wildlife watching

Table 5: Seascape Characterisation – water column

Broad Character Types	Character Types	Character Sub-Types
Coastal Infrastructure	Flood and erosion defences	Sea defence
Fishing	Fishing	Bottom trawling Drift netting Fixed netting Pelagic trawling
Industry	Shipping industry	Commercial shipping
	Energy industry	Renewable energy installation (wind farm)
Military	Military facilities	Military practice area
Navigation	Navigation activity	Navigation route Anchorage
	Maritime safety	Buoyage Safety area
	Navigation hazard	Hazardous water Water turbulence

Table 6: Seascape Characterisation – sea floor

Broad Character Types	Character Types	Character Sub-Types
Communications	Telecommunications	Submarine telecommunications cable
Cultural topography	Cultural topography (marine)	Coarse sediment plains Fine sediment plains
	Palaeolandscape component	Palaeochannel
Industry	Energy industry	Submarine power cable Renewable energy installation (wind farm)
Fishing	Fishing	Fixed netting Bottom trawling
Military	Military facility	Military practice area
Navigation	Navigation hazard	Maritime debris Wreck hazard

Table 7: Seascape Characterisation – sub-sea floor

Broad Character Types	Character Types	Character Sub-Types
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Broad Character Types	Character Types	Character Sub-Types
Cultural topography	Cultural topography (marine)	Coarse sediment plains Fine sediment plains Mixed sediment plains Exposed bedrock
	Palaeolandscape component	Palaeolandscape component Palaeochannel
Industry	Processing industry	Spoil and waste dumping
	Energy industry	Submarine power cable Renewable energy installation (wind farm)
Navigation	Navigation hazard	Shoals and flats

8 VALUE AND SENSITIVITY

8.1 Introduction

8.1.1 The value of the archaeological resource has been assessed based on the criteria identified in section 3.5. The value of the setting of each marine heritage asset is integral to the value of each asset, and therefore this assessment includes both the asset itself and its setting.

8.2 Seabed Prehistory

8.2.1 There are no known seabed prehistory sites within the study area. However, the archaeologically assessed cores taken for the TOWF project have demonstrated the potential for the discovery of material relating to seabed prehistory.

8.2.2 On the basis of age and the rarity of Palaeolithic and Mesolithic finds underwater, if any sites or material was discovered, it would likely be of high, probably national archaeological importance. A guidance note published by English Heritage (now Historic England) *Identifying and Protecting Palaeolithic Remains: archaeological guidance for planning authorities and developers* (1998) indicated that sites containing Palaeolithic features are so rare in Britain that they should be regarded as of national importance and wherever possible should remain undisturbed.

8.3 Terrestrial Sites in the Intertidal Zone

8.3.1 The terrestrial archaeology desk-based assessment defined the intertidal zone as Parcel 15, but did not assess the significance as it is situated wholly below MHW (Amec Foster Wheeler, 2017). However, the assessment did note that the intertidal area is considered to be an area of considerable geoarchaeological interest, as it provides the potential to better understand the past landscape of Pegwell Bay and the Stour Estuary, and therefore forms a key element in understanding settlement and land use during the pre-modern period (Amec Foster Wheeler, 2017).

8.3.2 This section provides a brief assessment based on the criteria set out in the methodology section, and on guidance from Historic England (English Heritage, 2008). The assessment focusses on each individual site, however these sites should not be seen in isolation, but rather within the wider archaeological and cultural heritage landscape, as discussed in the onshore technical report (Amec Foster Wheeler, 2017).

- 8.3.3 Of the records of terrestrial sites in the intertidal zone, 15 relate to findspots. The value of these finds is not relevant here, as they have been removed from their locations and will not be impacted by the development.
- 8.3.4 The remaining 20 sites are discussed below.
- 8.3.5 The possible medieval wall (**1012**) is unlikely to be situated within the intertidal area, and its survival is unknown, however if it is situated within the intertidal area, it is likely of low to medium value.
- 8.3.6 The 19th century lighthouse on West Pier (**1015**), as it is still extant, has medium to high evidential and historical value, as it highlights maritime traffic, and the hazards faced by ships travelling along the coast, in addition, it is likely to have aesthetic value as a visible feature on the coast and communal value. The other 19th century features comprise rifle ranges (**1016**, **1017** and **1018**) that have since been removed. There is potential for some survival of material relating to these sites in the intertidal zone, particularly spent ammunition, however it is likely to be of low value, as it will have low evidential, historical, aesthetic and communal value.
- 8.3.7 The 20th century Pegwell Bay hoverport (**1019**) has been demolished, and as it relates to a very modern site, any material remaining is likely to be of very low archaeological value.
- 8.3.8 The 13 sites relating to the Second World War are likely to be of higher archaeological interest, due to their potential to contribute to knowledge and understanding of international events. However, apart from Ramsgate Pier Battery (**1020**), which still had extant buildings in 1979, all of the other features have since been demolished. Ramsgate Pier Battery (**1020**) would be of medium value, due to its historical association with the Second World War, and with its evidential value, and it may also have low to medium aesthetic and communal value. While there is still potential for material from the demolished features to remain, buried in the intertidal zone, particularly in relation to the post alignment (**1021**), any material discovered would have to be assessed on a case-by-case basis, but would likely be of low to medium archaeological value based on its probably fragmentary survival and therefore relatively low evidential value.
- 8.3.9 There is one undated feature, comprising timber posts (**1033**). As the date has not been confirmed, the value of this feature is presently unknown, but it should be assumed to be of medium value unless proven otherwise, as it may have medium historical value.
- 8.3.10 The evidence of known terrestrial sites in the intertidal zone highlights the potential for further discoveries. These discoveries would have to be assessed on a case-by-case basis, within the wider landscape framework, but in general, finds from the Neolithic period onwards are likely to provide evidence of the changing coastline over time and of activities in the intertidal zone. In addition, the intertidal area has the potential to include material relating to settlement and activity of the margins of the Wantsum Channel, and depending on their nature and preservation, could be of high significance and value.

8.4 Aviation

- 8.4.1 There are two known aircraft in the cable corridor study area (**2100** and **2101/ 1035**). Both of these aircraft crashed while in military service, and therefore are automatically protected under the Protection of Military Remains Act 1986. As such, based on the criteria used to establish value in table 1 both of these sites are of very high value. In addition, both aircraft crash sites, although not representing complete aircraft, are still recognisable as aircraft, and many key features of the aircraft still survive.

- 8.4.2 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.

8.5 Maritime

- 8.5.1 There are 97 known wrecks and obstructions in the study area. The present assessment of value relies on descriptions of the sites from the UKHO, NRHE and KHER, and therefore the results of the assessment could be amended based on archaeological assessment of further data, such as the forthcoming archaeological assessment of geophysical survey data (Wessex Archaeology, forthcoming). This assessment is based on the criteria for assessing archaeological value, as set out in table 1, and based on available guidance (English Heritage, 2008, 2012; Wessex Archaeology 2006c, 2008e).

Wrecks

- 8.5.2 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, 2008e).
- 8.5.3 Of the wrecks that have been identified and named, there are no known wrecks dating prior to 1877. The oldest wreck, the *Saidieh* (**2105**) was built in 1878. Many of the other known wrecks were built between this date and 1913 (including; **2102, 2103, 2104, 2141, 2142, 2148** and **2156**). These ships belong to a period when there were great changes being made to the way in which vessels were built and used, and although examples of vessels from this period are generally more numerous in the archaeological record, those that contribute to an understanding of these changes would be considered as having increased value. It is likely that these vessels are considered to be of medium value.
- 8.5.4 The wrecks related to the two World Wars, are amongst the highest volume of recorded vessel losses. However individual examples could be considered of increased value, based on individual histories, associations, whether the vessel illustrates technological changes, and particularly if either build or loss is attributable to military action. Twelve of the vessels were lost during the First World War (**2102, 2103, 2104, 2105, 2141, 2142, 2143, 2144, 2145, 2146, 2147, and 2148**). Ten of the vessels were lost during the Second World War (**2106, 2107, 2150, 2151, 2152, 2153, 2154, 2155, 2157 and 2158**). The British landing craft LCP 586 (**2159**), lost in 1946, may also be of increased interest due to its military association. In general, it is likely that these vessels would be of medium value however, they could be considered to have increased group value, due to their association with international events, and it is possible that vessels lost while in military service could be designated under the Protection of Military Remains Act 1986, particularly if associated with loss of life. Therefore some of these vessels could be considered to be of very high value. The German submarines UB 12 (**2147**) and UC 7 (**2146**), assuming the location of the second one is confirmed, should be considered to be of high to very high value, due to their international importance. However it should be noted that even merchant vessels in military use at the time of loss can be designated under the Act, such as the SS *Storaa* that was designated in 2008.
- 8.5.5 Ships that were lost between the wars (such as **2149**) would require further assessment as to their date of build and their use, before a detailed assessment of value could be made, but may be of low to medium value.

- 8.5.6 Wrecks dating post-1945 (such as **2160, 2161, 2162, 2163, 2164** and **2165**) are less likely to be of archaeological interest, and the wrecks of this date in the study area are thought to be of low archaeological value.
- 8.5.7 For the wrecks and possible wrecks that have not been named and that are of unknown date (**2018-2118, 2166-2171**), their value is presently unknown, but should be considered as high until proven otherwise.
- 8.5.8 Additionally, the value of any wrecks discovered during pre-construction or construction activities for Thanet Extension would also be unknown, and would need to be evaluated on a case-by-case basis.

Obstructions

- 8.5.9 For the majority of obstructions, too little is presently known about them to assess their value, but they should be considered to be of medium value until proven otherwise. Should further evaluation reveal them to be wreck-related material, they will have to be assessed on a case-by-case basis.
- 8.5.10 However, the records of some obstructions provide sufficient detail to confirm that they comprise modern debris or natural features of no archaeological interest, and therefore of very low value. Examples include a steel tank (**2174**) an outfall pipe (**2175**), a piece of pipeline or cable (**2176**), material relating to destroyed beacons (**2177, 2178, 2179** and **2180**), a possible boulder (**2194**) and rocky ground (**2194**).

8.6 Historic Seascape Character

- 8.6.1 The Historic Seascape Character of the study area is considered to be of medium archaeological value, due to the area's important and prolonged maritime history and its continued use today.
- 8.6.2 The area is already characterised by the broad category of industry, more specifically, renewable energy installations for wind and submarine cables. Therefore, the overall character of the area will remain predominantly the same while Thanet Extension is in operation.

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9.2 Historic Environment Records

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9.3 Cartographic and documentary sources

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All URLs Accessed on 07/05/2017



10 APPENDICES

10.1 Appendix 1: Terminology

List of Acronyms

AD	<i>Anno Domini</i>
ADU	Archaeological Diving Unit
ALSF	Aggregate Levy Sustainability Fund
BCE	Before Common Era
BGS	British Geological Survey
BH	Borehole
BP	Before Present
BULSI	Build, Use, Loss, Survival and Investigation
CifA	Chartered Institute for Archaeologists
CPT	Cone Penetrometer Test
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DCLG	Department for Communities and Local Government
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
GIS	Geographic Information System
HE	Historic England
HSC	Historic Seascape Characterisation
JNAPC	Joint Nautical Archaeology Policy Committee
KHER	Kent Historic Environment Record
MCAA	Marine and Coastal Access Act 2009
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement
N/A	Not applicable (not included in dataset)
NM	Nautical Miles
NRHE	National Record of the Historic Environment
PEIR	Preliminary Environmental Information Report
TOWF	Thanet Offshore Wind Farm
UKHO	United Kingdom Hydrographic Office
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UTM	Universal Transverse Mercator
VWPL	Vattenfall Wind Power Limited



Glossary

The terminology used in this assessment follows definitions contained within Annex 2 of NPPF:

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 assets	World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Park and Gardens, Registered Battlefields and Conservation Areas 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 assets include 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.
Value	An aspect of worth or importance.



Chronology

Where referred to in the text, the main archaeological periods are broadly defined by the following date ranges:

Prehistoric	
Palaeolithic	970,000 – 9500 BCE
Lower Palaeolithic	970,000 – 300,000 BCE
Middle Palaeolithic	300,000 – 40,000 BCE
Upper Palaeolithic	40,000 – 10,000 BCE
Late Upper Palaeolithic	12,000 – 9500 BCE
Early Post-glacial	9500 – 8500 BCE
Mesolithic	8500 – 4000 BCE
Neolithic	4000 – 2400 BCE
Bronze Age	2400 – 700 BCE
Iron Age	700 BCE – AD 43

Historic	
Romano-British	AD 43 – 410
Saxon	AD 410 – 1066
Medieval	AD 1066 – 1500
Post-medieval	AD 1500 – 1800
19th Century	AD 1800 – 1899
Modern	1900 – present day

10.2 Appendix 2: Legislative and planning framework

Designated Heritage Assets

Designation	Associated Legislation	Overview
World Heritage Sites	-	The UNESCO World Heritage Committee inscribes World Heritage Sites for their Outstanding Universal Value (OUV) – <i>cultural and/ or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.</i> England protects its World Heritage Sites and their settings, including any buffer zones or equivalent, through the statutory designation process and through the planning system. The National Planning Policy Framework sets out detailed policies for the conservation and enhancement of the historic environment, including World Heritage Sites, through both plan-making and decision-taking.
Scheduled Monuments and Areas of Archaeological Importance	<i>Ancient Monuments and Archaeological Areas Act 1979</i>	Under the <i>Ancient Monuments and Archaeological Areas Act 1979</i> , the Secretary of State (DCMS) can schedule any site which appears to be of national importance because of its historic, architectural, traditional, artistic or archaeological interest. The historic town centres of Canterbury, Chester, Exeter, Hereford and York have been designated as Archaeological Areas of Importance under Part II of the <i>Ancient Monuments and Archaeological Areas Act 1979</i> . Additional controls are placed upon works affecting Scheduled Monuments and Areas of Archaeological Importance under the Act. The consent of the Secretary of State (DCMS), as advised by Historic England, is required for certain works affecting Scheduled Monuments.
Listed Buildings	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	In England, under Section 1 of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> , the Secretary of State is required to compile lists of buildings of special architectural or historic interest, on advice from English Heritage/ Historic England. Works affecting Listed Buildings are subject to additional planning controls administered by Local Planning Authorities. Historic England is a statutory consultee in certain works affecting Listed Buildings. Under certain circumstances, Listed Building Consent is required for works affecting Listed Buildings.



Designation	Associated Legislation	Overview
Conservation Areas	<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	A Conservation Area is an area which has been designated because of its special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. In most cases, Conservation Areas are designated by Local Planning Authorities. Section 72 (1) of the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> requires authorities to have regard to the fact that there is a Conservation Area when exercising any of their functions under the Planning Acts and to pay special attention to the desirability of preserving or enhancing the character or appearance of Conservation Areas. Although a locally administered designation, Conservation Areas may nevertheless be of national importance and significant developments within a Conservation Area are referred to Historic England.
Registered Parks and Gardens and Registered Battlefields	<i>National Heritage Act 1983</i>	The Register of Parks and Gardens was established under the <i>National Heritage Act 1983</i> . The Battlefields Register was established in 1995. Both Registers are administered by Historic England. These designations are non-statutory but are, nevertheless, material considerations in the planning process. Historic England and The Garden's Trust (formerly known as The Garden History Society) are statutory consultees in works affecting Registered Parks and Gardens
Protected Wreck Sites	<i>Protection of Wrecks Act 1973</i>	The <i>Protection of Wrecks Act 1973</i> allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These statutorily protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance.
Protected Places and Controlled Sites	<i>Protection of Military Remains Act 1986</i>	The <i>Protection of Military Remains Act 1986</i> provides protection for designated military vessels and for all aircraft that crashed while in military service. 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 – covers wrecks within the last 200 years). It is illegal to disturb sites or remove anything from sites. Protected Places can be visited by divers, but the rule is look but don't touch. For Controlled Sites it is illegal to conduct any operations (including diving or excavation) within the Controlled Site unless licensed to do so by the Ministry of Defence.

Other relevant legislation and policy

Designation	Associated Legislation or Policy	Overview
	<i>Merchant Shipping Act 1995</i>	This Act sets out the procedures for determining the ownership of underwater finds that turn out to be 'wreck', defined as any flotsam, jetsam, derelict and lagan found in or on the shores of the sea or any tidal water. It includes ship, aircraft, hovercraft, parts of these, their cargo or equipment. If any such finds are brought ashore, the salvor is required to give notice to the Receiver of Wreck. This Act is administered by the Maritime and Coastguard Agency.
	<i>Marine and Coastal Areas Act 2009 (Marine Policy Statement 2011)</i>	Marine licensing and marine planning made the responsibility of the Marine Management Organisation (MMO). England's inshore and offshore waters have been divided into 11 plan areas, for which marine plans are being produced by the MMO.
	<i>Revised Draft National Policy Statement for Energy (EN-1) DECC 2010)</i>	This National Policy Statement (NPS) sets out the national policy for energy infrastructure, and the importance of archaeological assessment in the development process.
	<i>Revised Draft National Policy Statement for Renewable Energy (EN-3) DECC 2010)</i>	This NPS, taken together with EN-1, provides the primary basis for the decisions by the Planning Inspectorate on renewable energy infrastructure development applications. It sets out the importance of the historic environment and the ways it can be impacted by development, outlines guidance for application assessments, Planning Inspectorate decision making, and mitigation measures.
	<i>UNESCO Convention on the Protection of the Underwater Cultural Heritage</i>	The UNESCO Convention was concluded in 2001, and is a comprehensive attempt to codify the law internationally, with regards to underwater cultural heritage. The UK abstained in the vote on the final draft of the Convention, however it has stated that it has adopted the Annex of the Convention, which governs the conduct of archaeological investigations, as best practice for archaeology. Although the UK is not a signatory, the Convention entered into force on 2nd January 2009, having been signed or ratified by 20 member states.

National Planning Policy Framework (NPPF)

NPPF Section 12: Conserving and enhancing the historic environment	
Para. 128	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 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.
Para.129	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 assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.
Para. 132	When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.
Para. 135	The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.
Para. 137	Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably
Para. 139	Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.



NPPF Section 12: Conserving and enhancing the historic environment

Para. 141	Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.
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Local Planning Policy

Thanet Local Plan was adopted in June 2006. The Secretary of State has extended the policies indefinitely, and these will remain in force until superseded by new policies in the new Local Plan.		
Policy ref.	Title	Scope
HE11	Archaeological Assessment	<p>In order to determine planning applications, the district council may require the developer/ applicant to provide additional information, in the form of an assessment of the archaeological or historic importance of the site in question and the likely impact of development. In certain cases, such assessment may involve fieldwork or an evaluation excavation.</p> <p>Where the developer is not prepared to arrange such an assessment voluntarily, the district council will use its powers to direct that such information be supplied. Planning permission will be refused without adequate assessment of the archaeological implications.</p>
HE12	Archaeological Sites and Preservation	<p>Archaeological sites will be preserved and protected. On those archaeological sites where permanent preservation is not warranted, planning permission will only be granted if arrangements have been made by the developer to ensure that time and resources are available to allow satisfactory archaeological investigation and recording by an approved archaeological body to take place, in advance of and during development. No work shall take place until the specification and programme of work for archaeological investigation, including its relationship to the programme of development, has been submitted and approved.</p>



10.3 Appendix 3: Gazetteer: Shallow Seismic Results (after Wessex Archaeology 2006a)

WA No	Length Range (m)	Depth range from seabed (m)	General location
7001	230-408	1.3-8.5	Southern part of Thanet Extension– south of TOWF
7002	711	2.3-8.9	Outside present cable corridor
7003	87-473	1.3-10	Southern part of Thanet Extension – east of TOWF
7004	295	1.4-5	Within TOWF
7005	380	1.2-11	Within TOWF
7006	158-795	2.3-13.7	Within TOWF
7007	182-769	2.3-14.5	Eastern part of Thanet Extension – north of TOWF
7008	215-1402	1.8-13.4	Eastern part of Thanet Extension – north of TOWF
7009	552	5.7-12	Eastern part of Thanet Extension - east of TOWF
7010	360	2.1-6.2	Eastern part of Thanet Extension – east of TOWF
7011		6	Western part of Thanet Extension – west of TOWF
7012	181-543	5.2-13	Eastern part of Thanet Extension – east of TOWF
7013	633	1.3-8.9	Eastern part of Thanet Extension – east of TOWF



10.4 Appendix 4: Gazetteer: Terrestrial Sites in the Intertidal Zone within the Site

WA_ID	NRHE_ID	HER_ID	Type	Date	Description	ETRS_1989 UTM Zone 31N Eastings	ETRS_1989 UTM Zone 31N Northings
1000		MKE74507	Findspot	Iron Age	Iron Age copper alloy coin	386552	5687395
1001		MKE74508	Findspot	Iron Age	Iron Age copper alloy coin	386552	5687395
1002		MKE74509	Findspot	Iron Age	Iron Age copper alloy coin	386552	5687395
1003		MKE74510	Findspot	Iron Age	Iron Age copper alloy coin	386552	5687395
1004		MKE74511	Findspot	Iron Age	Iron Age copper alloy coin	386552	5687395
1005	469465		Findspot	Romano-British	Samian cup, Roman	387016	5686863
1006		MKE8006	Findspot	Romano-British	Waterbottle (poss Roman)	387549	5687327
1007		MKE8009	Findspot	Romano-British	Samian bowl c.AD 100	387549	5687327
1008		MKE8015	Findspot	Romano-British	Samian cup, first century	386484	5686398
1009		MKE76538	Findspot	Anglo-Saxon	Early Denarial silver early penny ('sceat'), Ramsgate	389543	5687191
1010		MKE76539	Findspot	Anglo-Saxon	Anglo-Saxon silver early penny ('sceat'), Ramsgate	389543	5687191
1011		MKE76713	Findspot	Anglo-Saxon	Merovingian silver penny, Ozengell, near Ramsgate	389543	5687191
1012	469505	MKE8041	Site	Medieval	Possible medieval wall	387349	5687341
1013		MKE74068	Findspot	Medieval	Medieval copper alloy mace	386552	5687395
1014		MKE73939	Findspot	Post medieval	Post Medieval pottery pot	386552	5687395
1015	1204532	MKE34841	Site	19th century	Lighthouse on West Pier. Built in 1842 by John Shaw.	390021	5687449
1016		MWX43720	Site	19th century	Rifle range, Cliffsend	386235	5687223
1017		MWX43749	Site	19th century	Rifle range, Pegwell	387508	5687270
1018		MWX43747	Site	19th century	Rifle range, Pegwell	387705	5687351
1019		MKE90799	Site	20th century	Pegwell Bay Hoverport	386611	5687486
1020	1429205	MKE39738	Site	Second World War	The site of Ramsgate Pier Battery. It was an anti- torpedo boat battery established in 1942.	390017	5687446



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WA_ID	NRHE_ID	HER_ID	Type	Date	Description	ETRS_1989 UTM Zone 31N Eastings	ETRS_1989 UTM Zone 31N Northings
1021		MWX43173	Site	Second World War	Second World War post alignment in the intertidal zone of Pegwell Bay, west of Ramsgate.	386560	5687212
1022	1428985		Site	Second World War	Second World War defended house [Sector 6]. Near Deal.	387628	5680594
1023	1485786	MKE41944	Site	Second World War	The site of Sandwich Bay coastal battery, an emergency battery built during the Second World War as part of Eastern Command's coastal defences. The battery mounted two 6-inch ex-naval guns and was armed until at least September 1944. Aerial photography f	387512	5680919
1024	1428652		Site	Second World War	Second World War reinforced concrete pillbox [Sector 6]. Near coast, East of Sandwich.	387637	5680594
1025		MKE42015	Site	Second World War	Sandwich Bay Anti-tank pimples with integrated military structures	387082	5682107
1026		MWX43182	Site	Second World War	Second World War beach scaffolding, Pegwell Bay	385890	5686716
1027		MWX43183	Site	Second World War	Second World War coastal defence measure in form of wire obstacle, Pegwell Bay	385763	5686566
1028		MWX43230	Site	Second World War	Second World War beach scaffolding along the coast at Pegwell Bay	386889	5687674
1029		MWX43189	Site	Second World War	Second World War coastal defence feature comprising beach fencing, Pegwell Bay	386117	5687250
1030		MWX43276	Site	Second World War	Second World War beach scaffolding along Sandwich Bay	387885	5679669
1031		MWX43263	Site	Second World War	Second World War training area on Sandwich Flats	386427	5682564
1032		MWX43109	Site	Second World War	Second World War coastal defensive anti tank blocks, barbed wire, gun pits and military structures at Ramsgate Harbour	389824	5687783
1033		MKE9084	Site	Unknown	Timber posts in intertidal zone, Cliffsend, Ramsgate	387880	5687335
1034		MKE8013	Findspot	Unknown	Perforated stone macehead	389543	5687191



WA_ID	NRHE_ID	HER_ID	Type	Date	Description	ETRS_1989 UTM Zone 31N Eastings	ETRS_1989 UTM Zone 31N Northings
1035			Site	Second World War	Confirmed location of B-17G 42-31243. 1943 wreck of a B-17G Flying Fortress, which ditched on Sandwich Flats to the South of Pegwell Bay, Kent after running out of fuel. The remains of the aircraft were discovered in the 1990s in marshland at Sandwich Flats, near Pegwell Bay. The wreckage was handed over to the British Breznett Aeronautical Museum. However the site was clearly visible at low tide in 2016, so considerable wreckage remains in the intertidal zone. Location of aircraft (2101) confirmed as a result of walkover survey. No bombs are present and all crew members survived the ditching.	387292 BNG 635977E	5683900 BNG 160561N



10.5 Appendix 5: Gazetteer: Known Aircraft Crash Sites, Shipwrecks and Obstructions within the Study Area

Co-ordinates in ETRS 1989 UTM Zone 31N

NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2100	NRHE_1398733 KHER_MKE43650 WA2025	American B-24 Liberator bomber which crashed off Broadstairs. The Liberator bomber had a wingspan of 30.5 m, and the fuselage was 19.2 m. The site has been dived. The aircraft lies upside down with its wheels down. The nose points north-west and the top of the tyres stand nearly 4 m from the seabed. Note - this co-ordinate is likely in error, and the co-ordinate 2100b is more likely to be in closer proximity to the wreck site. This co-ordinate has been maintained here as it refers to a previously recorded WA ID.	395445	5688101
2100b		Co-ordinates for the American B-24 Liberator bomber (2100) based on McDonald (1994), where the co-ordinates 51 02 04; 01 30 05 E are recorded in degrees minutes seconds. The co-ordinates are the same as those recorded in the NRHE, however in the NRHE they have been recorded as 51 02.04 01 30.05 E. It should be noted that the position in the book may not be entirely precise, and the position of the wreck should be confirmed through geophysical survey.	395603	5688084
2101	NRHE_1602379	B-17G 42-31243. 1943 wreck of a B-17G Flying Fortress, which ditched at Pegwell Bay, Kent after running out of fuel. The remains of the aircraft were discovered in the 1990s in marshland at Sandwich Flats, near Pegwell Bay. The wreckage was handed over to the British Breznet Aeronautical Museum. However, the site was clearly visible at low tide in 2016, so considerable wreckage remains in the intertidal zone. The positional data for this site was quite vague, and the NRHE position comprises a circular polygon with a 1 km radius however, a walkover survey of the site by Wessex Archaeology confirmed the location of the wreckage (1035) on Sandwich Flats to the south of Pegwell Bay.	387338	5686282
2102	UKHO_14001 NRHE_904751 KHER_MKE13370	Empress of Midland (possibly). Remains of a Canadian steamship. Built in 1907, the vessel measured 76.8 m x 13.1 m x 7 m and was 2224 gross tons. The vessel had two boilers, a triple expansion engine, and single shaft. At the time of loss, it was owned by Canada SS Lines, Montreal. On 27 March 1916, the vessel was en-route from the Tyne to Rouen with a cargo of coal, when it detonated a mine laid by UC-1 and sank. A UKHO survey in 1996 indicated a large magnetic anomaly and an intact wreck in substantial scour. The wreck measures 80 m x 12 m x 6.6 m and lies at 125/305 degrees.	407463	5703520



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2103	UKHO_13971 NRHE_904726 KHER_MKE13345	Empress of Midland. Remains of a British steamship. Built in 1907, the vessel measured 76.8 m x 13.1 m x 7 m. It was 2224 gross tons. It had two boilers, a triple expansion engine and a single shaft. At the time of loss, it was owned by Canada SS Lines, Montreal, and was en-route from Tyne to Rouen with a cargo of coal. On 27 March 1916, it struck a mine laid by UC-1. A survey of this location in 1953 indicated a small hump which may not be a wreck. The site was relocated in 1973, but in 1996 nothing was found and the record was amended to 'dead'.	406938	5701739
2104	UKHO_13993 NRHE_904740 KHER_MKE13358	Menapier. Remains of a Belgian steamship. Built in 1908, by Short Bros, the vessel measured 85.6 m x 12.5 m x 5.5 m and was 1886 gross tons. At the time of loss, the vessel was owned by Brys & Gylsen. On 7 June 1915, while en-route from Algiers for Middlesborough, the vessel was torpedoed and sunk by German submarine UB 10. A UKHO survey in 1996 indicated that the wreck has a very strong magnetic anomaly. The wreckage measures 95 m x 20 m x 4.3 m and lies 005/185 degrees. The site comprises the broken up remains of a large wreck, but the wreckage is not scattered about.	400724	5703009
2105	UKHO_13968 NRHE_904723 KHER_MKE13342	Saidieh. Remains of a British steamship. Built 1878 by W. Denny & Bros, it measured 106.7 m x 12.2 m with a draught of 7 m, and was 3303 gross tons. At the time of loss, it was owned by Khedivial Mail Steamship Co. On 1 June 1915, it was sunk by German submarine UB 6 while on passage from Alexandria to Hull. Eight of the 47 crew were lost. A UKHO survey in 1996 indicates that the wreck measures 110 m in length, 15 m in width, 6.2 m in height, and it has a strong magnetic anomaly. The wreck appears to be well broken up.	399919	5701749
2106	UKHO_13992 NRHE_904739 KHER_MKE13358	Woodtown. Remains of a British steamship. Built in 1915 by R. Williamson & Son, the vessel measured 56.7 m x 8.8 m with a draught of 3.7 m. It was 794 gross tons. At the time of loss it was owned by Woodtown Shipping Co. On 15 November 1939, the vessel struck a mine and sank, while en-route from Newlyn to London. Eight of the crew were lost. The wreck was surveyed various times between 1940 and 1996. The 1996 survey indicated a wreck 100 m x 30 m, with a sonar shadow height of 1.5 m, lying at 150/330 degrees. The wreck had a very strong magnetic anomaly. The wreck comprises a large area of debris, and it is probable that nets or buoys are spread throughout the debris.	397200	5702995



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2107	UKHO_13889 NRHE_904909 KHER_MKE13528 WA2039	Cedrington Court. Remains of a British steamship. The vessel was built in 1918 by Harland & Wolff, Belfast. It measured 125.6 m x 15.8 m with a draught of 9.4 m, and 5160 gross tons. It had three boilers, a triple expansion engine of 518 HP, a single shaft. At the time of loss, it was owned by Court Line. On 7 January 1940, it struck a mine laid by a German aircraft. A UKHO survey in 1995 indicated that the site comprises a scattered wreck, covering approximately 180 m x 40 m, with a maximum height of 1.5 m. It has a strong magnetic signature.	402240	5693496
2108	UKHO_13904 NRHE_831770 KHER_MKE9832 WA2045	Remains of a small wreck. It measures 14 m in length with a height of 2.8 m. There appears to be a cable extending approximately 20 m to the SW. Surveyed by the UKHO in 1995.	402846	5695341
2109	UKHO_13930 NRHE_831781 KHER_MKE9843 WA2004	Small, intact contact with no scour. A survey in 1979 indicated that it measured 5 m in length with a height of 3.1 m. A survey in 1995 indicated that it had a length of 12 m width of 2 m.	401849	5697492
2110	UKHO_13939	Intact wreck, with SE end broken down. It was examined in 1996. Length 79 m, width 14 m, height 6.4 m. It lies 164/344 degrees. The SE quarter appears more broken and has less elevation.	409886	5698586
2111	UKHO_13958 NRHE_831796 KHER_MKE9857 WA2005	A UKHO survey examined the wreck in 1998. It comprised an intact and upright wreck, measuring 45 m in length, 15 m in width, and lying at 110/290 degrees. It has a small magnetic anomaly. Probable upper deck detail is visible.	399854	5700390
2112	UKHO_13964 NRHE_831802 KHER_MKE9863	A UKHO survey in 1996 indicated a small wreck well scoured into the seabed. The scour has a depth of 1.8 m x 70 m in length, oriented 185 degrees. The wreck site measures 18 m in length by 18 m in width, at 040/220 degrees. It has a small magnetic anomaly.	398738	5701260
2113	UKHO_13976 NRHE_831809 KHER_MKE9870 WA2006, 6049	Remains of a broken up wreck in two main areas. The wreck was reported in 1956. It was examined in 1996, and had a length of 97 m, width 30 m, height of 3.7 m, and lies 135/315 degrees. It had a magnetic anomaly.	405288	5702008



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2114	UKHO_13998 NRHE_831818 KHER_MKE9879	A 1982 survey described the site as a dispersed wreck, remaining within a reasonably compact area. A 1996 survey described the site as dispersed, forming a large area of debris. The site measures 90 m x 30 m x 3.6 m and lies 160/340 degrees. It has a strong magnetic anomaly.	397882	5703508
2115	UKHO_13956 WA2009	A 1932 survey indicated a small obstruction, and it is possible that it may be a small shoal patch. A 1970 survey indicated a sonar contact, thought to be a possible wreck. It was not located in 1998, and the record was amended to dead.	400715	5700342
2116	UKHO_13979	Reported as a possible small wreck in 1970, a survey in 1996 failed to locate the site, and the record was amended to 'dead'.	406676	5702176
2117	UKHO_70169	Possible wreck discovered in 1969 by fisherman's sonar. Further surveys in 1974 and 1977 could not locate a wreck and the record has been amended to 'dead'.	394974	5701940
2118	UKHO_15157 WA2008	Obstruction/ foul ground. Surveyed in 1995. Described as a strong magnetic anomaly with a small contact 0.5 m above the seabed. It lies in a shallow scour. Thought to be possibly wreckage.	405066	5695291
2119	UKHO_15156 WA2055	Obstruction. Examined in 1995 survey. Small magnetic anomaly, and small obstruction less than 1 m in height.	403109	5694164
2120	NRHE_1028041 KHER_MKE15030	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	398474	5701497
2121	NRHE_1028042 KHER_MKE15031	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	402795	5695542
2122	NRHE_1028043 KHER_MKE15032	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	397821	5703665
2123	NRHE_1028044 KHER_MKE15033 WA2021	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	402529	5696932
2124	NRHE_1028047 KHER_MKE15036	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	400432	5702295
2125	NRHE_1028053 KHER_MKE15042	Unidentified seabed obstruction reported by fishermen. Possibly indicative of wreckage or a submerged feature.	401171	5703296



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2126	UKHO_13987 NRHE_831814 KHER_MKE9875	Obstruction/ foul ground. Site examined in 1982, and survey indicated a small contact about 1 m height, of indistinct nature and difficult to locate. Two smaller contacts nearby suggested it could be the site of a larger wreck, almost completely buried. Measuring approximately 20 m in length. Contact relocated in 1988, but not in 1996 when the record was amended to 'dead'. Retained here due to the potential for buried material.	401536	5702860
2127	UKHO_13962 WA2010	Obstruction. In 1970, it was thought a few small pieces of wreckage were present near the charted position, but there was no sonar response. In 1982, a survey indicated that nothing was standing higher than 0.5 m above general depth. Record was amended to 'dead'. It has been retained here due to potential material on or under the seabed.	401343	5700886
2128	UKHO_14946	Obstruction. A 1970 survey suggested a possible wreck site. A 1985 survey identified a small object, approximately 10 m in length, orientated 100/280 degrees. It has a small magnetic anomaly. The site was interpreted as an isolated rock pinnacle. It was not relocated in 1998 and the record was amended to 'dead'.	396965	5700169
2129	UKHO_70171	Obstruction. Identified as a possible wreck in 1970 on sonar. Survey in 1974 revealed numerous bank contacts and ridges. In 1974 the site was not located and the record was amended to 'dead'.	395206	5701936
2130	UKHO_13975 NRHE_831806 KHER_MKE9867	Obstruction/ foul ground. Reported as wreck in 1918, amended to 'dead' in 1922. In 1970 a small piece of wreckage was found. In 1982, a small wreck was reported. In 1996, the record was amended to 'foul' after it was not relocated.	401367	5702122
2131	UKHO_13897 NRHE_765930 KHER_MKE9519	Obstruction/ foul ground. Fisherman's fastener. Not located in 1996. Amended to 'dead'.	409859	5694456
2132	UKHO_13965	Obstruction/ foul ground. Not located in 1996, record amended to 'dead'.	400544	5701520
2133	UKHO_13966 WA2011, 2048	Obstruction/ foul ground, reported in 1977. Not found in 1996, record amended to 'dead'.	402282	5701548
2134	UKHO_13970 WA2012	Obstruction/ foul ground. Identified in 1977. Not located in 1990 or 1996. Record amended to 'dead'.	402596	5701820



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2135	UKHO_13978 WA2013	Obstruction/ foul ground. Identified in 1977, but not located in 1984 or 1996 and amended to 'dead'.	402296	5702258
2136	UKHO_13991 NRHE_765932 KHER_MKE9521 WA2015	Obstruction/ foul ground. Identified in 1977, but not located in 1996 and amended to 'dead'.	404470	5702897
2137	UKHO_13996 NRHE_765933 KHER_MKE9522	Obstruction/ foul ground. Identified in 1997, but not located in 1996 and the record was amended to 'dead'.	404093	5703398
2138	UKHO_14004	Obstruction. Located in 1970 as a possible wreck, however not relocated in 1996 and record amended to 'dead'.	406701	5703566
2139	UKHO_13973	Obstruction. Found in 1970, but not located in 1984 or 1996. The record was amended to 'dead'.	397988	5702064
2140	UKHO_13986 NRHE_1028054 KHER_MKE15043 WA2014	Obstruction/ foul ground. Identified in 1977, but not located in 1984 or 1996 and amended to 'dead'.	402303	5702629
2141	UKHO_13875 NRHE_904904 KHER_MKE13522 WA2035	Cathay (part of), a steamship built in 1898 by Ramage & Ferguson Ltd, Leith. Previously named the Kitai and the Cathay. The vessel had three boilers, a triple expansion engine of 327 NHP, and a single shaft. It was owned at the time of loss by Akties Det Ostasiatiske Kompagni. On 5 May 1915, while en-route from Copenhagen to Newcastle and Singapore, the vessel struck a German submarine laid mine 4 miles ENE of North Goodwin LTV. The UKHO record indicates that a 1932 survey showed the wreck broken in two. A survey in 1998 indicated that the wreck measured 30 m x 25 m, lying 080/260 degrees. The wreck has a small magnetic anomaly. Wreckage on the seabed consists of partially buried wreckage with small quantities of scattered debris lying immediately adjacent to it.	400239	5691666



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2142	UKHO_13874 NRHE_904903 KHER_MKE13522 WA2036	Part of the Cathay, a steamship built in 1898 by Ramage & Ferguson Ltd, Leith. Previously named the Kitai and the Cathay. The vessel had three boilers, a triple expansion engine of 327 NHP, and a single shaft. It was owned at the time of loss by Akties Det Ostasiatiske Kompagni. On 5 May 1915, while en-route from Copenhagen to Newcastle and Singapore, the vessel struck a German submarine laid mine 4 miles ENE of North Goodwin LTV. A UKHO survey in 1932 indicated that the wreck had broken in two. However, in 1979 nothing was found during an area search, and in 1985, although a magnetic anomaly was present, the wreck was considered to be completely buried in the seabed. The UKHO amended the record to 'dead' however it has been retained here due to the potential for buried material.	400584	5691630
2143	UKHO_15175 WA2056	Klar. Remains of a Norwegian steamship. The vessel measured 45.7 m x 7.6 m x 5.2 m and was 518 gross tons. The vessel was en-route from Tyne to Rouen when it struck a mine and sunk on 27 November 1915. The site was surveyed in 1997, and it measured 50 m x 45 m, orientated 090/270 degrees. An additional foul lies 40 m to the SSW and is considered to form part of this wreck site. There may be fishing tackle entangled with the wreck.	398792	5690028
2144	UKHO_14944 NRHE_904908 KHER_MKE13527 WA2040	Selma. Remains of a Norwegian steamship. The vessel measured 82.3 m x 11.9 m x 5.5 m, and was 1654 gross tons. It was mined on 25 October 1915. UKHO surveys of the site indicate a very broken up wreck. The site measures 60 m x 45 m and lies 080/260 degrees. It has a small magnetic anomaly.	400610	5693556
2145	UKHO_13868 WA2043, 7318	Ben Ardna. Remains of a British trawler. It measured 35.1 m x 6.7 m x 3.7 m and was 197 gross tons. At the time of loss, the vessel was owned by Richard Irvin & Sons Ltd. of North Shields. On 8 August 1915, the vessel hit a mine. Although the first UKHO record indicates that a buoy was placed over the wreck, the wreck was deleted from charts in 1932, and was not located during surveys in 1979, 1995 or 1998. The record was amended to 'dead'.	400511	5690890
2146	UKHO_58795 WA2060	German submarine UC 7. The mine-laying submarine was built by Vulkan, Hamburg, in 1915. The submarine measured 34.1 m x 3.1 m with 183 tons displacement. It was sunk by MB Salmon with a depth charge on 6 July 1916. A survey in 1979 indicated that nothing was found in the area. Record amended to 'dead'.	401260	5691618



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2147	UKHO_14934 NRHE_904896 KHER_MKE13515 WA2025	Possible wreck of UB 12. UB 12 was a German submarine measuring 28 m x 3 m with 142 tons displacement. It sank during a minelaying operation, in August 1918, possibly due to one of its own mines. In 1986, a small object was located protruding from a sandbank, and the site had a large magnetic anomaly. In 1994 the site was examined again, and it had a strong magnetic anomaly.	395484	5688148
2148	UKHO_13854 NRHE_904895 KHER_MKE13514 WA2031	Correct. Remains of a steamship, built in 1908 by J. Myers' SB. Co, Zalt-Bommel. The vessel measured 65.2 m x 10.2 m with a draught of 4.7 m and 1036 gross tons. It had two boilers, a triple expansion engine of 127 HP and a single screw. The vessel was owned at the time of loss by Skibsacties 'Correct'. The vessel sank following a collision with SS Moldavia in 1916. The most recent UKHO survey in 2010 indicated that the wreck measures 65 m x 14 m with a height of 3.5 m. It is upright, and generally intact with some collapsed sections. It has a large magnetic anomaly.	399122	5687695
2149	UKHO_58802 WA2058	Roam. British steamship. The vessel foundered on 28 October 1926, off North Foreland, between Elbow Buoy & the Goodwins. The ship was en-route from London to Bruges when it was lost. UKHO surveys have failed to discover anything in the area, in spite of intensive investigations. Record amended to 'dead'.	400662	5690703
2150	UKHO_58804 WA2059	Mazi. Yacht recorded in 1936 as having sunk 1 mile N of North Goodwin LTV. Survey in 1979 could not locate the wreck. The record has been amended to 'dead'.	400653	5690239
2151	UKHO_13851 NRHE_904891 KHER_MKE13510 WA2027	Merel (part of) (possibly). Remains of a British merchant steamship. The vessel was built in 1925 by Ayreshire Dockyard Company, and had two boilers, a triple expansion engine of 298 horsepower, and a single shaft. The vessel measured 74.7 m x 11 m x 3.7 m and had a gross tonnage of 1088. At the time of loss, the vessel was owned by the General Steam Navigation Co., and was carrying a general cargo of 1000 tons, including brass rods, aniline and casein. The vessel was en-route from Le Havre to London when it hit a mine on 12 December 1939. 16 crew were lost. The vessel lies in two pieces. A UKHO survey in 2015 indicates that the wreck measures 5.23 m x 4.56 m with a height of 2.5 m and an orientation of 100 degrees. It has a strong magnetic anomaly.	396319	5687285



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2152	UKHO_58819 WA2065, 7320	Merel. Possible remains of a British steamship. The vessel was built in 1925. At the time of loss, it was owned by General Steam Navigation Co., and was carrying a general cargo, including brass rods, aniline and casein, from Havre for London. On 8 December 1939, the vessel was mined and sunk off Gull Buoy. This location was surveyed in 1939 and recorded as a foul. The wreck was not located by surveys in 1960, 1974 or 1972, however a survey in 1969 suggested that the foul position could indicate the presence of dispersed wreckage. In 1972 the wreck was amended to 'dead'.	395648	5686693
2153	UKHO_13853 NRHE_904894 KHER_MKE13513 WA2030	HMS Elizabeth Angela. Remains of a trawler. Built in 1928 as the Hannah Reynolds by Beardsmore Ltd, Dalmeir, Glasgow, the trawler had a single boiler, triple expansion engine, single screw, and was 253 gross tons. Sold in 1927 to the Boston Deep Sea Fishing Co and renamed in December 1938. The vessel was hired as a minesweeper in November 1939. The vessel was armed with one 12-pounder gun, but was attacked and sunk by German aircraft. One crew member was lost. The most recent UKHO survey in 2015 indicated that the vessel was not located, but that there was a strong magnetic anomaly. In 2013, the wreck measured 20 m x 8 m with a height of 1.3 m and was oriented 097/279 degrees.	398917	5687701
2154	UKHO_13852 NRHE_904890 KHER_MKE13509 WA2026	Harcalo. Remains of a British merchant steamship, lost in 1940. The vessel measured 127.4 m x 17.1 m with a draught of 7.3 and was 5081 gross tons. The vessel was mined while on passage from Benisaf to London on 6 June 1940. The vessel beached near Gull Buoy and later dispersed. The most recent UKHO survey indicated that the wreck is poorly defined, and a more substantial item lies 50 m SW.	395602	5687280
2155	UKHO_13849 NRHE_904892 WA2028	HMS Arctic Trapper. It was a 352 gross ton British trawler, built in 1928. The vessel was originally a Grimsby owned trawler, requisitioned by the Admiralty in May 1940 as an armed patrol trawler. The vessel had one boiler, a triple expansion engine, single shaft, and carried one 12-pounder gun. The Arctic Trapper was attacked and sunk by German aircraft in 1941. The most recent UKHO survey, in 2015, indicated that the wreck measures 3.09 m x 2.74 m x 2.0 m. The wreck is oriented 130 degrees. It has a strong magnetic anomaly.	396677	5687300



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2156	UKHO_13861 NRHE_904901 KHER_MKE13520 WA2032	Yvonne. Remains of a steamship. The vessel was built in 1899 by W. Harkess & Son. It measured 56.1 m x 8.5 m x 4.3 m, with 668 gross tons. It was owned at the time of loss by Armement L. Hermans S.A., and was on passage from London to Cardiff on 12 June 1940 when it struck a mine. Ten crew members were lost. The UKHO indicates that the wreck is broken up and scattered. In 1979 numerous sonar contacts were identified and small pieces of wreckage were found during an examination of the area. It was found again in 1985. However, surveys in 1991 and 1997 failed to locate the wreck, and the wreck is thought to be related to a wreck which lies 40 m NNE. This record was amended to dead. However, there does not appear to be a record 40 m NNE, so this record has been maintained.	398693	5689906
2157	UKHO_13840 NRHE_904886 KHER_MKE13505	Alfred Colebrook. Remains of a British Drifter which had been requisitioned by the Admiralty. The drifter was 56 gross tons. The vessel was sunk in 1940 in the Richborough Channel as part of England's defences against the German invasion. A 1974 UKHO survey indicated that the wreck was unrecognisable, consisting of metal pipes above mud. A 2001 survey indicated that nothing was found in the area, and the record was amended to 'dead'. The record has been retained here as material from the wreck could be present, buried in the area.	386203	5685994
2158	UKHO_13839 NRHE_904885	Harvest Moon. Remains of a British Blockship, formerly a trawler. The trawler was a 72 gross ton vessel. The trawler was requisitioned by the Admiralty and sunk to form part of the defences against a German invasion, along with HMS Alfred Colebrook in 1940. The vessels closed off the River Stour. In the 1940s, the wrecks were visible at low water, however a UKHO survey in 2001 indicated that nothing was found. This record has been retained as material could be discovered in the vicinity.	386197	5685926
2159	UKHO_13835	LCP 586. British landing craft. Broke away from ASA Lothrop on 17 June 1946. Area surveyed by UKHO. In 1995, a small wreck was located in the vicinity of the position, although not investigated.	389455	5685030
2160	UKHO_13848 WA2042	The Daisy Bell sunk at its moorings by gales on 10 September 1974. A 1981 survey by the UKHO indicated nothing was found at this location - the wreck was assumed removed and the record updated to 'lift'. The record has been included here as it is possible that material from the wreck still lies on the seabed.	389912	5687399
2161	UKHO_14829 WA2049	Neg Chieftain. A tug capsized on 11 August 1983 while towing a barge stone carrier, while en-route to Ramsgate. The wreck was raised by barge crane Taklift I in 1984. A survey in 1986 indicated that small sections of wreckage remain in the area following salvage.	392546	5686555



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2162	UKHO_58820 WA2066	Barge foundered while in tow of tug Influence on 30 August 1986. The barge was moved closer to shore and then salvaged. The record was amended to 'lift'. While it is possible that material from the barge remains on the seabed in the general vicinity, as a modern barge it would not be of archaeological interest.	389816	5686074
2163	UKHO_15159	Pisces. Remains of a British fishing vessel. The vessel sank on 8 December 1995. The one crew member was recovered. A 1995 survey indicated that the hull lies flat on the seabed in sand, and a diver's report indicated that the engine block lies in a trench by a chalk ridge below the surrounding depth. Although the record indicates that salvage would be attempted, the wreck was still positioned in 2005.	389200	5685809
2164	UKHO_70367	Abandoned four wheel drive vehicle, visible at low tide and photographed in August 2007. There was the possibility of the vehicle being recovered in August 2007. Record remained in May 2012.	386609	5685964
2165	UKHO_70366	Jeep. Abandoned Suzuki jeep. In August 2007, the vehicle was visible at low tide. It was recovered in September 2007. Record amended to 'lift'.	386798	5686089
2166	UKHO_77610 KHER_MKE89673	Earl of Sheerness. Wreck site consists of a mound 24.5 m x 19.6 m x 3 m with a large magnetic signature. It was surveyed by Wessex Archaeology as part of the East of England Designated Wrecks: Marine Geophysical Survey and Interpretation (Wessex Archaeology 2010). Recorded by the UKHO as an obstruction, and described as a mound or possible seabed feature. Surveyed by the UKHO in 2011, it measured 19 m x 9 m with a height of 1.4 m. It is orientated 090/270.	388036	5680983
2167	UKHO_85569	Remains of a possible barge. The site was surveyed by the UKHO in 2016. The sonar length measures 37.7 m x 4.5 m x 0.8 m.	389784	5685533
2168	KHER_MKE89658	POLA wreck site, named by ADU		
2169	KHER_MKE89659	POLA+POKA wreck site, named by ADU		
2170	UKHO_77615	Obstruction. Described as an elongated item, a possible wreck. Surveyed by the UKHO in 2010, the feature measures 19 m x 4 m x 0.4 m, and is oriented approximately 100/280 degrees.	388972	5684274
2171	KHER_MKE80617	Timber, possibly from a wreck, Sandwich Bay		



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2172	UKHO_77613	Obstruction. Described as linear, possibly round topped, possible inverted boat. It was surveyed by the UKHO in 2011, and measures 19 m x 11 m with a height of 0.6 m.	388099	5679717
2173	UKHO_14831 WA2050	Obstruction. Stones, masonry and rubble. The site comprises the cargo of the stone carrier barge when Neg Chieftain capsized. The site was recorded in 1983 and examined in 1995 and 2005.	392523	5686833
2174	UKHO_13844 WA2041	Obstruction located by UKHO in 1974. It was identified as a 24 foot steel tank settled into the seabed. A 2011 survey indicated that the tank measures 7 m x 5 m with a height of 0.9 m. It lies at approximately 005/185 degrees.	388889	5686412
2175	UKHO_15132 WA2053	Obstruction. Probable joint in outfall pipe. Surveyed in 1995. Site appears to comprise a piece of pipeline or cable standing proud of the seabed. Exposed for approximately 113 m.	389275	5687012
2176	UKHO_15133 WA2054	Obstruction. Located in 1995 survey. Possible small piece of pipeline or cable. No height.	391450	5687768
2177	UKHO_70374	Obstruction/ foul ground. Described as a destroyed beacon. The object is visible at low tide on Kentish River Stour Estuary.	387074	5685996
2178	UKHO_79213	Obstruction. Described as a jagged metal object, possibly a former beacon support. The object is exposed at low tide on the Kentish River Stour Estuary.	386764	5685918
2179	UKHO_79215	Obstruction. Surveyed by the UKHO in 2012, it was described as jagged metal, possibly a former beacon support.	386227	5686380
2180	UKHO_79216	Obstruction. Surveyed by the UKHO in 2012, it was described as jagged metal, possibly a former beacon support.	386056	5686169
2181	UKHO_79214	Obstruction. Described as ironwork projecting from steep-to bank. The object was surveyed by the UKHO in 2012.	386673	5685955
2182	UKHO_77612	Obstruction. Described as an area of debris. The area measures 29 m x 25 m with a height of 0.9 m.	388115	5680427



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2183	UKHO_75328	Obstruction/ foul ground. Described as a firm, rounded contact in a scour hole. The object was located in 2010. It was re-examined in 2015, and measures 2.75 m x 1.42 m with a height of 0.9 m. It is oriented 316 degrees. It comprises a strong magnetic anomaly.	397413	5688511
2184	UKHO_75359	Obstruction/ foul ground. Described as a single contact in a scour hole, possible boulder. The object was recorded in 2010, and surveyed again in 2015. It measures 2.98 m x 2.14 m with a height of 1.1 m. It comprises a moderate magnetic anomaly.	396685	5687829
2185	UKHO_15131 WA2052	Obstruction / foul ground. Examined in 1995. Slight contact with slight magnetometer deflection.	393439	5686614
2186	UKHO_77033	Obstruction. Surveyed in 2010.	386421	5686279
2187	UKHO_77034	Obstruction. Surveyed in 2010.	386394	5686245
2188	UKHO_77035	Obstruction. Surveyed in 2010.	386027	5686117
2189	UKHO_59030 WA2067	Obstruction/ foul ground. Recorded in 2000 from aerial photography. Confirmed in 2005.	386999	5687322
2190	UKHO_59031 WA2068	Obstruction/ foul ground. Recorded in 2000 from aerial photography. Confirmed in 2005.	387423	5687284
2191	UKHO_59032 WA2069	Obstruction/ foul ground. Recorded in 2000 from aerial photography. Confirmed in 2005.	387519	5687243
2192	UKHO_59033 WA2070, 7321	Obstruction/ foul ground. Recorded in 2000 from aerial photography. Confirmed in 2005.	387685	5686971
2193	UKHO_59034 WA2071, 7322	Obstruction/ foul ground. Recorded in 2000 from aerial photography. Confirmed in 2005.	387205	5686978
2194	UKHO_77614 WA7122	Obstruction/ foul ground. Described as a possible boulder. The object was surveyed by the UKHO in 2011, and measures 3 m x 3 m x 0.4 m.	389132	5686685
2195	UKHO_15015 WA2051	Obstruction. Probable rocky area. Located in 2010.	389348	5686330



NEW_WA_ID	Previous IDs	Description	Eastings	Northings
2196	UKHO_13872 NRHE_831756 KHER_MKE9818 WA2034	Obstruction/ foul ground. A 1985 survey indicated a magnetic anomaly in this position, and that any material was entirely buried. In 1998, the record was amended to 'dead', however it has been retained here due to the potential for buried material.	399517	5691466
2197	UKHO_70120 WA2021 (poss)	Obstruction/ foul ground. Recorded in 1976. Survey undertaken in 1979 could not locate anything. Record amended to 'dead'.	402558	5696784
2198	UKHO_14880	Obstruction. Identified in 1985, but deleted in 1989 as a result of coastline changes. Record amended to 'dead'.	385816	5686006
2199	UKHO_14820	Obstruction. Discovered by the UKHO in 1982 as a small contact with a sonar shadow, however in 1986 it was examined again and determined to be a natural feature with no magnetic signature.	393120	5684335



10.6 Appendix 6: Recorded Losses

Note: Locations in ETRS89 UTM Zone 31 N are approximate. No material has been reported on the seabed at these locations.

WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2500	1445910	N/A	Unknown	1417	Possibly English cargo vessel, stranded at Ramsgate en route from London to Calais. The wooden sailing vessel was laden with wool. This is one of four ships lost in the same incident.	390025	5687208
2501	1445924	N/A	Unknown	1417	Possibly English cargo vessel, stranded at Ramsgate en route from London to Calais. The wooden sailing vessel was laden with wool. This is one of four ships lost in the same incident.	390025	5687208
2502	1445905	N/A	Unknown	1417	Possibly English cargo vessel, stranded at Ramsgate en route from London to Calais. The wooden sailing vessel was laden with wool. This is one of four ships lost in the same incident.	390025	5687208
2503	1445925	N/A	Unknown	1417	Possibly English cargo vessel, stranded at Ramsgate en route from London to Calais. The wooden sailing vessel was laden with wool. This is one of four ships lost in the same incident.	390025	5687208
2504	882113	MKE10509	Pereira	1588	Spanish galleon that stranded at Ramsgate. The wooden sailing vessel had a cargo of silver and gold. The record indicates that this report possibly conflates the action at Gravelines on the opposite coast on that day, with the more prosaic reality of an unnamed hulk from Lisbon with an unknown cargo.	390025	5687208
2505	901995	MKE13156	Unknown	1623	English cargo vessel, wrecked near Ramsgate.	390025	5687208
2506	902000	MKE13161	Unknown	1624	English Barque from Dartmouth. The wooden sailing vessel ran aground near Ramsgate laden with hides, aqua vitae and yarns.	390025	5687208
2507	N/A	MKE13183	Unknown	1677	English vessel lost with two others.	390025	5687208
2508	970658	MKE14397	Richard and Thomas	1690	Probably English cargo vessel that stranded near Ramsgate. Wooden sailing vessel.	390025	5687208
2509	1364617	N/A	Lusitania	1721	British craft, lost in a violent storm of wind and rain on 20 November 1721.	390025	5687208
2510	1368557	N/A	Wiltshire	1735	British craft bound for Lisbon, run on the Querns and was lost. Six lives were lost but the rest of the crew were saved.	390025	5687208
2511	1182371	N/A	Hetty	1747	British craft stranded near Ramsgate after foundering in the Downs during a storm. Thought to have been homeward-bound to London from Antiqua.	390025	5687208
2512	1182372	N/A	Postbrook	1747	British cargo vessel stranded nar Ramsgate en-route from South Carolina to London, having called at Cowes.	390025	5687208
2513	882127	MKE10522	Elizabeth	1748	British craft, bound from London for Rochelle, ran ashore t Ramsgate.	390025	5687208
2514	1461000	N/A	Unknown	1748	Cargo vessel, stranded in Ramsgate Bay en-route from Dublin to Livorno. Three of the crew were drowned but the rest were saved.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2515	1182539	N/A	Wilhemina	1749	Wooden sailing vessel, bound from Rotterdam for Rochelle stranded off Ramsgate.	390025	5687208
2516	1248641	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2517	1248646	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2518	882128	MKE10523	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2519	1248647	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2520	1248621	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2521	1248661	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2522	1248601	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2523	1248663	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2524	1248643	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2525	1248644	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2526	1248648	N/A	Unknown	1752	French fishing vessel stranded in Pegwell Bay during a hurricane. It was one of ten French fishing boats that were driven ashore during the same storm. The storm began 26 August 1752	387221	5686348
2527	N/A	MKE12205	Unknown	1752	Cargo vessel, carrying a cargo of Purbeck stone. Also, 10 French fishing vessels driven ashore in sand bay.	387221	5686348
2528	882130	MKE10525	Anne	1753	British wooden sailing vessel, bound for Jamaica, parted from anchors and cables in the Downs and was driven ashore to the southward of Ramsgate.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2529	1025625	MKE14955	Dover	1753	British wooden sailing vessel, bound from New York for London, after anchoring in the Downs, parted from anchors and cables and ran aground between Ramsgate and Broadstairs.	390025	5687208
2530	882131	MKE10526	Polly	1753	British wooden sailing vessel, bound from Virginia for London, parted from anchors in the Downs in a hard gale of wind and was driven ashore between the two new pier heads at Ramsgate.	390025	5687208
2531	894920	MKE12218	Le Ferme	1755	A French prize bound from Marseilles for Havre, was lost in Ramsgate Bay. Part of the cargo of soap, oil and cotton was saved.	387221	5686348
2532	883638	MKE11278	Friends Goodwill	1757	British craft, bound from Newcastle to London, was lost in a hard gale of wind at NNW on the East Barrowheads. The captain and five men were saved, but the four who remained on board were lost.	390025	5687208
2533	1249000	N/A	Venyowa	1757	Cargo vessel bound for North Carolina parted from anchors in the Downs and ran ashore to the eastward of East Stone-Head. At least some of the cargo was recovered.	390025	5687208
2534	882136	MKE10531	Young Jacob	1758	Wooden sailing vessel, bound from Hamburg for London with a cargo of staves was stranded near Ramsgate.	390025	5687208
2535	882137	MKE10532	Two Arthurs	1760	British craft, bound from London for Waterford stranded at Ramsgate.	390025	5687208
2536	970725	MKE14456	Jufrow [or Ufrow] Johanna and Agatha	1763	The 90 ton vessel was picked up derelict in the Channel by a Spanish ship and towed to the Downs. With local help it was brought into Ramsgate, but then burnt at Ramsgate Pier.	390025	5687208
2537	894834	MKE12143		1763	British cargo vessel stranded near Ramsgate, while homeward bound from Havana. The vessel was built by the Spanish in Cuba in 1762 or 1763 as a third rate warship, of 60 or 64 guns (sources in the NRHE record differ). The vessel was captured by the British and relaunched as a cargo vessel. The vessel was richly loaded at the time of loss, when it parted anchors and ran ashore near Ramsgate. Two crew members were lost.	390025	5687208
2538	1333910	N/A	King of Prussia	1765	British cutter which stranded on Cross Ledge, causing the vessel to capsize, on passage to the Downs in a snowstorm. Constructed of wood, it was a sailing vessel. The vessel ran aground on North Bank Head, between Ramsgate and Margate. The morning following the stranding, the vessel did not refloat, and the local population plundered the wreck.	387221	5686348
2539	1386419	N/A	Hazard	1767	English cargo vessel which stranded on its departure from Ramsgate Harbour, in ballast; a wooden sailing vessel.	390025	5687208
2540	882148	MKE10542	Ann And Betty	1769	Vessel lost going into Ramsgate.	390025	5687208
2541	882155	MKE10547	Elizabeth And Rebecca	1770	Irish craft	390025	5687208
2542	1387063	N/A	Unknown	1772	British collier which was wrecked near Ramsgate en route from Sunderland to Portsmouth with coal; a wooden sailing vessel.	390025	5687208
2543	895156	MKE12382	Unknown	1772	Cargo vessel laden with wheat, sunk in Ramsgate Harbour due to wind conditions.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2544	N/A	MKE12391	Unknown	1772	Two vessels lost 25 September 1772. One was driven on shore on each side of the pier, and a third will likely be lost on the Goodwin Sands.	390025	5687208
2545	895200	MKE12420	Thomas	1775	British brig which stranded south of Ramsgate, following a collision while homeward-bound to London from the Honduras and Nicaragua. Wooden sailing vessel.	390025	5687208
2546	894755	MKE12073	Union	1775	British brig involved in a collision while homeward-bound to London from the Honduras and Nicaragua. The wooden sailing vessel then stranded south of Ramsgate.	390025	5687208
2547	1187733	MKE12421	Unknown	1775	Sloop, lost with one other sloop during a violent storm	390025	5687208
2548	1187544	MKE10548	Unknown	1775	Brig, lost in violent storm, with two other brigs on the south shore.	390025	5687208
2549	895192	MKE12412	Unknown	1775	A collier, having sustained damage in a violent storm, was driven ashore near Ramsgate.	390025	5687208
2550	1187547	N/A	Unknown	1775	Brig, lost on the south shore following a violent storm. One of three brigs lost that night.	390025	5687208
2551	882156	N/A	Unknown	1775	Brig, lost on the south shore following a violent storm. One of three brigs lost that night.	390025	5687208
2552	895201	N/A	Unknown	1775	A Sandwich brig, lost just by the pier following a violent storm.	390025	5687208
2553	1187731	N/A	Unknown	1775	Sloop, lost with one other sloop during a violent storm	390025	5687208
2554	895199	MKE12419	Unknown	1775	A vessel was lost in a violent storm.	390025	5687208
2555	882157	MKE10549	Benn	1776	British vessel, from Carthagena, parted from its anchors and cables, ran for Ramsgate Harbour, but then grounded between the Heads.	390025	5687208
2556	882158	MKE10550, MKE10793, MKE12067		1777	British vessel, bound from London to Cork went aground to the northward of Ramsgate.	390025	5687208
2557	894086	MKE12016	Count Schimmelman	1781	Cargo vessel bound from Malaga to London, went aground near Ramsgate. Part of the cargo was saved.	390025	5687208
2558	894083	MKE12014	Penelope	1781	The vessel, bound from London to Halifax stranded at Ramsgate, having received so much damage as to be condemned.	390025	5687208
2559	882161	MKE10553	Prince Of Wales	1781	British vessel, bound from London to Dublin, went onshore in 'Pigwell', filled with water.	387221	5686348
2560	894092	MKE12022	Success	1782	British craft, bound from London to Plymouth was driven by a storm out of the Downs and went ashore near Ramsgate.	390025	5687208
2561	894121	MKE12044	Endeavour	1783	British sloop, en-route from Ipswich to Southampton struck a rock near Ramsgate during a storm. All the crew perished.	390025	5687208
2562	882162	MKE10554	Unknown	1783	Brig struck upon a rock, off the Colburn, and immediately sunk. Everyone on board perished.	390025	5687208
2563	N/A	MKE10555	Unknown	1783	British sailing vessel, run on shore in hard gale of wind and totally lost. One person drowned.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2564	884351	MKE11423		1786	Vessel, bound from Riga to Leghorn, sank in Ramsgate Harbour, after having been grounded on the Goodwin Sands.	390025	5687208
2565	884365	MKE11436	Elizabeth	1787	English craft which stranded at Ramsgate en route from Poole to Newcastle-upon-Tyne; a wooden sailing vessel.	390025	5687208
2566	884369	MKE11438	Forrester	1787	Vessel bound from Lymington to London, sprang a leak and put into Ramsgate. The vessel sunk as soon as it grounded.	390025	5687208
2567	1025613	MKE14946	Rose	1787	British cargo vessel which foundered in Pegwell Bay en-route from Newcastle-upon-Tyne to Sandwich with coal; a wooden sailing vessel.	387221	5686348
2568	884373	MKE11442	Betsey	1788	English cargo vessel, of London, struck the west pier of Ramsgate Harbour, and sunk.	390025	5687208
2569	884374	MKE11443	Jane And Eleanor	1788	British vessel bound from London to Barmouth, sank at entrance of Ramsgate Harbour.	390025	5687208
2570	884391	MKE11456	Elizabeth	1789	Vessel bound from London for Havredegrace went ashore at Ramsgate and was full of water.	390025	5687208
2571	884385	MKE11452	Friendship	1789	British vessel, bound from London to Algiers, driven out of the Downs went ashore at Ramsgate.	390025	5687208
2572	884390	MKE11455	Jemima	1789	Vessel, bound from Barcelona to Calais, ran aground in Ramsgate Harbour after being ashore near Dieppe, where the vessel lost an anchor and cable.	390025	5687208
2573	884402	MKE11466	Betsey	1790	British vessel, bound from London to 'Air', struck Dover Pier, stove in its stern, and then sunk in Ramsgate Harbour.	390025	5687208
2574	1025622	MKE14952	Hazard	1790	British vessel, bound from Stockholm to Marseilles, struck against the West Pier of Ramsgate Harbour and sunk.	390025	5687208
2575	884404	MKE11467	Hannah	1791	English vessel, bound from Malaga to London, sunk in Ramsgate Harbour.	390025	5687208
2576	884406	MKE11469	Mary	1791	Scottish vessel, of Leith, sunk in Ramsgate Outer Basin	390025	5687208
2577	884426	MKE11486	Snell Faane	1792	Cargo vessel, bound from Amsterdam to Lisbon, sank near the entrance of Ramsgate Harbour. The cargo was landed, mostly damaged.	390025	5687208
2578	884455	MKE11511	Miss in Her Teens	1793	This vessel, bound from Shields to Lisbon, put into Ramsgate with loss of anchor and cable, and it was feared the vessel would sink	390025	5687208
2579	891535	MKE11664		1794	British cargo vessel, bound from Grenada to London, parted its anchors in the Downs, and put in at Ramsgate, but the vessel struck against the Cross Wall. The cargo was landed, but the vessel was a wreck.	390025	5687208
2580	891521	MKE11651	Funtingdon	1794	The vessel, bound from Sunderland to Southampton, sunk near the entrance to Ramsgate Harbour.	390025	5687208
2581	891550	MKE11677	Mary	1794	The vessel, bound from London to Jamaica, lost its rudder, anchors and cables, and was driven onto the rocks near Ramsgate.	390025	5687208
2582	891538	MKE11667	Mary	1794	English brig, with cargo of gin, was bulged on the White Dyke. The crew were lost.	390025	5687208
2583	891539	MKE11668	Sincerity	1794	British cargo vessel, bound from London to Dover, was forced ashore during a storm. The vessel went ashore at East Pier Head, and the cargo was landed.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2584	891548	MKE11675	Wildman	1794	The vessel, bound from London to Jamaica, went ashore at the back of Ramsgate Pier, and then burnt to the water's edge.	390025	5687208
2585	891575	MKE11694	Vrow Catharina	1796	The cargo vessel, bound for London with a cargo of oats, sunk near Ramsgate Pier.	390025	5687208
2586	N/A	MKE11699	Unknown	1796	Merchant vessel. Cargo discharged.	390025	5687208
2587	891592	MKE11710	Eagle	1797	British transport vessel, bound from Martinico, struck against Ramsgate Pier Head, stove in its side, then grounded on the bank, full of water. The NRHE record notes that some sources describe the vessel as a troop ship, suggesting the term 'transport' indicates the transportation of governments stores or munitions as well as troops.	390025	5687208
2588	891580	MKE10560	Elizabeth	1797	British cargo vessel, bound from Cork, via Ramsgate, to London, went ashore near Ramsgate and the cargo was offloaded.	390025	5687208
2589	891595	MKE11713	Castor	1798	English East Indiaman which stranded near Ramsgate following a collision while homeward-bound to London from the Bay of Bengal. It appears that its cargo was fully or partially offloaded.	390025	5687208
2590	891619	MKE11731	Henrietta	1799	British vessel, bound from Ipswich to 'Aberdovy' struck on the Pier Head on entering Ramsgate Harbour and sunk.	390025	5687208
2591	891617	MKE11729	Norfolk	1799	British vessel, bound from Lynn to Bridport, struck against Ramsgate Pier Head, was driven leeward and sunk in deep water.	390025	5687208
2592	N/A	MKE11735	Two Brothers	1799	Two Brothers, lost 1799	390025	5687208
2593	891606	MKE11721	American Hero	1800	Cargo vessel, bound from Virginia to Amsterdam, was driven from its anchors in the Downs and went ashore near Ramsgate. The cargo was landed.	390025	5687208
2594	893825	MKE11788	Lee Lea	1801	The cargo vessel, bound from London to Malta, was driven from its anchors in Margate Roads during a storm, and went ashore at the back of Ramsgate Pier, filled with water. The cargo was expected to be saved.	390025	5687208
2595	893815	MKE11783	Palm Baum	1801	Vessel, bound from Barcelona to London, sank in Ramsgate Harbour.	390025	5687208
2596	893810	MKE11779	Jason	1802	The vessel, bound from Jamaica to London, put into Ramsgate Harbour after losing its anchors and cables, having been on shore upon the main, near Deal.	390025	5687208
2597	N/A	MKE11816	Unknown	1803	Jason, lost 1803	397929	5699100
2598	884473	MKE11527	Berwick	1805	British craft sunk in Ramsgate Harbour.	390025	5687208
2599	884472	MKE11526	Mary Ann	1805	British craft, bound from London to Trinidad, sunk in Ramsgate Harbour.	390025	5687208
2600	884481	MKE11534	Alliance	1806	Cargo vessel, bound from Honduras to London, went ashore at the back of the East Pier Head at Ramsgate. The cargo was expected to be saved.	390025	5687208
2601	884492	MKE11542	Nancy	1806	British vessel. During a storm, the vessel lost its anchors and cables, and then put into Ramsgate Harbour. Within the NRHE record, one source describes the vessel as on shore to the north of Ramsgate Pier, while another lists the vessel in the arrivals list for Ramsgate, after being on shore near Broadstairs.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2602	884479	MKE11532	Nancy	1806	English vessel, of Colchester, bound from Deptford to Plymouth, sunk at the entrance to Ramsgate Harbour, following a storm where it parted with its anchors and cables in the Downs.	390025	5687208
2603	1025628	MKE14957	Patriotea	1806	Swedish vessel, lost anchors and cables during storm on the Downs. Went ashore to the northward of Ramsgate Pier and was bilged.	390025	5687208
2604	894006	MKE11946	Diana	1807	Transport vessel, from Malta, in heavy winds lost cable, and sunk upon the East Bank.	390025	5687208
2605	893999	MKE11941	Mary	1807	British vessel, went on shore between Sandown Castle and Sandwich Haven during a hard gale.	390025	5687208
2606	884524	MKE11567	Hamlet	1808	American vessel, lost both anchors and cables in the Downs, and ran on shore in the Bay. The ship was bilged, but after the rudder was unshipped, the vessel drifted off and sunk in deep water. It was feared the vessel would be totally lost.	390025	5687208
2607	1341155	N/A	Havant	1808	This vessel, bound from Yarmouth to Portsmouth, on entering Ramsgate Pier, struck the West Head and sunk in the Harbour.	390025	5687208
2608	1250101	N/A	Neutrality	1808	This vessel, bound from Malaga to London, was driven on shore on the Main, near Ramsgate.	390025	5687208
2609	1025614	MKE14947	Unknown	1808	British collier, sunk in Pegwell Bay. Another collier was towed ashore near Broadstairs.	387221	5686348
2610	891478	MKE11614	Adelaide	1809	Brig, bound from Caen, was driven on shore near Ramsgate, having lost its foremast in a violent gale.	390025	5687208
2611	891477	MKE11613	Anfang	1809	Vessel, bound from the Baltic to Plymouth, was driven on shore on the White Dyke near Ramsgate, during a violent gale.	390025	5687208
2612	1025615	MKE14948	Ann	1809	The cargo vessel, laden with deals and other cargo, was driven on shore in Pegwell Bay, with loss of bowsprit, foreshaft, anchors and other material.	387221	5686348
2613	891464	MKE11603	Diligence	1809	Cargo vessel, grounded and received so much damage that it filled with water at every tide. The vessel put into Ramsgate, and its cargo was offloaded.	390025	5687208
2614	891474	MKE11612	Harvey	1809	British vessel, bound from London to Trinidad, was driven on shore on the Bathing Sand at the back of the East Pier, Ramsgate, during a violent gale.	390025	5687208
2615	882173	MKE10565	Lady Ann	1809	British vessel, bound from London to Grenada. The NRHE record notes there are varying descriptions of events. One record notes that the ship sunk in Pegwell Bay, while another indicates that although the vessel was driven ashore near Ramsgate, it was got off, and put into the harbour.	387221	5686348
2616	891473	MKE11611	Leda	1809	Polacre bound from London to Gibraltar, encountered a violent gale and sunk at the back of the East Pier, Ramsgate. Another source in the NRHE notes that the vessel went ashore near Ramsgate, and went to pieces.	390025	5687208
2617	891472	MKE11610	Sally	1809	Passenger vessel, bound from London to Madeira, went on shore on the White Dyke near Ramsgate, following a violent gale. The vessel then drove to sea on its broadside. Only three people were saved.	390025	5687208
2618	882175	MKE10567	Mary Ann/ Maryann	1810	British vessel, bound for London, was carried into Ramsgate on Wednesday by a Deal Boat's crew. The vessel was very leaky and sank.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2619	891489	MKE11621	Swift	1810	Craft. No further information is available.	390025	5687208
2620	N/A	MKE11622	Bengal	1810	Bengal, lost 1810	388879	5682599
2621	893887	MKE11842	Aurora	1811	Craft. No further information is available.	390025	5687208
2622	893907	N/A	Elizabeth	1811	British craft, bound from London to Plymouth, caught fire in Ramsgate Harbour, burnt to the water's edge and then sunk.	390025	5687208
2623	881968	MKE11845, MKE10505, MKE10569	Britannia	1812	Channel Island craft which foundered in the East Gulley of Ramsgate Harbour on passage from Newcastle-upon-Tyne to Guernsey; a wooden sailing vessel.	390025	5687208
2624	893895	MKE11850	Judith	1812	British vessel, bound from Sunderland to Weymouth, struck the Pier and sunk in Ramsgate Harbour.	390025	5687208
2625	893894	MKE11849	Mary Ann	1812	English cargo vessel, laden with timber, struck upon a pile at the end of the East Head and sunk in Ramsgate Harbour.	390025	5687208
2626	N/A	MKE11861	Elizabeth	1812	Elizabeth, lost 1812	390025	5687208
2627	893934	MKE11885	Bee	1813	Craft, from Heligoland, sprung a leak and sunk in Ramsgate Harbour.	390025	5687208
2628	882178	MKE10570	Master Mason	1813	British vessel, bound from Dover to Portsmouth, was driven on shore eastward of Ramsgate Harbour, during a gale.	390025	5687208
2629	893938	MKE11888	Neptune	1813	This vessel, bound from London to Limerick, sprung a leak at Ramsgate, and had five feet of water in its hold.	390025	5687208
2630	893928	MKE11880	William	1813	This vessel, bound from Portland to London, ran on shore near Ramsgate Pier.	390025	5687208
2631	882179	MKE10571	Orion	1814	Prussian vessel, missed the entrance to Ramsgate Harbour during a gale, and went ashore. The vessel was bilged, the cargo was landed, and it was thought the vessel could be a total wreck. Two other vessels also missed the entrance to the harbour and went ashore: the Dutch galliot Drie Kienden and the French brig Rosine and Agale.	390025	5687208
2632	893976	MKE11920	Edward	1815	Scottish brig which stranded on the East Head after a collision with the East Pier. En route from Shields to Plymouth with coal, it was a wooden sailing vessel.	390025	5687208
2633	893955	MKE11904	Friends Goodwill	1815	English craft which was wrecked following a collision with the East Pier at Ramsgate. Bound from Sunderland to Shoreham-by-Sea, it was a wooden sailing vessel.	390025	5687208
2634	893953	MKE11902	Prosperity	1815	Sloop, bound from London to Havre, sunk at the back of the East Pier, Ramsgate, having been on shore in Pegwell Bay.	390025	5687208
2635	893954	MKE11903	Union	1815	British transport vessel, bound from Calais, struck against the East Pier when going into Ramsgate Harbour, and sunk. Crew and troops saved.	390025	5687208
2636	894007	MKE11947	Vittoria	1815	Russian brig which was burnt at Ramsgate after putting in en route from Archangel for Le Havre with tar. Constructed of wood, it was a sailing vessel.	390025	5687208
2637	1250641	N/A	Samuel And Elizabeth	1816	Cargo vessel, bound from London to Liverpool, struck East Pier and went on shore on the Main. The cargo was landed and the vessel was expected to be got off.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2638	894066	MKE11999	Auckland	1818	Vessel en-route from London to Cork was driven on shore near Ramsgate. The Augkland and the Gloery were also driven on shore, but were got off yesterday and one was carried into harbour.	390025	5687208
2639	894054	MKE11988	Betsey	1818	British cargo vessel which stranded behind the East Head, Ramsgate, on arrival from Sunderland with coal; a wooden sailing vessel.	390025	5687208
2640	894061	MKE11995	Cornelia	1818	British cargo vessel which stranded behind the East Pier Head, Ramsgate, on passage from Shields to Poole with coal; a wooden sailing vessel.	390025	5687208
2641	894065	MKE11998	Elizabeth	1818	Cargo vessel which stranded south of Ramsgate on voyage from Newcastle-upon-Tyne to Lisbon with coal; a wooden sailing vessel.	390025	5687208
2642	1190764	N/A	Glory	1818	Vessel, bound from London to Montserrat, was driven on shore on the Main, near Ramsgate. The vessel was got off.	390025	5687208
2643	882181	MKE11997	Hannan	1818	British collier, was driven on shore near Ransgate during a gale, and sunk at the back of the East Pier.	390025	5687208
2644	894048	MKE11983	Hope	1818	English sloop, carrying a cargo of stone to London, was driven on shore to the westward of Ramsgate Pier and sunk.	390025	5687208
2645	894055	MKE11989	Jane	1818	British cargo vessel which stranded at the back of the East Head, Ramsgate, on arrival from Sunderland with coal; a wooden sailing vessel.	390025	5687208
2646	894068	MKE12001	Minerva	1818	This vessel, bound from London to Demerary, was driven on shore back of the West Pier Head, near Ramsgate.	390025	5687208
2647	1250621	N/A	Summer	1818	British vessel, from Yarmouth, sunk in the Outer Harbour, Ramsgate.	390025	5687208
2648	894062	MKE11996	Ulrica	1818	This vessel was driven on shore at the back of the East Pier, dis-masted and lost anchors and cables.	390025	5687208
2649	882182	MKE10574	Unity	1818	British cargo vessel, en-route to Shoreham, sprung a leak and to prevent sinking was run ashore near White Dike, near Ramsgate, and bilged. The cargo was landed.	390025	5687208
2650	894053	MKE11987	Zealand	1818	Cargo vessel, bound from Middleburg to Cadiz, fell over in the Basin, Ramsgate. Cargo was discharged.	390025	5687208
2651	N/A	MKE10573	Hannah	1818	Hannah, lost 1818	390025	5687208
2652	894034	MKE11971	Eliza and Mary	1819	British craft which stranded behind the East Head on entering Ramsgate. En-route from Shields to Arundel, it was a wooden sailing vessel.	390025	5687208
2653	894930	MKE12226	Amity	1820	Vessel, bound from Sunderland to Sandwich, sunk in Ramsgate Haven following a heavy storm.	390025	5687208
2654	1347423	N/A	Arharheten	1820	Vessel, bound from Gothenburg to Lisbon was lost to the westward of Ramsgate during a storm.	390025	5687208
2655	894041	MKE11977	Collette Charlotte	1820	Cargo vessel, from Villa Nova to Ostend, was run foul of by a ship receiving considerable damage, then, proceeding for Ramsgate Harbour, the vessel struck the Pier and immediately sunk. Cargo was discharged.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2656	894971	MKE12262	Duke of Cambridge	1820	British cargo vessel which stranded and bilged on the Four Foot Head, Ramsgate, after being forced from its anchors at Cuxhaven. En route from Bordeaux to Hamburg with wine, brandy, tobacco, turpentine, and prunes, it was a wooden sailing vessel.	390025	5687208
2657	1347415	N/A	Edward Henrick	1820	Vessel, bound from Barth to Lisbon, was lost to the westward of Ramsgate during a storm.	390025	5687208
2658	1345767	N/A	Unknown	1820	Vessel, lost during a tremendous gale. Some parts of a wreck, with several spars, and lower mast (63 feet long by 18 inches) washed up at Ramsgate.	390025	5687208
2659	N/A	MKE11980	Hazard	1820	Hazard, struck the west pier going into harbour. Lost bowsprit and part of the bow, filled with water and sank in the harbour.	390025	5687208
2660	1494484	N/A	Cornelia	1824	Dutch cargo vessel which stranded behind the East Pier at Ramsgate during a gale, while homeward-bound for Amsterdam from Batavia (now Jakarta). Constructed of wood, it was a sailing vessel.	390025	5687208
2661	895012	MKE12295	Ariadne	1825	British cargo vessel, bound from Portsmouth for London, was abandoned during a gale, and the crew were rescued. The vessel lost its anchors, cables, sales and had four feet of water in the hold.	390025	5687208
2662	895009	MKE12292	Henriette	1825	French vessel, bound from Dunkirk to Fecamp, foundered at sea. Crew were rescued.	390025	5687208
2663	1360206	N/A	Rising Sun	1825	Material from this yacht was recovered at sea and the stern of the vessel was brought in to Ramsgate.	390025	5687208
2664	895025	MKE12306	Ceres	1826	Vessel, bound from Sunderland, got on the White Dyke in entering the harbour, but struck the fluke of an anchor through its hull and sank.	390025	5687208
2665	895023	N/A	Queen Charlotte	1826	British cargo vessel which stranded on the Goodwin Sands en-route from Newcastle-upon-Tyne to Jersey with coal; a wooden sailing vessel.	387093	5680787
2666	1250341	N/A	Squaw	1830	British vessel, became a total wreck during a storm. Vessel went ashore at the Fourfoot Head. Only two crew were saved.	390025	5687208
2667	1250361	N/A	Unknown	1830	Sloop, laden with a cargo of lead, was lost on the shoals near Ramsgate.	390025	5687208
2668	1250381	N/A	PO	1832	British cargo vessel, bound from London to Bristol, was totally wrecked on the Four-Foot Head off Ramsgate Harbour. Crew were saved along with part of the cargo and other material.	390025	5687208
2669	1432709	N/A	Swift	1833	English craft which was totally burnt in Ramsgate Harbour; a wooden sailing vessel.	390025	5687208
2670	882190	MKE10580	Swift	1834	British craft, captured from the French.	390025	5687208
2671	1435092	N/A	Littlehampton	1839	English schooner which foundered between Ramsgate and Broadstairs following a collision on southbound passage. Constructed of wood, it was a sailing vessel.	390025	5687208
2672	882193	MKE10583	Liberty	1841	English smack, foundered.	390025	5687208
2673	882199	MKE10589	Samarang	1843	Vessel foundered.	390025	5687208



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2674	N/A	MKE10593	Gazelle	1850	British brig, built 1826 by Benn. The vessel was lost in a gale outside Ramsgate Harbour during the night. The first news of the wreck was the discovery of boats and wreckage onshore. There were no survivors.	390025	5687208
2675	882204	MKE10594	London	1852	English brig, stranded.	387221	5686348
2676	1251631	N/A	Robert	1852	Smack. No further information available.	390025	5687208
2677	882205	MKE10595	Victory	1852	English schooner, lost in strong winds.	387221	5686348
2678	882213	MKE10603	Cesira	1853	Portuguese brig, bound from Alexander, stranded.	390025	5687208
2679	882216	MKE10606	Maria Ann	1855	English smack, struck pier head in high winds, and foundered. Two crew members were lost.	390025	5687208
2680	882218	MKE10608	Josephine	1857	Vessel, built in 1842, was lost in strong winds. One crew member lost.	390025	5687208
2681	1251725	N/A	Amand	1860	French brigantine, went ashore during a storm and broke up.	390025	5687208
2682	1251641	N/A	Vengeur	1860	French brig which stranded behind the East Pier, Ramsgate, in a gale. Bound from Hartlepool to the River Charente with coal, it was a wooden sailing vessel.	390025	5687208
2683	882227	MKE10617	Cassandra	1861	British brig, built in 1842 in Sunderland, foundered.	390025	5687208
2684	882232	MKE10622	Daring	1867	English smack, built 1859, struck East Pier Head in heavy winds, and the vessel was then dashed to pieces. All five crew were drowned. Mr Rigden, the Whitstable diver, was employed to recover some of the vessel's ballast.	390025	5687208
2685	882231	MKE10621	Navarno	1867	English schooner, built in 1827, lost its way during snow storms and while trying to enter the harbour, struck on the Brake Sand. The vessel was later found on the beach in Pegwell Bay. There were no survivors. Material from the ship washed ashore.	387221	5686348
2686	882236	MKE10626	Fawn	1868	British smack, built 1845, struck the pier while entering Ramsgate Harbour and was lost, in strong wind conditions. Two crew were lost.	390025	5687208
2687	882248	MKE10636	Bethel	1870	English smack, ran aground between the pier heads at Ramsgate and in heavy seas finished up on the rocks at the back of the west pier, and then went to pieces.	390025	5687208
2688	882249	MKE10637	Grace	1870	British schooner, built 1855 in Yarmouth and owned by William Stroud. One crew member was lost.	390025	5687208
2689	882250	MKE10638	Whiff	1870	British smack, built 1856 and owned by J. Penney. The vessel sprang a leak in a strong gale. Two crew were lost.	390025	5687208
2690	1251768	N/A	Unknown	1870	British yacht capsized and was lost.	390025	5687208
2691	882256	MKE10644	George Valentine	1873	English schooner, lost in strong winds. Crew rescued by Ramsgate lifeboat.	387221	5686348



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2692	882263	MKE10651	Hedvig Sophia	1877	Swedish barque, built in 1851 and owned by L. Glas. The vessel was driven ashore by strong winds, following collision with the brigantine Heather Bell and French brig D'Artagnan. The Van Kook lifeboat from North Deal came out to rescue the men, and 17 survivors (from the various boats) were landed at North Deal. Both the coxswain and second coxswain received silver medals from the RNLI.	387221	5686348
2693	882267	MKE10653	Unknown	1877	One morning, no less than six vessels were on shore in various parts of Pegwell Bay.	387221	5686348
2694	N/A	MKE10649	Georges Valentine	1877	French merchant schooner, built in 1863, owned by A. Langhettee. The vessel was lost in strong winds. All crew were saved.	387221	5686348
2695	882279	MKE10665	Christine Margrethe	1880	Norwegian barque stranded and lost after striking the pier.	390025	5687208
2696	882282	MKE10668	Albion	1881	English brigantine, built 1857 by Crampton in Portsmouth, and owned by JT Crampton. The vessel ran foul of a brig in the Downs, parted anchor cables and in attempting to reach Ramsgate Harbour, drove ashore at the back of the East Pier on sand.	390025	5687208
2697	1252622	N/A	Northern Belle	1881	British fishing vessel sank following a collision with the steam tug Vulcan.	390025	5687208
2698	895180	MKE12400	Regard	1881	British smack struck wall in the harbour, receiving considerable damage.	390025	5687208
2699	895179	MKE12399	Unknown	1881	Several whelk boats, lost 1881. Heavy weather washed over the boats.	390025	5687208
2700	882285	MKE10671	Unknown	1881	French brig, found in Pegwell Bay bottom up. The vessel slipped its cables in the Downs. The crew were lost.	387221	5686348
2701	882289	MKE10675	Aero	1883	Danish barquentine, built in 1859 and owned by HC Christensen, Marshall, was lost in strong winds.	390025	5687208
2702	882295	MKE10681	Eagle Wing	1886	English schooner, stranded and lost in strong winds.	390025	5687208
2703	882296	MKE10682	Pet	1889	British smack, sank following a collision, when the other ship's anchor fell into the PET's hull and smashed the bottom planking.	390025	5687208
2704	1193872	N/A	Gerda	1891	Russian barque which stranded in Ramsgate Harbour following a collision with the pier. Bound from Pitea to Plymouth with deals (timber), it was a wooden sailing vessel.	390025	5687208
2705	1193697	MKE10687	Lorma	1891	Norwegian schooner, built 1876 by Ole Kittelsen in Grinstad, and owned by CT Boe Brothers. The vessel capsized and sunk following a collision with the SS Godmandun. The wreck was raised by Trinity House, and was towed upside down to Pegwell Bay. The wreck was then blown up using guncotton, and in the explosion, wreckage was flung several hundred feet into the air.	387221	5686348
2706	882306	MKE10691	Touch Not	1891	English ketch, ran aground outside the West Pier at Ramsgate. As the tide flooded, the boat drifted towards East Pier, and the vessel became a total wreck.	390025	5687208
2707	882308	MKE10693	Erin	1893	English yacht, foundered whilst racing.	390025	5687208
2708	1258748	N/A	Elizabeth and Mary	1894	English lugger which capsized and foundered at Ramsgate while inbound with a cargo of mackerel. Constructed of wood in 1883, it was a sailing vessel.	390025	5687208



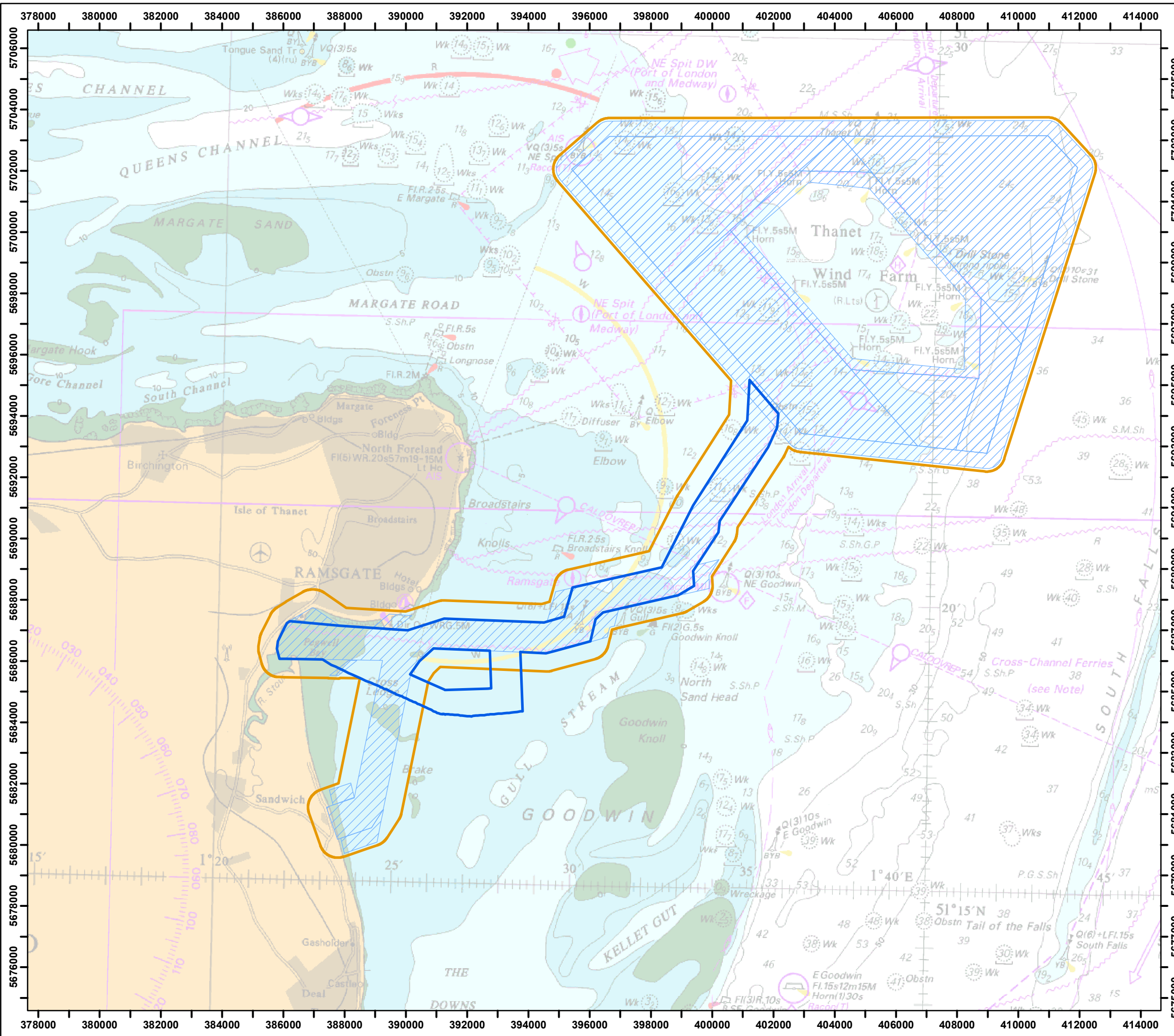
WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2709	882314	MKE10697	Quinque	1894	British yacht sank following a collision with the Ramsgate fishing dandy Victory at the entrance to Ramsgate Harbour.	390025	5687208
2710	882320	MKE10701	Unknown	1895	British cutter, built in 1891, and owned by the Lords Commissioners of the Admiralty. The vessel sank following a collision with the fishing dandy lanthe of Ramsgate. The vessel was at its moorings when lost.	390025	5687208
2711	882322	MKE10703	Alicia	1896	English cutter, built in 1875, stranded and was lost.	390025	5687208
2712	1258810	N/A	Champion	1898	English ketch, built in 1866. The vessel stranded and was lost.	390025	5687208
2713	882330	MKE10710	Avona	1901	British yacht, sank following a collision with the yawl Nereus of Southampton.	390025	5687208
2714	N/A	MKE11230	Afghanistan	1905	Merchant barque, built 1888 by Richardson Duck & Co. and owned by the British and Eastern Shipping Co. The vessel sank following a collision with HMS Caesar, a 14,900 ton battleship. Thirteen crew and one passenger were lost.	388508	5683545
2715	882341	MKE10720	Forest Belle	1912	Welsh schooner which foundered 0.25 mile ENE of the Gull Stream Buoy, en route from Ipswich to New Ross. Laden with fertiliser, it was a wooden sailing vessel.	390025	5687208
2716	N/A	MKE13321	Unknown	1916	Armed boarding vessel. Built in 1912 by Sir Raylton Dixon and Co. The vessel had a 534 HP engine, screw propulsion and three 3-cylinder triple expansion boiler. In 1914, the vessel was lying at Bordeaux, and brought residents of that British colony back to England, and then worked as a dispatch vessel. In 1915, the vessel took submarine boom defence equipment to the island of Mudros, and laid it across the approaches to the harbour. The vessel acted as a fleet auxiliary during the Dardanelles campaign, carrying troops to and from Gallipoli and Salonika. On 9 March 1916, the vessel was steaming towards the Thames, when it struck two mines off the North Foreland. The ship went down in four minutes, and fourteen people were lost.	390025	5687208
2717	N/A	N/A	UC 7	1916	German submarine UC 7. The mine-laying submarine was built by Vulkan, Hamburg, in 1915. The submarine measured 34.1 m x 3.1 m with 183 tons displacement. It was sunk by MB Salmon with a depth charge on 6 July 1916. A survey in 1979 indicated that nothing was found in the area. Record amended to 'dead'. UKHO ID 58795.	401260	5691618
2718	882355	MKE10734	Dawn	1918	English barque, stranded.	390025	5687208
2719	N/A	N/A	Roam	1926	Remains of a British steam ship. The vessel foundered on 28 October 1926, off North Foreland, between Elbow Buoy & the Goodwins. The ship was en-route from London to Bruges when it was lost. UKHO surveys have failed to discover anything in the area, in spite of intensive investigations. Record amended to 'dead'. UKHO ID 58802.	400662	5690703
2720	N/A	N/A	Mazi	1936	Yacht recorded in 1936 as having sunk 1 mile N of North Goodwin LTV. Survey in 1979 could not locate the wreck. The record has been amended to 'dead'. UKHO ID 58804.	400653	5690239



WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2721	N/A	N/A	Merel (Possibly)	1939	Possible remains of a British steam ship. The vessel was built in 1925. At the time of loss, it was owned by General Steam Navigation Co., and was carrying a general cargo, including brass rods, aniline and casein, from Havre for London. On 8 December 1939, the vessel was mined and sunk off Gull Buoy. This location was surveyed in 1939 and recorded as a foul. The wreck was not located by surveys in 1960, 1974 or 1972, however a survey in 1969 suggested that the foul position could indicate the presence of dispersed wreckage. In 1972 the wreck was amended to 'dead'. UKHO ID 58819.	395648	5686693
2722	1329420	MKE43814	Anson MK I N5065	1940	British reconnaissance aircraft built by Avro at Chadderton. It was one of a batch of 500 delivered between October 1938 and September 1939 to Contract No. 766119/38. It was shot down by Bf 109s off Ramsgate on return from a raid on 29 May 1940.	390025	5687208
2723	1329983	MKE43735	Anson MK I N9919	1940	British reconnaissance aircraft, built by Avro in Chadderton. It was a standard Coastal Command land-based reconnaissance aircraft, one of a batch of 350 delivered between September 1939 and March 1940 to Contract No. 766119/38. Damaged by Bf 109s, it ditched off Ramsgate on 29 May 1940.	390025	5687208
2724	1328103	MKE43691	Blenheim MK I L8665	1940	British medium bomber, built by Rootes Securities as part of a batch of 250 built between November 1938 and August 1939 to Contract No. 551920/37. Squadron 600. The aircraft was shot down by Bf 109 on AI practice off Ramsgate on 8 August 1940.	390025	5687208
2725	1327923	MKE43896	Defiant MK I L6966	1940	British two-sea turret armed fighter, built by Boulton Paul in Wolverhampton. One of a batch of 87 delivered between August 1939 and May 1940 to contract No. 622849/37. Squadron 264. Shot down by Bf 109s off Ramsgate, 24 August 1940.	390025	5687208
2726	1328021	MKE43762	Defiant MK I L7027	1940	British two-seat turret-armed fighter, built by Boulton Paul in Wolverhampton. One of a batch of 87 delivered between August 1939 and May 1940 to Contract No. 622849/37. Squadron 264. Shot down by Bf 109s over Manston and crashed in the sea on 24 August 1940.	390025	5687208
2727	1400225	MKE43700	Heinkel HE111H-2 A1+FR	1940	German Heinkel He111 bomber which ditched off Ramsgate. It was part of Squadron 7/KG53.	390025	5687208
2728	1401810	MKE43653	Messerschmitt ME110 (2301) A5+AA	1940	German Messerschmitt Me110 which was shot down east of Ramsgate. It was part of Stab StG1.	390025	5687208
2729	N/A	MKE89866	Messerschmitt Bf109E-1	1940	MESSERSCHMITT Bf109E-1 - of 8/JG51. Crashed 24th August 1940 in sea off Ramsgate, following mid-air collision with Bf109E-4. Pilot missing. Aircraft lost.	390025	5687208
2730	N/A	MKE89867	Bf109E-4	1940	MESSERSCHMITT Bf109E-4 - of 8/JG51. Crashed 24th August 1940 in sea off Ramsgate, following mid-air collision with Bf109E-1. Pilot missing. Aircraft lost.	390025	5687208
2731	1402792	MKE43792	Messerschmitt ME109E-7 (6462) 13+	1941	German Messerschmitt Me109 which was shot down and crashed east of Ramsgate. It was part of Squadron 6/JG26.	390025	5687208






WA_ID	NRHE_ID	HER ID	Name	Date of Loss	Description	Easting	Northing
2732	1402719	MKE43690	Messerschmitt ME110E-3 (2328) 4U+SL	1941	German Messerschmitt Me110 which was shot down and crashed off Ramsgate. It was part of Squadron 3(F)/123.	390025	5687208
2733	1357389	MKE43900	Spitfire MK I X4666	1942	British Supermarine Spitfire Mk I, standard single-seat fighter. One of a batch of 500 delivered between July 1940 and February 1941. Converted VB/609/401. The aircraft was shot down by fighters off Ramsgate, 28 February 1942.	390025	5687208
2734	1602379	N/A	B-17G 42-31243	1943	B-17G Flying Fortress, an American heavy bomber, which ditched at Pegwell Bay, Kent, after running out of fuel.	387338	5686282
2735	1404711	MKE43863	Messerschmitt ME109G-4 (16113) 12+	1943	German Messerschmitt Me109 which was shot down and crashed 3 miles east of Ramsgate. It was part of Squadron 6/JG26.	390025	5687208
2736	1340724	MKE43932	Spitfire MKII MB799	1943	British Supermarine Spitfire Mk XII standard single-seat fighter, one of a batch of 426 delivered between June 1943 and May 1944. Abandoned over the sea off Ramsgate, 19 September 1943.	390025	5687208
2737	1318335	MKE43702	Typhoon IB DN560	1943	British Hawker Typhoon IB, built by Gloster Aircraft in Hucclescote. One of a batch of 300 standard single seat fighters and fighter-bombers delivered between October 1942 and March 1943. Squadron 609. Shot down by Fw 190 off Ramsgate 25 March 1943.	390025	5687208
2738	904871	N/A	LCPR961	1946	Four Landing Craft Personnel (Ramped) (LCP(R)s) sunk at this position. However, they have not been located by survey.	388818	5679823
2739	967692	MKE14359	Marconi	1946	English spritsail barge, built at Teynham by White in 1901. The vessel was owned successively by Hammond, West, Wall, Kent Portland Cement Co, and APM. The vessel sank in 1946 and broke up.	390025	5687208
2740	967693	MKE14360	Esther	1957	English spritsail barge, built at Murston in 1900. The vessel was owned successively by Smeed Dean, Schmidt and Sherry. The vessel was a house barge and broke up under the west harbour wall in a gale in 1957.	390025	5687208
2741	967691	MKE14358	H A C	1957	English spritsail barge, built at Muston by Smeed Dean as the Invicta in 1896. The vessel was owned successively by Smeed Dean, Prescott, Erith & Dartford and Cunis. The vessel was described as a lighter and a dredging lighter. The vessel is noted as being broken up around 1957.	390025	5687208
2742	1572769			1217	Representative record for an unknown number of French warships sunk by the English during the Battle of Sandwich in 1217.	391288	5684664

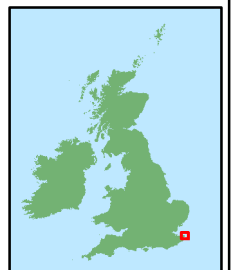


THANET EXTENSION OFFSHORE WIND FARM

Study Area


Legend

-  Cable Route Offshore
-  Site Investigation Boundary
-  Study Area



Layout:
Projection: ETRS 1989 UTM Zone 31N

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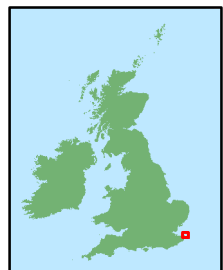
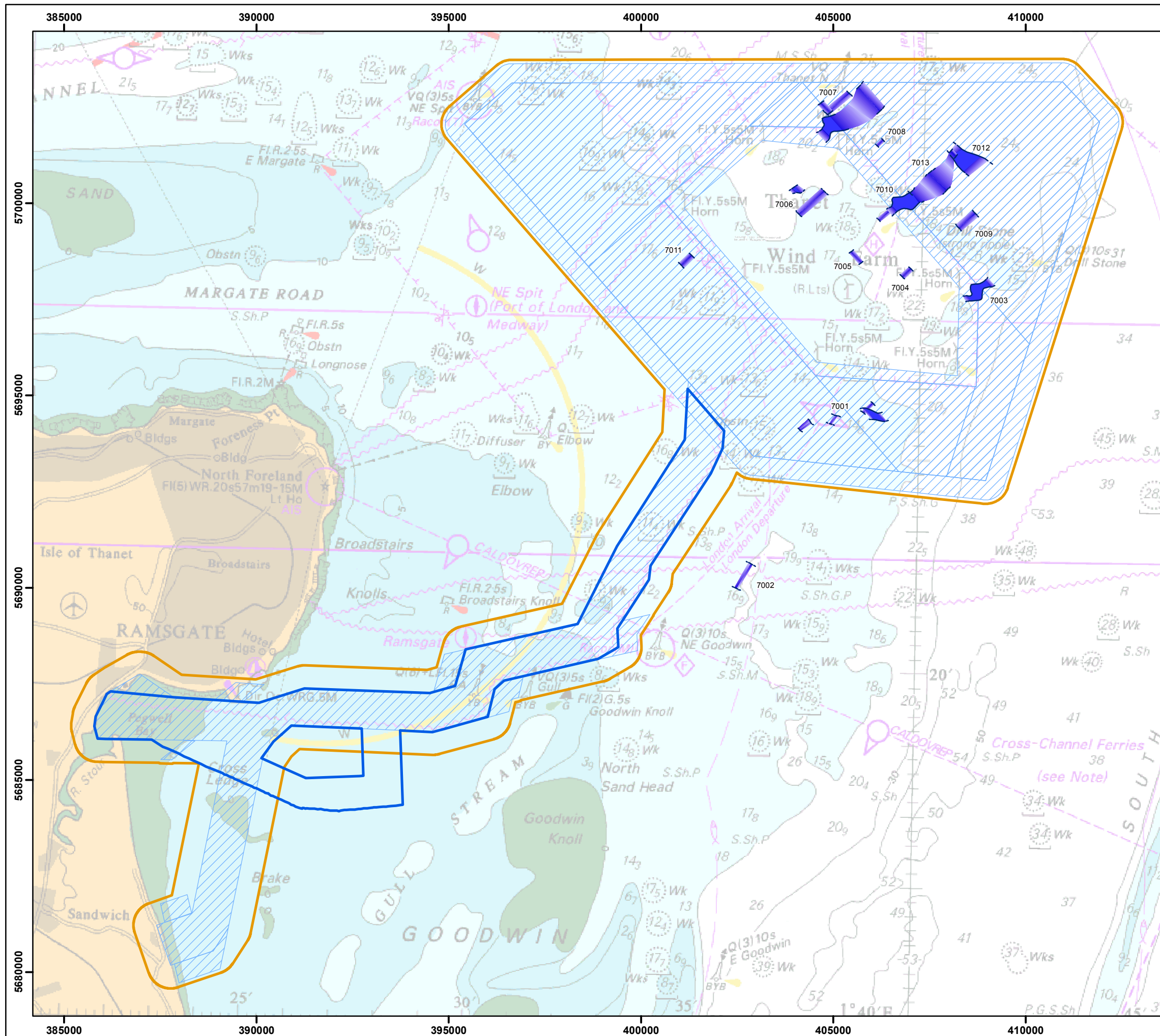
Rev	1	By	KL	Date	01/08/2017
Drg No	116080_DBA_Fig01				

THANET EXTENSION OFFSHORE WIND FARM

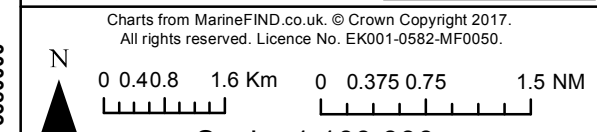
Palaeogeography

Legend

-  Cable Route Offshore
-  Site Investigation Boundary
-  Study Area
-  Palaeogeography



Layout:
Projection: ETRS 1989 UTM Zone 31N








Scale: 1:100,000

Rev	1	By	KL	Date	01/08/2017
Drg No	116080_DBA_Fig02				

THANET EXTENSION OFFSHORE WIND FARM

Figure 3
Cable Corridor Study Area





Legend

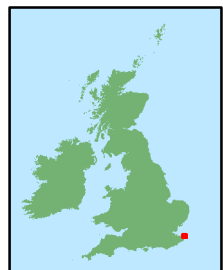
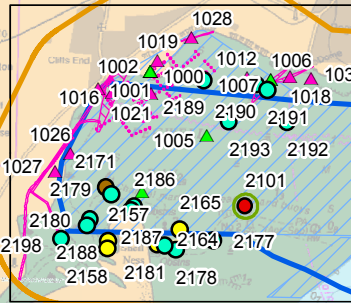
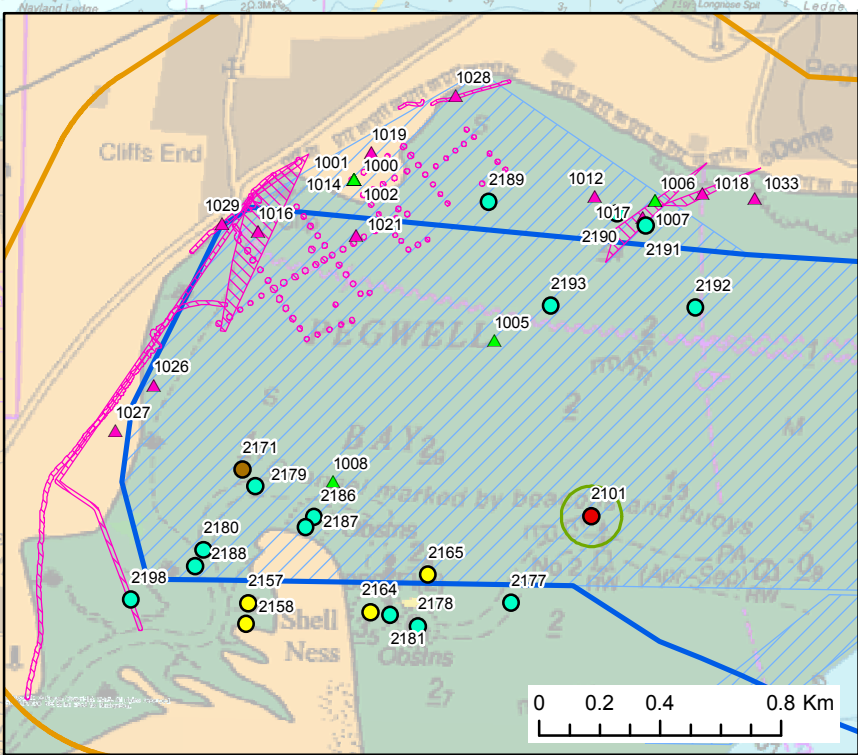
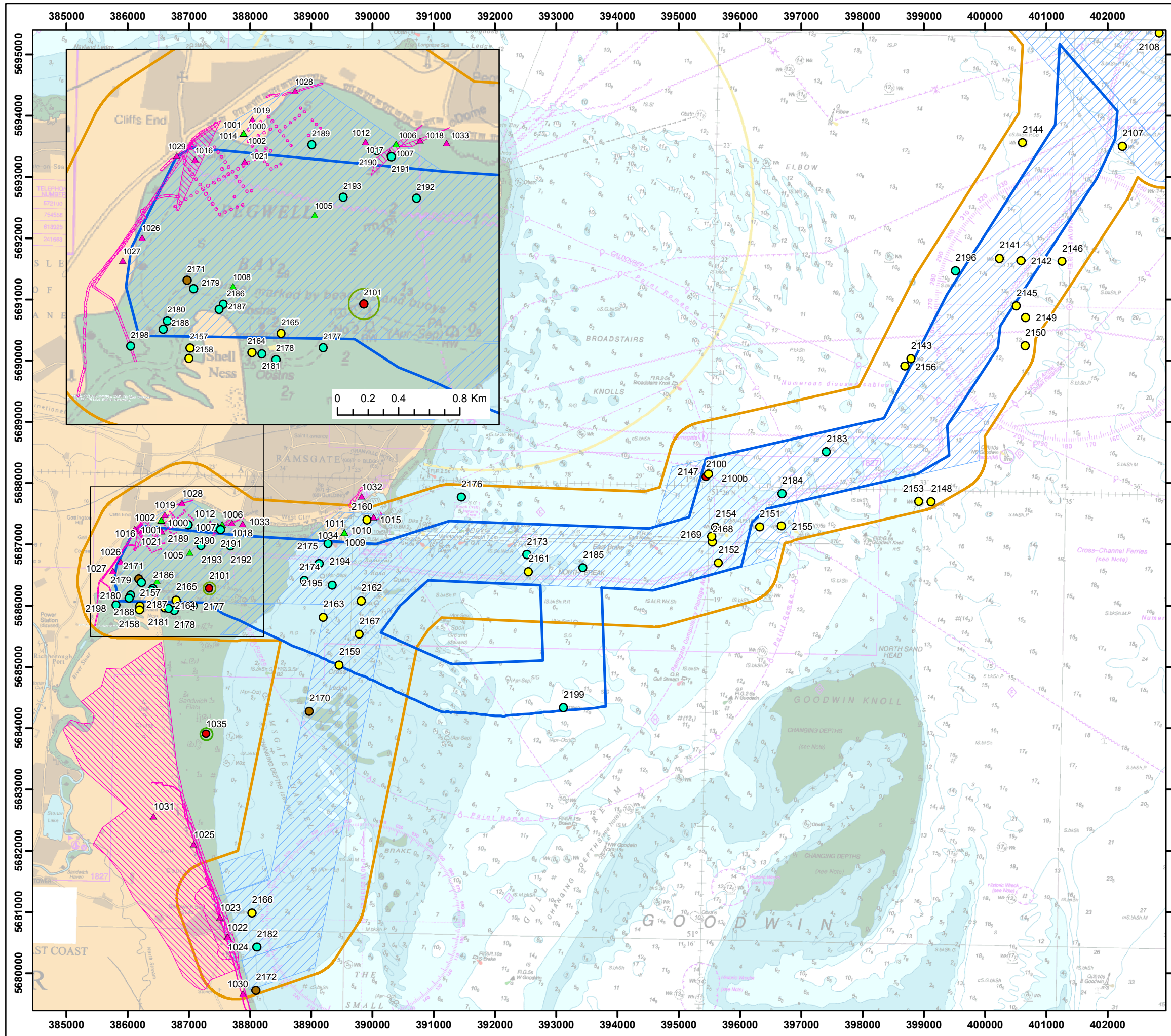
-  Cable Route Offshore
-  Site Investigation Boundary
-  Study Area
-  Polygons of sites from KHER
-  100 m buffer for 1035 and 2101

Terrestrial Sites and Findspots in the Intertidal Zone

-  Findspot
-  Site

Known Maritime and Aviation Sites

-  Aircraft
-  Possible wreck
-  Wreck
-  Obstruction



Layout:
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0 0.5 1 Km 0 0.25 0.5 1 NM

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Drg No	116080_DBA_Fig03				




THANET EXTENSION OFFSHORE WIND FARM

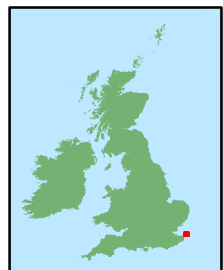
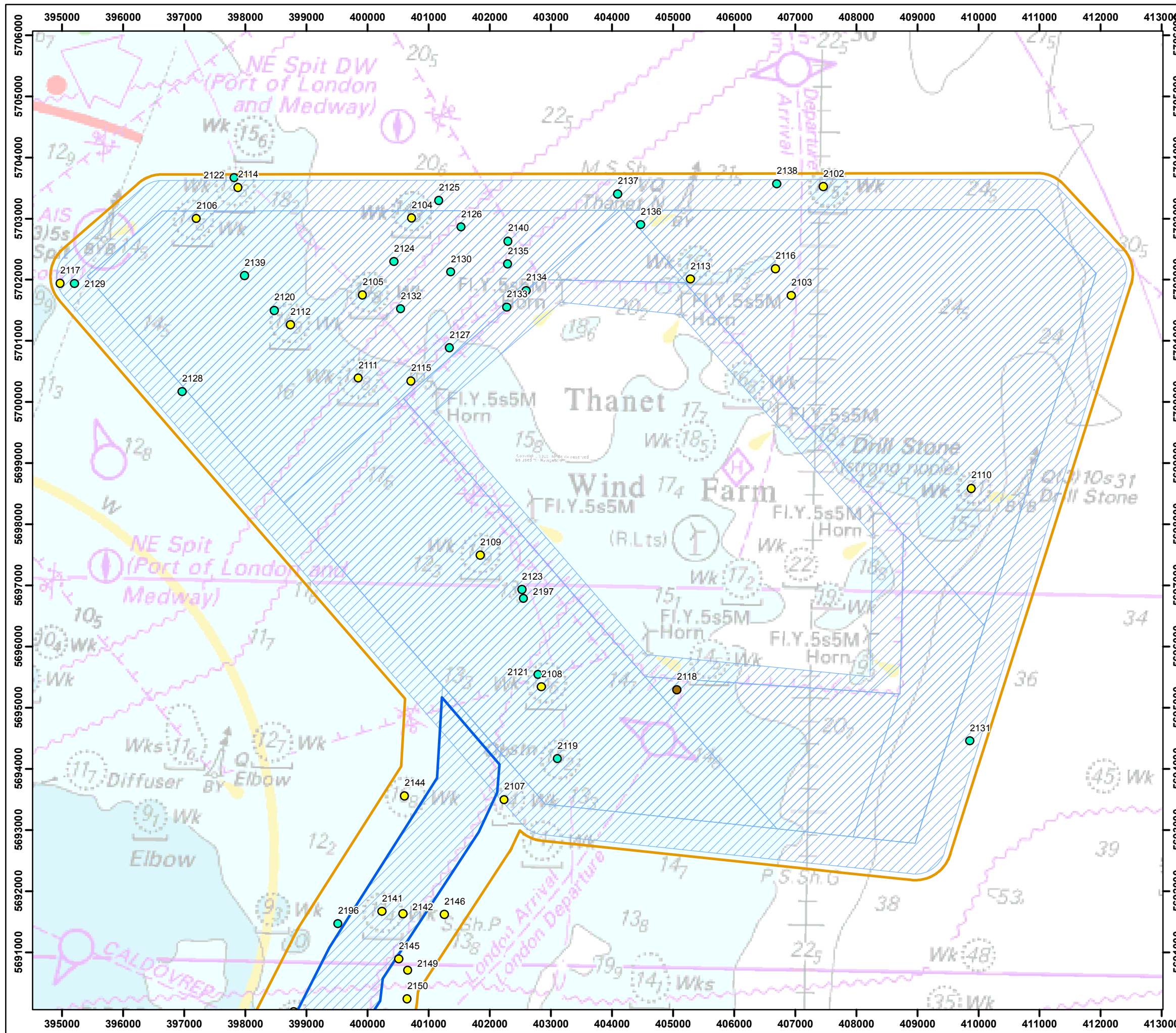
Figure 4
Offshore Wind Farm Study Area

Legend

-  Cable Route Offshore
-  Site Investigation Boundary
-  Study Area

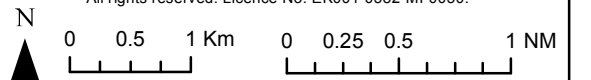
Known Maritime and Aviation Sites

-  Possible wreck
-  Wreck
-  Obstruction



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Drg No	116080_DBA_Fig04				

**THANET EXTENSION
OFFSHORE WIND FARM**

WA ID 1035 – B-17 aircraft

Legend

-  Offshore Site Boundary
-  Cable Route Offshore
-  Site Investigation Boundary
-  Wreck
-  Wreck survey extents
-  100 m buffer

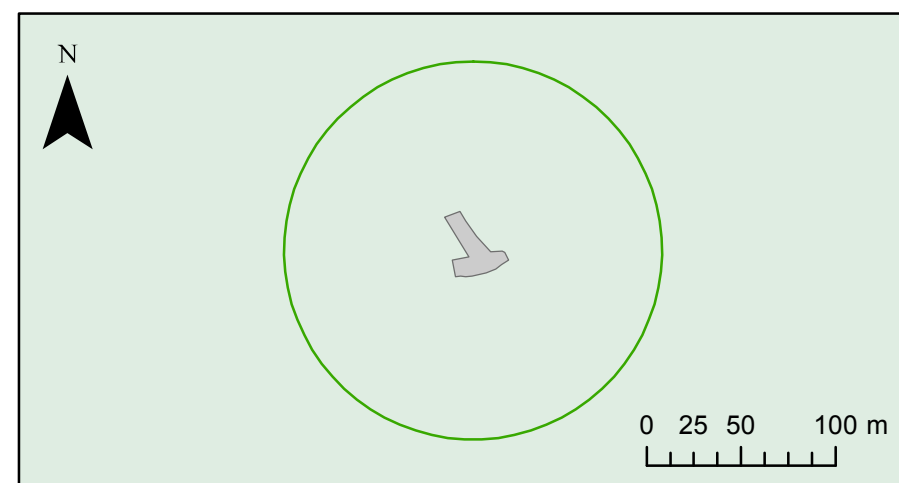
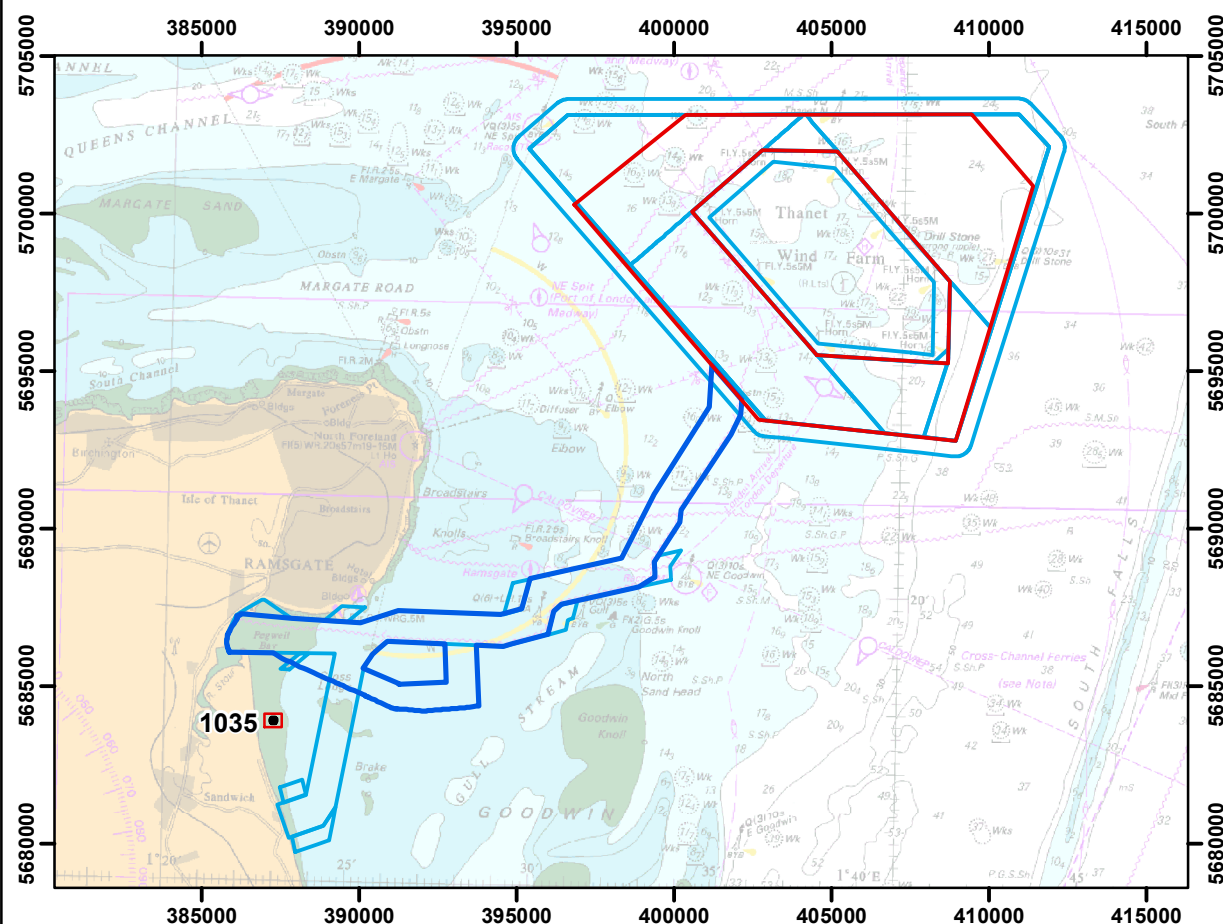
Location		387292E 5683900N
Notes		Confirmed location of B-17G 42-31243. 1943 wreck of a B-17G Flying Fortress, which ditched at Pegwell Bay, Kent after running out of fuel. The remains of the aircraft were discovered in the 1990s in the intertidal zone at Sandwich Flats, near Pegwell Bay. Wreckage recovered was handed over to the British Breznett Aeronautical Museum, Kent, including two engines and machine guns. However, the site was clearly still visible at low tide in 2016, so considerable structural wreckage remains in the intertidal zone. The original positional data for the site was quite vague, and the NRHE position comprised a circular polygon with a 1 km radius. It has been recommended that this footprint be reduced to a 100 m buffer due to the recent identification of the aircraft that was provided as a result of a walkover survey conducted by Wessex Archaeology in July 2017.
Build	Type	B-17G 42-31243
	Construction	Metal
Loss	Cause	Ditched after running out of fuel
Extent of Survival		The wreck appears to be broken up and has an area of surrounding debris. To allow for any further debris in the area, a 100 m buffer has been implemented around the site. No bombs are present and all crew members survived the ditching.



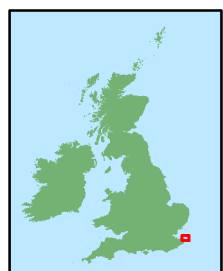
Wreck 1035, view from the south



Wreck 1035, view from the southwest



Detail of Wreck 1035



Layout:
Projection: ETRS 1989 UTM Zone 31N

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0 1 2 4 Km 0 0.75 1.5 3 NM

Scale: 1:240,000

Rev	1	By	KL	Date	18/08/2017
Drg No	116080_DBA_wrsh_01				