



## **APPENDIX 5-11**

### **ARCHAEOLOGICAL MANAGEMENT PLAN**

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## GLOSSARY OF PROJECT TERMS

Term	Definition
Archaeological Exclusion Zone (AEZ)	A spatially defined zone around a known marine archaeological and cultural Historic Environment receptor that will be avoided during intrusive works. The avoidance of AEZs must also consider that the use of anchors and lines, which could impact upstanding features, are adequately considered in the planning of operations.
Archaeological Interest	Refers to a site, find or anomaly of anthropogenic origin that has the potential to contribute to our knowledge and understanding of the past.
Archaeological Potential	Refers to the likelihood a site, find or anomaly is considered to map material of archaeological interest such as wreck or aviation crash sites, buried and confirmed palaeolandscapes and their margins, and the potential that such evidence would reveal a greater understanding of the past through expert investigation.
Archaeological Significance	Refers to the potential of a site or find to contribute to our knowledge and understanding of the past.
Array area	The area offshore within the EIAR Boundary within which the wind turbine generators (WTG), offshore platforms and inter-array cables will be located.
Baseline	The status of the environment at the time of assessment without the development in place.
Before Present	Time scale referring to years before 1950.
Bronze Age	Archaeological period lasting from 2500BC-500BC. This period follows on from the Neolithic and is characterised by the increasing use of bronze work. It is subdivided into the Early, Middle and Late Bronze Age.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity (value) of a Historic Environment receptor, in accordance with defined significance criteria.
Environmental Impact Assessment Report (EIAR)	A report of the effects, if any, which the proposed project, if carried out, would have on the environment. It is prepared by the developer to inform the EIA process.
Geophysical	Relating to the physical properties of the earth.
Heritage	The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.
Historic Environment	Physical resources such as shipwrecks, remains of aircraft, archaeological sites, archaeological finds, and material including pre-historic deposits as well as archival documents and oral accounts recognised as historical/archaeological or cultural significance.
Historic Environment receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of Historic Environment receptors include wrecks.
Historic Landscape Characterisation	Maps and describes historic cultural influences within an area looking beyond individual heritage assets and interpreting the patterns and connections within a landscape, spatially and through time.

Term	Definition
Historic Seascape Characterisation	Maps and describes historic cultural influences which shape seascape perceptions across marine areas, coastal land and adjacent marine environments and provides and interpretation of cultural, historical and archaeological links.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Intertidal	Area where the ocean meets the land between high and low tides. Specifically, the area between the High Water Mark and Low Water Mark.
Iron Age	The archaeological period lasting from 500BC-400AD. This period follows on from the Bronze Age and is characterised by the use of iron for making tools and monuments such as hillforts and oppida.
Landfall	The location at the land-sea interface where the offshore export cable will come ashore.
Last Glacial Maximum	Most recent time during the last glacial period that the ice sheets were at their greatest extents, approximately 26,500 – 19,000 BP.
Magnetometer	A device used to measure direction, strength, or relative change of magnetic field at a particular location.
Marine archaeology study area	Defined as the EIAR array area and OECC areas up to MHWS and surrounded by a 1 km buffer.
Medieval	Archaeological period lasting from c. 400-1500 CE. The Medieval period or Middle Ages begins with the Norman invasion and ends with the dissolution of the monasteries and can be split in to the Early and Late Medieval.
Mesolithic	Archaeological period lasting from 8000BC-4000BC. The Middle Stone Age, falling between the Palaeolithic and the Neolithic; marks the beginning of a move from a fisher-hunter-gatherer society towards food producing society.
Mitigation	Mitigation measures, or commitments, are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
Multi-beam Echo Sounder (MBES)	A type of sonar survey used to map the seabed by emitting acoustic waves in a fan shape beneath its transceiver. The time it takes for the sounds waves to reflect off the seabed and return to the receiver is used to calculate the water depth and produce a visualisation of depths and shapes of underwater terrain.
Nanotesla	Measurement describing the magnetic field (flux) of ferrous materials as measured by a magnetometer. (One nanotesla equals $10^{-9}$ tesla).
Neolithic	Archaeological period lasting from 4000BC-2500BC. This period follows from the Palaeolithic and the Mesolithic and is itself succeeded by the Bronze Age. This period is characterised by the practice of a farming economy and extensive monumental constructions.
Offshore Export Cable Corridor (ECC)	The Offshore Export Cable Corridor (OECC) is the area within the EIAR Boundary within which the export cable running from the array to landfall will be situated.

Term	Definition
Offshore Substation (OSS)	Platforms located within the array area which house electrical equipment and control and instrumentation systems. They also provide access facilities for work boats and helicopters.
Palaeolithic	Archaeological period lasting from 52,000 – 12,000 BP. The period is defined by the practice of hunting and gathering and the use of knapped flint tools. This period is usually divided up into the Lower, Middle and Upper Palaeolithic.
Post-Medieval	Archaeological period lasting from AD 1540 – 1901. Begins with the dissolution of the monasteries (AD 1536 – 1541) and ends with the death of Queen Victoria (AD 1901). A more specific period is used where known.
Pre-construction and post-construction	The phases of the Project before and after construction takes place.
Protocol for Archaeological Discoveries	A document detailing how unexpected archaeological discoveries should be reported during the lifetime of the Project.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as ‘residential’ or those using areas for amenity or recreation), watercourses etc.
Seascape	Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
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.
Side Scan Sonar	A sonar system that provides high-resolution seafloor morphology from both sides of the vessel track to produce an image of the seafloor.
Study area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
Sub-bottom Profiler	An acoustic system used to determine physical properties of the seafloor and to image and characterise geological information a few meters below the seafloor.
Subsea	Subsea comprises everything existing or occurring below the surface of the sea.
United Kingdom Hydrographic Office database	Database of known wrecks and obstruction held and maintained by the United Kingdom Hydrographic Office (UKHO).
Ultra-High Resolution Seismic	An acoustic system used to image submerged buried features in shallow water.
Wind turbine generator (WTG)	All the components of a wind turbine, including the tower, nacelle, and rotor.

Term	Definition
Wreck Inventory of Ireland Database (WIID)	Database holding records of over 18,000 known and potential wreck sites in Irish waters.

#### ACRONYMS AND ABBREVIATIONS

Term	Definition
AEZ	Archaeological Exclusion Zone
AMP	Archaeological Management Plan
BCE	Before Common Era
BIIS	British-Irish Ice Sheet
BP	Before Present
CD	Chart Datum
CIfA	Chartered Institute of Archaeologists
DECC	Department of Environment, Climate and Communications, previously referred to as Department of Communications, Climate Action and Environment (DCCAE)
DTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media, previously referred to as Department for Culture, Heritage and the Gaeltacht (DCHG)
DHLGH	Department for Housing, Local Government and Heritage
OECC	Offshore Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
HWM	High Water Mark
IAI	Institute of Archaeologists of Ireland
INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resource
LGM	Last Glacial Maximum
LWM	Low Water Mark
MA	Maritime Archaeology Limited
MBES	Multibeam Echo Sounder
MDS	Maximum Design Scenario
NMI	National Museum of Ireland
NMS	National Monument Service
nT	Nano Tesla

Term	Definition
PAD	Protocol for Archaeological Discoveries
SSS	Side Scan Sonar
UAU	Underwater Archaeology Unit (National Monument Service's Underwater Archaeology Unity)
UHR / 2DUHR	Ultra-High Resolution Seismic Survey / 2-Dimensional Ultra-High Resolution Seismic Survey
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
WIID	Wreck Inventory of Ireland Database
WTG	Wind Turbine Generator
ZoI	Zone of Influence



# 1. MARINE ARCHAEOLOGY MANAGEMENT PLAN

## 1.1 Introduction

Sceirde Rocks Offshore Wind Farm is a proposed offshore wind farm off the West coast of Ireland. The Marine Area Consent (MAC) was granted in June 2023 in relation to the Marine Area Planning Act 2021 and 2022, allowing the Applicant, Fuinneamh Sceirde Teoranta (FST) to occupy the maritime area.

Maritime Archaeology (MA) was commissioned by Xodus on behalf of the Applicant to provide an offshore Archaeological Management Plan (AMP) for the offshore development area related to the Sceirde Rocks Offshore Wind Farm up to the High Water Mark (HWM) and to support the application for development permission to An Bord Pleanála.

In the absence of an established code of practice for the offshore renewable industry in Ireland, this Marine AMP has been set out to agree principles and actions for all parties and sets out the archaeological mitigation of the Sceirde Rocks Offshore Wind Farm proposed development.

This document contains the recommended management plan for marine archaeology and the historic environment throughout the lifetime of the project.

This document has been compiled using baseline data which will be discussed in further detail in Marine Archaeology chapter of the Environmental Impact Assessment Report (EIAR).

The AMP is based on the TCE guidance and the Applicant will engage with the NMS prior to any activities being undertaken (or post consent) and the AMP can be updated following those discussion or the release of new guidance.

### 1.1.1 Overview

Fuinneamh Sceirde Teoranta, hereafter referred to as the 'Applicant', is proposing to develop the Project. The Project will be located approximately 5km off the west coast of Ireland.

The Offshore Development includes the Offshore Array Area (OAA) which will include up to 30 wind turbine generators (WTGs), an Offshore Substation (OSS), gravity base structure (GBS) foundations and inter-array cables (IACs), as well as an Offshore Export Cable (OEC) which will eventually make landfall near Doonbeg Co. Clare. The OEC (total length 63.5 kilometres (km)) will transition to land using a Trenchless Landfall design.

The Applicant has commissioned Maritime Archaeology Ltd. (MA) to provide a Marine AMP that will outline the expected impacts, mitigation strategies, and responsibilities of the Applicant. This Marine AMP will be used as a supporting document if and when detailed Method Statements (MSs) for archaeological works are produced.

This Marine AMP also forms an umbrella document for all survey, investigation and assessment required for the Project and will be supported by activity specific MSs as outlined in the Archaeological Written Schemes of Investigation for Offshore Windfarm Projects guidance (Crown Estate, 2021).

This document has been structured to consider required mitigation and offsetting works through archaeological assessment in relation to the following offshore phases and does not consider any area of the Project landward of the HWM.

Pre-construction:

- Survey and site investigations; and
- Seabed preparation including seabed dredging and the installation of stonebeds for GBS foundations and WTIV operations.

Construction:

- GBS foundation installation;
- Installation of inter array cables (IAC) and OEC;
- Installation of offshore substation (OSS);
- Installation of trenchless landfall (including excavation of exit pit);
- Associated vessel works – jack-up vessel, anchorage, etc.;
- Installation of cable protection measures (IAC and OEC).

Operation and maintenance:

- Presence of IAC and OEC
- Presence of Offshore Reactive Compensation Stations (ORCPs);
- Presence of GBS foundations (OSS and WTGs);
- Cable (IAC and OEC), OSS and WTG foundation reburial/repair activities
- Use of cable protection measures; and
- Maintenance and associated vessel works.

Decommissioning:

- Removal of WTG and associated GBS foundations;
- Removal of OSS and associated GBS foundation;
- Removal of exposed and accessible cables (IAC and OEC);
- Associated vessel works – jack-up vessels and anchorage.

## 1.1.2

## Purpose of this Document

An AMP sets out in detail the works required prior to and during construction, as these activities have the greatest potential to impact Historic Environment receptors. There is also consideration of potential mitigation during the operational phase of the wind farm and during future decommissioning works. This Marine AMP summarises the known and potential archaeology within the marine archaeological study area, expected impacts, and recommended archaeological mitigation methodologies. There is also consideration of potential mitigation during the operational phase of the wind farm and during future decommissioning works. This document does not consider any area of the development landward of MHWS.

Each phase of work may require a more detailed Method Statement submitted as part of a Maritime Usage Licence, detection device consent licence, or licence for archaeological excavation, where relevant. These Method Statements will be prepared by appropriately qualified professionals and submitted to the UAU. The specifications in this document, and all forthcoming MSs, are based on archaeological best practice and guidance for offshore developments.

The fundamental objectives of an AMP are set out in The Crown Estate (TCE) guidance (2021) and are as follows:

- Sets out the roles and respective responsibilities of the Applicant, contractors, Retained Archaeologist and Archaeological Contractor(s) and formal lines of communication between the parties and the UAU (Sections 1.3 and 1.8);

- Outlines the known and potential Historic Environment receptors that could be impacted by the Project (outlined in Section 1.6);
- Outlines the agreed mitigation and archaeological actions that are to take place in various circumstances (outlined in Section 1.7);
- Sets out the importance of research frameworks in setting objectives that are delivered through the realisation of work in relevant MSs (outlined in Section 1.6); and
- Provides summarised details on methodologies for these archaeological actions, which will be clarified in more detail in subsequent activity specific MSs (outlined in Section 1.7).

In demonstrating adherence to industry good practice, this Marine AMP has also been compiled with respect to available archaeological guidance for offshore developments including:

- Chartered Institute for Archaeologists (CIfA) Code of Practice and Standards and Guidance (CIfA 2014a, 2014b and 2014c); and
- Code for Practice for Seabed Development (Joint Nautical Archaeology Policy Committee (JNAPC) 2006).

This Marine AMP has been compiled by MA to accompany the EIAR.

### 1.1.3 Marine Archaeology Study Area

A marine archaeology study area has been established for the purposes of collating characterising baseline data as part of this Marine AMP. The marine archaeology study area is defined as the Offshore Array Area (OAA), the Offshore Export Cable Corridor (OECC), and a 1km buffer up to the HWM surrounding the OAA and OECC.

The additional 1km buffer allows for the consideration of direct and indirect effects on Historic Environment receptors and is designed to accommodate the potential imprecision of historic marine positions and the strong tides which can cause the scattering of shipwreck artefacts and eroded archaeological material over considerable distances.

## 1.2 Legislation and guidance

MA is a Registered Organisation with the UK based International Chartered Institute for Archaeologists (CIfA); all work conducted by MA is in accordance with the guidance and principles set out in CIfA's Code of conduct: professional ethics in archaeology (2014). The legislation, guidance and best practice as outlined in Table 1 has been consulted as part of this assessment.

*Table 1 Outline of the relevance of using certain legislation and guidance*

Legislation/ Guidance	Relevance
National Monuments Acts 1930-2014 (as amended)	Act which makes provision for the protection and preservation of national monuments and for the preservation of archaeological objects (to be repealed by section 7 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 once commenced)
Merchant Shipping Acts 1894 – 2022 (as amended)	Act which sets out the statutory role of the director of the National Museum of Ireland regarding notifications of unclaimed wreck from the assigned Receiver of Wreck and retention on behalf of the State if unclaimed wreck is of archaeological interest
Foreshore Acts 1933 – 2023 (as amended)	Act to make provision for the granting of leases and licences in respect of foreshore activities

Heritage Acts 1995 and 2018 (as amended)	Act to promote public interest in and knowledge, appreciation, and protection of the national heritage (will be repealed by the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 once commenced)
Charter on the Protection and Management of Underwater Cultural Heritage 1996	Ratified by the 11th International Council on Monuments and Sites (ICOMOS) General Assembly in October 1996 to encourage the protection and management of underwater cultural heritage
Guidelines on the Information to be Contained in Environmental Impact Assessment Reports 2022, Environmental Protection Agency	Guidance outlining the EIA Process and information required for EIA reports in relation to the EU directives. Information is provided on sourcing baseline information for archaeology and appropriate mitigation measures;
Dumping at Sea Acts 1996 – 2009 (as amended)	Act to control dumping at sea and give effect to the convention for the protection of the marine environment
Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 (as amended)	Act to provide for the establishment of a national inventory of architectural heritage and for related matters (will be repealed by section 7 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 once commenced)
Planning and Development Acts 2000 – 2022 (as amended)	Act to revise and consolidate the law relating to planning and development
Minerals Development Acts 1940 – 1999 (as amended)	Act to make further and better provision for the development of minerals and reduce or add to land specified in application to protect areas of archaeological heritage (will be repealed by the minerals development acts 2017 once commenced)
The Maritime Area Planning Act 2021 (as amended)	Provides for new consenting processes for various marine projects, including offshore renewables
Coroners Acts 1962 – 2020 (as amended)	Sets out the reporting requirements should any human remains be discovered during any of the works
Guidelines for ecological impact assessment in the United Kingdom 2006, Institute of Ecology and Environmental Management (IEEM)	Provide practical advice for all professionals involved with ecological evaluation and assessment for proposed developments.
Frameworks and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI), 1999a)	Outlines the basic principles and approaches for the protection of archaeological heritage in Ireland. It also outlines statutory roles and obligations of stakeholders
Policy and Guidelines on Archaeological Excavation (DAGH), 1999b	Forms part of overall policy on the protection of the archaeological heritage
Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) Environmental Protection Agency, 2003	Contain greater detail on many of the topics covered by the Guidelines and offer guidance on current practice for the structure and content of Environmental Impact Statements
Data and Information Sources for Offshore Renewable Energy Developments (Department of Communications, Climate Action and Environment (DCCAE) 2016, and Sustainable Energy Authority of Ireland, 2016)	Supportive documents listing all data and information sources for specialist subjects, including marine archaeology, to be used in the preparation of EIAs

Guidance on Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects (MacCabe Durney Barnes, 2017),	Outlines stakeholders, required surveys and the process of identifying and assessing impacts on archaeological receptors in Ireland
Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects, Part 1 (DCCAE, 2018a)	A non-technical summary of the baseline data requirements and monitoring that may be necessary to evaluate likely significant effects of offshore renewable energy projects on the marine environment; provides technical guidance for the baseline data requirements and monitoring necessary to evaluate potential environmental impacts of offshore renewable energy projects in the marine area. It also provides an overview of best practice in relation to conducting baseline marine environmental assessments and monitoring programmes to support consent applications for, and operation of, offshore renewable energy projects. The guidance provides specific recommendations for the baseline survey and monitoring of receptors
Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects, Part 2 (DCCAE, 2018b)	Provides technical guidance for the baseline data requirements and monitoring necessary to evaluate potential environmental impacts of offshore renewable energy projects in the marine area
Advice to the Public on Ireland's Underwater Archaeological Heritage, Department of Housing, Local Government and Heritage, 2022	Guidance on how the public can play a part in protecting the legacy of underwater wrecks, monuments and artefacts in Ireland
General preliminary requirements for a geophysical survey for archaeological purposes (Underwater Archaeology Unit (UAU), n.d.)	A word document outlining the preliminary requirements for archaeological geophysical survey, including side scan sonar, magnetometry and more general requirements
Institute of Archaeologists Ireland (IAI)	Codes of Conduct; relating to the professional practice of archaeology with the aim of improving archaeological standards throughout the island of Ireland in relation to Professional Conduct; Archaeological Assessment Excavation; Archaeological Monitoring; Treatment of Archaeological Objects; and Treatment of Human Remains
Guidance and Toolkit for Impact Assessments in a World Heritage Context, 2022 United Nations Educational, Scientific and Cultural Organisation (UNESCO)	Seek to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972	Ratified by Ireland in 1991
United Nations Convention on the Law of the Sea 1982 (UNCLOS) (as amended by the 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982)	An international agreement that establishes a legal framework for all marine and maritime activities

European Convention on the Protection of the Archaeological Heritage 1992, (Valetta Convention)	Signed by Ireland in 1997
Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972	Ratified by Ireland in 1991

## 1.2.1 Additional guidance

The above detailed Irish legislation and guidance documents have been consulted in the first instance, comprehensive Irish legislation and guidance for the marine archaeological elements of Offshore Renewable Environmental Impact Assessments (EIA) is still under development. Where appropriate, supplementary suitable guidance produced in the United Kingdom (UK) has been used, as outlined below.

The UK guidance for archaeological assessments has been referred to, this is considered appropriate given of the close geographical, historical and cultural links as well as the recent increase in UK offshore renewable wind projects and experience gained in fully incorporating marine archaeological studies in the EIA processes. Furthermore, current Irish guidance documents have also signposted UK guidance, such as Historic Environment Guidance for Offshore Renewable Energy Sector (Collaborative Offshore Wind Research into the Environment (COWRIE) 2007).

The UK guidance consulted is as follows:

- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021); and
- Commercial Renewable Energy Development and the Historic Environment: Historic England Advice Note 15 (Historic England, 2021);
- Deposit Modelling and Archaeology: Guidance for Mapping Buried Deposits, (Historic England, 2020);
- Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation (Historic England, 2011);
- Historic Guidance for Offshore Renewable Energy Sector, Collaborative Offshore Wind Research into the Environment (COWRIE, 2008);
- England's Historic Seascapes: Demonstrating the Method (SeaZone Solutions Ltd, 2011);
- JNAPC Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee, 2006);
- Marine Geophysics Data Acquisition, Processing and Interpretation (English Heritage, 2013).
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (Department of Energy and Climate Change, 2023);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble J and Leather S, 2011);
- Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014);
- Standard and guidance for historic environment desk-based assessment, Chartered Institute for Archaeologists (CIfA, 2014a);
- Standard and Guidance for Historic Environment Desk-Based Assessment, Chartered Institute for Archaeologists (CIfA, 2014b);
- Standard and Guidance for Commissioning Work or Providing Consultancy Advice on Archaeology and the Historic Environment (CIfA, 2014c);
- The Role of the Human Osteologist in an Archaeological Fieldwork Project (Historic England, 2018);



- UK Marine Policy Statement (Department of State for environment, food and rural affairs, 2011); and
- UNESCO Convention on the Protection of Underwater Cultural Heritage, 2001 (yet to be ratified by Ireland but section 137 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 (once commenced) will enable this).

## 1.3

## Schemes of Investigation

These schemes of investigation represent a general foundation for all further archaeological works that may eventually be a condition under the National Monuments Acts 1930-2014 and will be updated post-consent to detail the specific packages of archaeological works that are agreed. Individual Method Statements for each package of works will be produced to detail the nature of archaeological works to be carried out.

The Method Statements and specifications in this document are based on archaeological best practice and guidance for offshore development. The principal sources are:

- Institute of Archaeologists of Ireland Code of Professional Conduct (adopted April 2006);
- Institute of Archaeologists of Ireland Code of Conduct for Archaeological Assessment Excavation (adopted April 2006);
- Institute of Archaeologists of Ireland Code of Conduct for Archaeological Excavation (adopted April 2006);
- Institute of Archaeologists of Ireland Code of Conduct for Archaeological Monitoring (adopted April 2006);
- Institute of Archaeologists of Ireland Code of Conduct for Treatment of Archaeological Objects (adopted April 2006);
- Institute of Archaeologists of Ireland Code of Conduct for Treatment of Human Remains (adopted April 2006).
- Requirements for a Geophysical Survey for Archaeological Purposes (provided by the UAU);
- Environmental Sampling: Guidelines for Archaeologists (Environmental Subcommittee of the IAI 2007); and
- The Treatment of Human Remains: Technical Paper for Archaeologists (IAI 2004).

## 1.3.1

### Archaeological Recording, Reporting, Data Management and Archiving

Any future archaeological works will be accompanied by written reports pursuant to the requirements of those works and demonstrating appropriate planning, recording and data management and commitment to archiving and public dissemination of results.

## 1.3.2

### Method Statements

Any future archaeological works, including those required as a condition of consent, will be subject to a MS being prepared in advance of works, with appropriate time for review and agreement.

Each MS will be submitted to the UAU prior to the commencement of planned works and archaeological works will not commence unless the UAU have confirmed their agreement.

The MS will include provision for the UAU to monitor the conduct of the archaeological work as appropriate.

Unless otherwise agreed, the MSs will address the following matters:

- Form of commission and contractual relationship with the Applicant;
- Relations between licence condition(s), Marine AMP and the MS;
- Context in terms of relevant construction works;
- Summary results of previous archaeological investigations in the vicinity;
- Archaeological potential;
- Specific objectives of archaeological works, including specific research questions;
- Extent of investigation;
- Investigation methodology, to cover:
  - Intrusive methods;
  - Recording system;
  - Finds, including the policy for selection, retention and disposal and provision for immediate conservation and storage;
  - Environmental sampling strategy; and
  - Anticipated post-investigation actions, including processing, assessment and analysis of finds and samples.
- Reporting, including Intellectual Property Rights in the report and associated data, confidentiality and timescale for deposition of the report in a publicly accessible archive;
- Timetable, to include investigation and post investigation actions;
- Monitoring arrangements, including monitoring by UAU; and,
- Health, safety, and welfare.

### 1.3.3 Archaeological Campaigns

For all aspects of marine geophysical investigations, geotechnical investigations, ground truthing and watching briefs, the Applicant will adhere to standards and guidance as set out in the TCE guidance (2021). The archaeological assessment of any marine geophysical data and/or other survey data will aim to avoid significant impacts through aiding further identification and clarification of known and potential Historic Environment receptors as stated in the EIAR. The acquisition and review of new data for archaeological purposes will also contribute to effective planning of this Project and to any requirements to offset unavoidable impacts to potential archaeology.

#### Geophysical Surveys

The specification of any proposed marine geophysical surveys, whether their primary aim is archaeological or non-archaeological, will be licenced under the National Monuments Acts 1930-2014 and be carried out in compliance with the UAU guidelines and advice. All surveys will be subject to advice from an archaeological contractor to ensure that archaeological input is provided at the planning stage and to enable archaeological considerations to be reflected without compromising the primary objective of the survey. This will ensure that survey objectives can be clearly set at the planning stage and maximum value from data recovered can be derived.

Surveys whose primary objectives are non-archaeological (e.g., engineering, or environmental) will include embedded archaeological objectives within the overall survey design. Where deemed necessary, an archaeologist or geophysicist with appropriate archaeological expertise will be onboard during the acquisition of data. If archaeologists are onboard, they will advise on the suitability for archaeological purposes of the data being acquired and be able to propose minor changes to the survey method, settings, etc. to optimise archaeological results, and thereby minimise the need for repeat surveys.

Where a survey is carried out primarily to meet archaeological objectives, the specification shall be prepared by the Retained Archaeologist or an archaeological contractor and carried out by a survey contractor.



New geophysical survey data will be interpreted by an archaeologist with an appropriate level of expertise. Raw survey data, together with factual reports and track plots, will be made available in digital formats to the Retained Archaeologist and/ or archaeological contractor. The results of further geophysical interpretation will be compiled as an archaeological report consistent with TCE guidance (2021).

### Geotechnical Surveys

Archaeological involvement in the planning, acquisition and review of any geotechnical surveys including pre-construction and future monitoring surveys will be provided. Any necessary archaeological analysis of any material obtained, will follow a phased approach as outlined in COWRIE guidance (2011), to satisfy the requirements of the UAU and ensure that the required mitigation measures are delivered as outlined in Section 1.7.

The phases are:

- Phase 1: Desk Based Assessment: archaeological review of geotechnical logs and the initial formation of a deposit model;
- Phase 2: splitting and recording geotechnical cores;
- Phase 3: sub-sampling and assessment;
- Phase 4: analysis and dating; and
- Phase 5: publication and archiving.

Any future works will support the refinement of a sedimentary deposit model to improve models in order to reduce the extent to which there will be anything unforeseen in the sedimentary modelling through the addition or inclusion of new data from subsequent surveys or phases of investigation (COWRIE, 2011).

Core collection locations will be developed through early archaeological involvement in planning the geotechnical site investigation programme and will be presented to the UAU for consultation in a detailed MS.

### Diver and ROV Surveys

It is possible that certainty of the nature and extent of individual Historic Environment receptors or anomalies may only be achieved through the use of diver and/or ROV surveys. For all aspects of archaeological investigations using divers or ROVs, the Applicant will adhere to standards and guidance as set out in the TCE guidance (2021).

To maximise the potential benefits of any proposed diver/ROV surveys undertaken primarily for engineering, ecological or other non-archaeological purposes, the Applicant will seek archaeological input at the planning stage of any such works to ensure that archaeological objectives can be clearly set and maximum value from data recovered can be derived. Where the primary objectives of dive survey are non-archaeological, consideration will be given to having an archaeological contractor present during any diver or ROV surveys, either as observers or participating divers to optimise archaeological results and thereby reduce the need for repeat survey. Following the completion of a non-archaeological diver/ROV survey, all data, including video footage, will be reviewed by an archaeological contractor with appropriate expertise. All surveys will be preceded by an activity-specific MS as detailed in Section 1.9.

Where the primary objectives of diver/ROV surveys are archaeological, the diving will be led by archaeologists. An archaeological diver or ROV-based assessment may be required where additional information is required to discern the archaeological interest and/or significance of a site to apply the most appropriate mitigation. The results of these surveys will be compiled as an archaeological report

consistent with guidance within the TCE guidance (2021) and Standard and Guidance for the Creation, Compilation, Transfer, and Deposition of Archaeological Archives (CIfA, 2014d).

### Watching Briefs

Archaeological Watching Briefs by a suitably qualified archaeologist will be applicable where material of possible or known archaeological interest will be moved or removed from the seabed and can be visibly assessed.

A Watching Brief is a formal programme of archaeological monitoring and will involve attendance by an archaeological contractor during offshore works as described below:

- Excavated surfaces and material will be, where possible, inspected by the archaeological contractor;
- Any finds will be collected and allocated a record number and their position will be logged;
- Archaeological features or structures will be examined;
- Where possible, a sufficient sample of each layer/feature type will be investigated in order to elucidate the date, character, relationships and function of the feature/structure;
- Works may have to halt for consultation with client and UAU;
- Recording will include written, drawn, and photographic elements as conditions allow; and
- The archaeological results of the watching brief assessment will be compiled as an archaeological report consistent with the TCE guidance (2021).

#### 1.3.4

## Reporting and Publication

Any reports will be prepared in accordance with the guidance provided in the relevant Chartered Institute for Archaeologists (CIfA) Standard and Guidance documents and with reference to any other activity or analysis specific guidance.

Reports will detail the work undertaken and the archaeological evidence encountered. They will discuss the importance of the results including their potential contribution to archaeological knowledge and understanding.

The reports will typically include:

- A non-technical summary;
- The aims and methods of the work;
- The results of the work including finds and environmental remains;
- A statement of the potential of the results;
- An explanation of how this work is relevant to the objectives and research agendas from applicable local and national archaeological research frameworks;
- Proposals for further analysis and publication; and
- Illustrations and appendices to support the report.

Where appropriate the report will provide recommendations for further assessment and/or analysis requirements. Each report will be submitted by the Applicant to the UAU, as well as to appropriate National and Regional repositories.

#### 1.3.5

## Artefacts

Artefacts that are exposed in the course of the Project works will be recovered by the archaeological contractor or, where recovery is impracticable, recorded. From the point of discovery, all finds will be

held by the archaeological contractor in appropriate conditions pending further recording, investigation, study, or conservation.

In the event of discovery of unexpected archaeology, the Retained Archaeologist will be informed immediately in line with the current Marine AMP (as described in the PAD (Annex A)). The Retained Archaeologist will notify the relevant legal authority, the Applicant and the UAU as soon as possible, and the discovery will be referred to the UAU or other relevant authority. All recovered finds will be held by the Retained Archaeologist or appointed Archaeological Contractors in appropriate conditions pending further recording, investigation, study, or conservation, and reported via the Retained Archaeologist to the Receiver of Wreck.

In the event of the discovery of items that may be eligible for legal protection, the Retained Archaeologist will notify the relevant legal authority, the Applicant and the UAU as soon as possible.

The Retained Archaeologist will prepare and implement a finds monitoring and maintenance program, which will cross-reference to finds management/monitoring systems maintained by the Applicant, and their Contractors (for example, UXO Survey IDs).

Recovered objects will be selected, retained, or disposed of in accordance with the policy agreed with the institution receiving the archive, and in consultation with the UAU.

Contingency will be made for specialist advice and conservation needs on-site should unexpected, unusual, or extremely fragile and delicate objects be recovered.

#### 1.3.6

### Post-Fieldwork Assessment

Post-fieldwork assessment of archaeological materials is currently not expected. Should the recovery of archaeological material be deemed necessary then decisions regarding the scope of post-fieldwork assessment will be made by agreement between the Applicant and UAU following submission of investigation reports. These decisions will be based on the possible importance of the results in terms of their contribution to archaeological knowledge, understanding or methodological development.

A single post-fieldwork assessment may be carried out in respect of the investigations associated with the Project as a whole. Such an assessment may be carried out by expanding the overarching archaeological report to include proposals in respect of analysis, publication, and archiving.

This assessment will be carried out by the Retained Archaeologist or archaeological contractor, and will address where possible the character and extent, date, integrity, state of preservation and relative quality of the archaeological features or remains, along with a costing for any further research, analysis, publication, and archiving.

An assessment of the potential of the archive for further analysis may include (but is not limited to) consideration of the following elements:

- The dating and dendrochronological assessment of timbers;
- The conservation of appropriate materials, including the X-raying of metalwork;
- The spot-dating of all pottery from any investigation. This will be corroborated by scanning of other categories of material;
- The preparation of site matrices with supporting lists of contexts by type, by spot-dated phase and by structural grouping supported by appropriate scaled plans;
- An assessment statement will be prepared for each category of material, including reference to quantity, provenance, range and variety, condition, and existence of other primary sources; and
- A statement of potential for each material category and for the data set as a whole will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national investigation priorities.

Where warranted, a discrete post-fieldwork assessment may be undertaken of the specific sites or investigations in advance of assessment of the investigations associated with the scheme as a whole.

## 1.3.7

## Ordnance

In the event that any item(s) of ordnance is discovered, primacy is given to safety requirements and procedures. Industry guidelines provided by the Applicant and those set out in TCE guidance (2021) must be followed prior to any recording of items for archaeological purposes.

There is the potential for ordnance to be of archaeological interest, especially when discovered with other related material from a ship or aircraft wreck. Recording should only be undertaken when it has been assessed as safe to do so. Any firearms and ammunition (e.g., from a crashed military aircraft) are likely to be subject to the *Firearms Acts* 1968. Ammunition should be regarded as ordnance, irrespective of its size.

Where applicable, a relevant MS will set out how to deal with the discovery of ordnance. It will set out whether for this stage of works the Applicant has engaged a specialist UXO Contractor and will clearly explain the communication process between them and the Retained Archaeologist or the archaeological contractor and any potential licensing requirements.

Should ordnance be discovered on the seabed during an archaeological diver/ROV survey, it will be reported to the dive supervisor, and the dive team will follow the procedures set out in the MS. If the diver/ROV survey is for non-archaeological purposes any information about the ordnance, such as reports from the specialist UXO Contractor should be forwarded to the Retained Archaeologist undertaking the archaeological assessment of ROV survey data. This includes reports of when the ordnance has been disposed of.

Should ordnance be discovered onboard a vessel when there is no archaeologist onboard, the Contractor or specialist UXO Contractor will take the lead, and the item should be reported through the PAD, if safe to do so.

Should ordnance be discovered onboard a vessel where there is a specialist UXO Contractor onboard, the specialist UXO Contractor will take the lead. If there is no UXO contractor on-board, the archaeologist will follow procedures set out in the Archaeological Watching Brief MS.

## 1.3.8

## Human Remains

In the case of the discovery of human remains, at all times they will be treated with due decency and respect. Human remains are subject to legal requirements under the Coroners Act 1962 and should be treated with due decency and respect. In the case of accidental discovery of human remains, it is a legal obligation (Coroner's Act 1962; National Monument Acts 1930- 1994) to notify the Garda Síochána.

For each situation, the following actions are to be undertaken, and in any event, the Retained Archaeologist will inform the Applicant and UAU:

- For human remains on land and in intertidal areas, an application should be made to the Ministry of Justice for an exhumation licence under the *Burial Act* 1857;
- For human remains within territorial waters where the remains have been intentionally buried, an application should be made to the Ministry of Justice for an exhumation licence; and
- In all other cases, the Retained Archaeologist will immediately inform the Coroner and the Police.

Where practical, the human remains will be left in situ, covered, and protected. Where human remains have been found and the Project will unavoidably disturb them, the remains will be fully recorded,

excavated, and removed from the site in accordance with the granted exhumation license and the advice of an appointed Project Osteologist as per guidance in The Role of the Human Osteologist in an Archaeological Fieldwork Project (Historic England, 2018).

### 1.3.9 Conservation and Storage

All recovered materials, on land and underwater, will be subject to a Conservation Assessment to gauge whether special measures are required while the material is being held. This assessment will take place no more than four weeks after recovery.

This Conservation Assessment will be carried out by the Retained Archaeologist or an archaeological contractor with an appropriate level of expertise, with advice from appropriate specialists and guidance.

The Retained Archaeologist (where appointed) or an archaeological contractor with appropriate expertise will implement recommendations arising from the Conservation Assessment.

Specialist conservation work, based on the recommendations prepared by the Retained Archaeologist will be applied following consultation with the Applicant and the UAU. The Retained Archaeologist is responsible for all quality assurance and monitoring of works conducted.

Where no special measures are recommended, finds will be conserved, bagged, boxed, and stored in accordance with industry guidelines. The cost of long-term care and conservation of recovered artefacts will be the responsibility of the Applicant.

Storage for geotechnical samples will be carried out in line with the Environmental archaeology: a guide to the theory and practice of methods from sampling and recovery to post-excavation (Campbell et al., 2011), including keeping samples in stable conditions, away from light, air and heat; keeping relevant records safe and accessible; and avoiding long term storage wherever possible. Good practice for core storage will be outlined in a specific MS and is essential to allow for geoarchaeological analysis and sampling to be carried out effectively.

### 1.3.10 Archiving

Archiving will follow best practice as laid out within:

- Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation. Archaeological Archives Forum (Brown, 2011);
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (CifA, 2014d, updated 2020);
- Dig Digital: A guide to managing digital data generated from archaeological investigations (DigVentures, 2019); and
- Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (Section 13.5: Archiving) (Crown Estate, 2021).

Archive planning will be included within the relevant detailed MSs. Agreement with the UAU will be sought on the most appropriate archiving repository for either individual reports or the Project as a whole.

The data management plan of the archaeological archive will:

- Ensure that records and materials are well-organised, and have the potential for re-use, further research and/or other curatorial use that will further our archaeological understanding;
- Increase the opportunities for promotion of, and engagement with, the archaeological archive;

- Enable a better understanding of, and preparation for, the preservation requirements of the working Project archive prior to the transfer of the archaeological archive into a repository;
- Help ensure all relevant procedures and guidance have been considered and followed at all stages of the Project;
- Promote better collaboration between all stakeholders;
- Improve the active management of the working Project archive, the adequate location of funds and staffing, and the efficient use of available storage space and resources; and
- Implement the FAIR principles of ensuring data is findable, accessible, interoperable and reusable.

An agreement will be reached with the National Monument Service (NMS) archive for the selection, retention and disposal of excavated material, and requirements confirmed in respect of the format, presentation and packaging of archive records and materials.

All costs of archiving (whether digital, paper or object) will be met by the Applicant. Tenders for such works will include provision for the preparation and deposition of expected archive.

## 1.4 Implementation of the Marine AMP

### 1.4.1 Introduction

The primary responsibilities for the delivery of the embedded mitigation presented in the Marine AMP lies with the Applicant. Through Project documentation and procedures, the implementation of this Marine AMP will involve archaeological contractors and UAU.

### 1.4.2 Maritime Area Regulatory Authority (MARA)

The Maritime Area Regulatory Authority, or MARA, is a new state agency that was established on 17th July 2023. MARA's functions are set out in the Maritime Area Planning Acts 2021 and 2022, and it will have a key role to play in the new streamlined consenting system for the maritime area, including:

- Assessing Maritime Area Consent (MAC) applications for the maritime area, which are required by developers before development permission can be granted;
- Granting marine licencing for specified activities;
- Compliance and enforcement of MACs, licences and offshore development consents;
- Investigations and prosecutions;
- Administration of the existing Foreshore consent portfolio;
- Fostering & promoting co-operation between regulators of the maritime area.

MARA is a body under the aegis of the Department of Housing, Local Government and Heritage and will be located in Wexford.

### 1.4.3 National Monument Service

The National Monument Service (NMS) aims to preserve, protect, and promote the archaeological heritage of the Republic of Ireland. The NMS acts to advise the government on policy issues relating to archaeological heritage. The NMS is a constituent unit within the DHLGH (statutory consultee) and provides archaeological advice to government departments, agencies and local/community organisations. The responsibilities of the NMS include the management and licencing of national monuments, regulating archaeological excavations, licencing the use of detection devices, licencing of activities on historic wrecks and other underwater archaeological sites, as well as ministerial directions in relation to major infrastructural schemes.

The Underwater Archaeology Unit (UAU) of NMS has a wide remit, including quantification of the record, research, underwater survey, excavation and regulation. The UAU maintains the [Wreck Viewer](#) and Wreck Inventory of Ireland Database (WIID) which holds records of over 18,000 known and potential wreck sites and this is used as a tool to help manage and protect historic wrecks. The UAU also assesses potential development impacts on underwater archaeology by making recommendations to the relevant planning authorities and other regulatory bodies on developments which have the potential to impact on underwater archaeology.

#### 1.4.4 **National Museum of Ireland**

The National Museum of Ireland (NMI) is a designated National Cultural Institution under the National Cultural Institutions Act, 1997. Under the National Monuments Act, the NMI is a statutory consultee in relation to excavation licences, and licences for the alteration or export of archaeological material.

#### 1.4.5 **Heritage Council**

The Heritage Council established under the Heritage Act 1995 provides policy advice for government on heritage issues that include sustainability, landscape management, high nature value farming, forestry, and climate change. The Heritage Council supports a wide range of heritage projects through their annual grants programme.

#### 1.4.6 **Local Authorities**

Local authorities manage the archaeological resource in accordance with the Planning and Development Act, 2000 (as amended) and associated regulations. Local Authority Development Plans and Local Area Plans contain statutory archaeological policies and objectives. Local authorities refer applications for planning permissions to the NMS for advice and are obliged to liaise with the statutory authorities.

#### 1.4.7 **The Applicant: Implementation**

The Applicant will be responsible for implementing the Marine AMP. They will ensure that all relevant Project personnel understand the archaeological requirements, particularly those where reporting may be required by contractors through the Protocol for Archaeological Discoveries (PAD) (Crown Estate, 2014). Personnel responsible for communication of actions to the Applicant will be clearly appointed which many include specific representatives on board work vessels. The Applicant will be responsible for the delivery of the PAD in its entirety, should consent be obtained.

The Applicant will be responsible for maintaining an up-to-date record of contacts related to the delivery of mitigation. This will include archaeological consultants, contractors, and UAU.

This Marine AMP provides a framework for archaeological investigations for the Project. In support of the Marine AMP, any future archaeological works undertaken will require detailed MSs outlining methods and further mitigation. These MSs will be produced in consultation with the UAU prior to survey or construction work in order to provide a detailed methodology for each package of development or survey works.

#### 1.4.8 **Retained Archaeologist: Implementation**

Communication with the UAU is the responsibility of the Applicant. The Applicant will engage a Retained Archaeologist to implement this Marine AMP.



The Applicant will advise the Retained Archaeologist of all requirements or responsibilities related to communication with UAU and contractors, or in relation to Project timescales, plans and requirements, ensuring that the information is shared as soon as it becomes available.

The Retained Archaeologist will report to and provide advice to the Applicant to inform communication with UAU and contractors in relation to the implementation of the Marine AMP.

#### 1.4.9 **Underwater Archaeology Unit: Implementation**

1.4.10 The DHLGH have the overall responsibility of heritage matters. The Underwater Archaeology Unit (UAU) of the NMS is responsible for addressing the protection and preservation of the underwater cultural heritage in Ireland, including assessment of impacts and effects that developments will have on known or potential archaeological assets underwater.

1.4.11 The UAU will be provided with copies of all relevant project documentation and will be kept up to date with ongoing project developments.

#### 1.4.12 **Development Contractors: Implementation**

Contractors working within the marine zone, where Archaeological Exclusion Zones (AEZs) are in place and where the PAD is being used, must ensure all relevant personnel are aware of the associated requirements. The avoidance of AEZs must also note that the use of anchors and lines, which could impact upstanding features, are adequately considered in the planning of operations. This will include understanding the Marine AMP and all procedures and lines of communication for reporting unexpected archaeological discoveries.

### 1.5 **Proposed Development Details**

All offshore elements will be installed within the marine archaeology study area. The key offshore elements of the Project will be as follows:

- Up to 30 fixed foundation WTGs which will harness the kinetic energy of the wind, converting it to electrical energy. Table 5 1 shows the WTG coordinates and layout;
- Up to 31 Gravity Base (GBS) foundations (30 for WTGs and 1 for OSS);
- A network of IACs connecting WTGs to each other and to the OSS;
- OSS will collect and manage the electricity generated by the WTGs and transmit it to the onshore substation through the OEC;
- One High Voltage Alternating Current (HVAC) OEC up to 63.5 km in length within an OECC of 62 km in length and around 73 km<sup>2</sup> in area, transmitting electricity from the OSS to the OCC and ultimately connection to the Grid, via the OGC;
- Associated scour protection and cable protection (where required);
- Trenchless Landfall works including ancillary activities (e.g., excavation of landfall exit pits).

### 1.6 **Site-Specific Surveys**

#### 1.6.1 **Geophysics**

Geophysical survey data was acquired in 2022 by EGS International Ltd and included Multi-Beam Echosounder (MBES), Side Scan Sonar (SSS), Magnetometer (MAG), Sub-Bottom Profiler (SBP) across the OAA and the OEC. The archaeological assessment of geophysical data that contributes to this management plan, and the Marine Archaeology and Cultural Heritage (Chapter 17) in the EIAR, was undertaken by the Archaeological Diving Company Ltd (ADCO) (ADCO, 2023).



Additional geophysical survey was commissioned in order to ensure complete coverage following the design change of the array area. The 2023 marine geophysical survey was carried out by Green Rebel, and included multibeam and seismic survey, and took place within the array area as infill survey of the coverage carried out in the 2022 campaign (ADCO, 2024).

All marine data collected covering the OSS and OECC were assessed for archaeological potential and all anomalies found subsequently recorded. The results from the assessment are summarised in Section 1.6 and in the EIAR.

## 1.6.2

## Geotechnical

The 2023 geotechnical work was carried out by GEM and comprised Cone Penetration Tests (CPTs) and vibrocores, distributed throughout the array area and the export cable corridor. The CPTs seek to determine the geotechnical properties of sediment and are based on applying a push pressure into the seabed, with no recovery of material and no physical logging. A total of 34 vibrocores were attempted to a maximum depth of the 6 m below mean seabed (msbd) level (Figure 2). The vibrocores recovered material, and the report includes both a stratigraphic log and a photographic log of the cores, which were subject to on-site recording and off-site laboratory analysis, providing the opportunity for detailed observations (ADCO, 2024).

The 2024 geotechnical work was carried out by Geoquip aboard their dynamically positioned (DP) vessel Geoquip Saentis and comprised 17 boreholes and 2 CPTs (Figure 3). The majority were located at proposed WTG sites, with one at the proposed offshore substation (OSS) located within the array area in Grid 2; two within the export cable corridor, and one at the proposed landfall where it is intended to excavate a trenchless technology (HDD) exit pit. The boreholes achieved depths of between 5 and 30 m below seabed, and CPTs achieved between 15 and 20 m below seabed (ADCO, 2024).

## 1.7

## Summary of Archaeological and Cultural Heritage Baseline

The date and context for the marine and intertidal archaeological documents produced to date are summarised in Table 2.

*Table 2 Summary of report to date*

Archaeological document	Summary	Submitted
Environmental Impact Assessment Report (EIAR)	Identified the Historic Environment receptors of relevance to the Project OAA and OECC. Described the likely potential effects from the construction, operation, and maintenance, and decommissioning of the offshore and intertidal components (up to MHWS) of the Project on Historic Environment receptors and set out the proposed scope and methods for the Environmental Impact Assessment (EIA).	2024

ADCO Geophysical report	Assessed all marine data collected covering the Array Area and Offshore ECC for archaeological potential and all anomalies found and subsequently recorded.	2023
ADCO, (2023). Sceirde Rocks Offshore Wind Farm Marine Geophysical Survey Archaeological Interpretation 22R0105.	Geophysical survey parameters, including side scan sonar, magnetometer, bathymetry, and sub-bottom data collection as well as the archaeological interpretation of the surveys conducted in 2022.	2023
ADCO, (2024). Sceirde Rocks OWF Marine Geotech and Geophysical Survey 2023 and 2024, 23R0366ext 23D0088ext	Geophysical and Geotechnical survey parameters, including side scan sonar, magnetometer, bathymetry, and sub-bottom data collection as well as the archaeological interpretation of further surveys conducted in 2024.	2024

A summary of the known and potential archaeology within the marine archaeology study area is presented below, with a focus on Historic Environment receptors which may be impacted by the Project.

### 1.7.1 Offshore Maritime

The offshore marine archaeological resource is presented by four main classes of material and features:

- Submerged prehistoric landscapes caused by changes to sea level and eventual stabilisation of sea level at or near to the present position of the coast. Such landscapes may contain highly significant evidence of prehistoric human occupation and/or environmental change;
- Archaeological remains of watercraft deposited when vessels sank while at sea or became abandoned in an intertidal context which subsequently became inundated;
- Remains of aircraft crash sites, either coherent assemblages or scattered material, usually the result of World War Two (WWII) military conflict, but also numerous passenger casualties, particularly during the peak of seaplane activity during the World War One (WWI), though these rarely survive in the archaeological record; and
- Structural remains other than watercraft, including such elements as fish traps, abandoned quays, hards, defensive structures or sites lost to coastal erosion may be found within the intertidal zone (between MHWS and MLWS). Historic Environment receptors located seaward of MHWS have been considered in this section;

The marine archaeology study area has been assessed and described as a whole for the baseline. A summary of the baseline and records within the Array Area, Offshore ECC and 1km buffer are described below.

### 1.7.2 Submerged Landscapes

The changes in relative sea level (RSL) differ spatially across Ireland, with isostatic response greatest in the northeast. This has led to raised beaches above the present-day sea level in Antrim and Down, and drowned landscapes along the south coast (ADCO, 2023). The process, while continuous, fluctuated,

resulting in changes that are not so much incremental as they are episodic. The EMODnet Geology project has collated sources that allow for the mapping of coastline change and discovered that, for the most part it would appear that the Irish coastline has not deviated by more than about 30 km from its contemporary location throughout the past 20,000 years (providing that erosion has not significantly altered the position of cliff-lines at a large scale) (Brook et al., 2012).

Three predicted palaeocoastlines have been recorded that would have existed as Ireland was being occupied by people in early prehistoric times, and, therefore, present the possibility that physical remains of the earliest inhabitants may survive in areas associated with ancient shorelines. The first of these relates to c. 10,000 years BP, when the shoreline is considered to have been 11 km west of the present-day shoreline, corresponding broadly with the -20 m CD contour. In this context, the Sceirde Rocks would have been dry land and presenting an indented shoreline populated with many fissures that follow the bedrock's ridges and troughs. In contrast, because of the much deeper depths closer inshore, the same shoreline in the southern part of the project area lay approximately 1.5 km offshore of the current shoreline at Killard, Co. Clare. While Britain had human activity much earlier during the Palaeolithic period (0.78–0.99 million years ago), it was not until after 10,000 BP that full settlement of Ireland is considered to have occurred (ADCO, 2023).

By c. 8,000 BP, the coastline close to the array area lay 5 km west of the present-day shore offshore, while it appears to have reached with 1.5 km of the shoreline by c. 6,000 BP, at the start of the Neolithic period (ADCO, 2023). Peat deposits retaining pine stumps located in the present-day intertidal foreshore off Galway have been dated to c. 3000 BC, suggesting that RSL in this part of the Atlantic coast was probably 2-4 m lower than at present, and that the present-day coastline may have been established in the historic period at c. 500 AD, or the Early Medieval period (O'Connell and Molloy, 2017).

There are no known submerged sites within the project area. The absence of such sites, however, indicates the absence of archaeological research rather than the known absence of evidence. Consequently, the acquisition of new data associated with the current project offers the opportunity for fresh insight. Seismic data acquired as part of marine geophysical survey may yield some insight, but borehole data derived from geotechnical investigations presents better opportunities to identify strata indicative of submerged landscapes, such as peat layers in the shallower depths. Intertidal archaeological survey also presents the opportunity to record exposed strata where they exist (ADCO, 2023).

### 1.7.3

## Known Wrecks, Aviation Remains, Obstructions, Fouls and Sites

### Maritime Archaeology

Within the marine archaeology study area there is one recorded Historic Environment receptor. Historic Environment receptors can include wrecks, obstructions, fouls and discrete finds. These Historic Environment receptors are compiled from the United Kingdom Hydrographic Office (UKHO) and geophysical data assessment. The one Historic Environment receptor is that of the wreck of MFV *Arosa* which sank on 3 of October 2000, *Arosa* after striking rocks and becoming grounded in bad weather conditions. 12 of the 13 crew died in the wrecking and only six bodies have been recovered, therefore this wreck is considered a High potential anomaly.

### Aviation Archaeology

No aviation remains have been found within the marine archaeology study area, however historical records confirm that this area has been an active flight path. Research shows that records of at least two aircraft have been lost in Galway Bay; one being an Armstrong Whitworth Whitley in 1941 with the loss of three crew (<https://www2irishaviation.com/p5045.htm>)

<https://discovery.nationalarchives.gov.uk/details/r/C16689514> accessed November 2023) and the other was Transocean Air lines Douglas DC-4 in 1949 with the loss of nine passengers (<https://lugnad.ie/skymaster/> accessed November 2023).

#### 1.7.4 Geophysical Assessments

The archaeological assessment of geophysical data to date, as assessed by the ADCO (ADCO, 2023), identified one anomaly of archaeological potential within the Array Area and Offshore ECC.

All High potential anomalies have been assigned 100m AEZs.

#### 1.7.5 Research Frameworks

Currently Ireland has no formal research frameworks. Last year the Discovery Programme, Centre for Archaeology & Innovation Ireland, conducted a survey about Strategic Archaeological Research Frameworks on the island of Ireland, and has now launched a follow-up survey (CIfA, 2023).

Over 300 responses were received to the first survey, from a wide variety of backgrounds. The results indicate that there is a clear interest in the development of an island-wide strategic archaeological research framework, and the Discovery Programme is keen to engage archaeological practitioners active on any part of the island in this process (CIfA, 2023).

Building on that earlier engagement, the Discovery Programme conducted a second survey to help guide them in how best to host and develop discussions within the archaeological sector, and to help focus on key issues for inclusion in those discussions. The survey also served to generate additional information about what research is underway, and to articulate the challenges and opportunities that exist for the wider archaeological sector on the island (CIfA, 2023).

The results of this second survey helped us develop a series of participatory workshops and meetings. To date, 8 workshops have been held at various locations across the island, north and south: 7 in-person workshops in Kilkenny, Galway, Dublin, Mullingar, Enniskillen, Cork, Fermanagh and Belfast (February-March 2024), and one online workshop (June 2024) ([discoveryprogramme.ie](https://discoveryprogramme.ie)).

### 1.8 Mitigation Measures

#### 1.8.1 Introduction

Mitigation measures for marine and intertidal archaeology are split between known Historic Environment receptors which are embedded in the Project design, and unknown Historic Environment receptors which are additional mitigation measure.

The embedded mitigation measures for the Project are formulated where Historic Environment receptors and anomalies are identified in the desk-based assessment and/or geophysical assessments. These mitigation measures have been identified and adopted as part of the Project design and include Project design measures, compliance with elements of good practice and the use of standard protocols.

The embedded mitigation measures are based on guidance set out in Historic Environment Guidance for the Offshore Renewable Energy Sector (COWRIE, 2007) and TCE guidance (2021).

This Marine AMP is being developed to accompany the application for development permission and to form a framework that presents mitigation strategies aiming to avoid or minimise impact on Historic Environment receptors throughout the lifetime of the project. The Marine AMP also summarises forthcoming surveys and associated archaeological investigations prior to pre-construction works commencing.

This Marine AMP states when supporting archaeological methodologies will be required and to whom and how they are to be submitted for approval prior to work commencing, and follows the guidance detailed in Table 1 and Table 2 of the TCE guidance (2021).

Any intrusive activities associated with pre-construction works will be planned to avoid any identified or Historic Environment receptor and AEZs detailed in this Marine AMP unless other mitigation is agreed with UAU.

An archaeological post-construction monitoring plan will be developed and submitted to the UAU which will present the approach to monitoring required for the established AEZs. The archaeological post-construction monitoring plan will focus on monitoring sites of potential archaeological interest and revisiting areas that were identified as of archaeological significance during the construction phase, and to establish any impacts (positive, negative, or neutral).

The archaeological post-construction monitoring plan will further outline how geophysical survey data, drop-down video (DDV) and Remotely Operated Vehicle (ROV) imagery (if available) will be reviewed and compared with results from pre-construction data acquired for each of the features requiring monitoring as detailed in Section 1.2.

### Marine Archaeological Management Plan (AMP)

This Marine AMP sets out the recommended AEZs for known Historic Environment receptors and geophysical anomalies, provides information about areas of archaeological potential and where further geotechnical works may provide archaeological data, outlines the implementation of a Project specific PAD in accordance with the Protocol for Archaeological Discoveries: Offshore Renewables Projects (Crown Estate, 2014), sets out procedures for further works to include archaeological input even when their main purpose is non-archaeological, so that the potential for information and efficiency is maximised and outlines future monitoring and assessment requirements.

The mitigation set out in the Marine AMP will be discussed and agreed in consultation with the UAU. It is anticipated that the agreement of a Marine AMP will be a condition of the development permission.

### Avoidance

Avoidance of these Historic Environment receptors is recommended as best practise if there is potential for them to be impacted by the development.

### Archaeological Exclusion Zones (AEZ)

AEZ are recommended around all recorded wrecks and obstructions, as well as those assessed as High and Medium archaeological potential identified in the geophysical assessment. The avoidance of marine heritage assets remaining in situ follows best archaeological practice, and impact by the proposed development will be avoided through the implementation of buffers around the known extents of sites.

The Project will consider the locations of all AEZs. Where it is deemed that impacts cannot be avoided, measures to reduce, remedy or offset disturbances will be agreed with the UAU.

AEZs have the potential to be amended (enlarged or reduced) or removed at a later date, subject to further data and review. Any changes to the AEZs which may occur will be agreed with the UAU.

AEZs of 50m are recommended around anomalies of Medium archaeological potential and records for wrecks and obstructions which did not correlate with geophysical anomalies. For anomalies of High archaeological potential identified in the geophysical data AEZs of 100m are recommended.

The extent of the AEZs is based around the visible extent of the anomaly, where it can be identified. In the case of recorded anomalies not identified in the geophysical data as well as anomalies identified only in the magnetometer data the AEZs are based around the centre point of the recorded location.

For anomalies assessed as low archaeological potential no AEZ have been recommended at this time.

It is possible these anomalies could represent material from wreck sites or other marine areas of significance but are not currently identifiable as such. If these anomalies are likely to be impacted, they should be assessed on a case-by-case basis, in agreement with the UAU. Further assessment may be in the form of investigation undertaken in conjunction with ROV or unexploded ordnance (UXO) surveys.

Temporary Exclusion Zones (TEZ) as a reactive measure may be applied in the case of unexpected discoveries of potential archaeology while further investigation and assessment is carried out.

Once established, AEZs may be altered (enlarged, reduced, moved or removed) as a result of further archaeological assessment of data or field evaluation, however, the alteration of AEZs will only be undertaken with the agreement of the relevant stakeholders and the UAU. Following alteration, a new plan giving details of the current AEZs will be drawn up and issued to each relevant party.

### Protocol for Archaeological Discoveries (PAD)

There is potential for previously unknown sites or material of archaeological potential to be encountered during development works. As per the Marine AMP, a Project specific PAD will be adopted to ensure impacts to these unexpected discoveries can be reduced.

The PAD acts as a safety net alongside other mitigation measures to ensure reactive and effective reporting of any unexpected finds of archaeological potential can be investigated, assessed and potential impacts are avoided.

TEZs may be established around areas of possible archaeological potential until further investigation and assessment can be conducted.

### Archaeological Assessment of Available Data

Offshore geophysical surveys (including UXO surveys) undertaken during the life of the Project will be subject to full archaeological review, where deemed relevant by the Applicant and Retained Archaeologist. Archaeological review will be in consultation with UAU.

The archaeological assessment of geophysical data gathered to date has been undertaken by a qualified and experienced marine archaeologist. Following delivery of the survey data as specified above, the raw data were processed and interpreted as per guidance in Marine Geophysics Data Acquisition, Processing and Interpretation (English Heritage, 2013).

All anomalies of archaeological potential were assessed against the criteria in Table 3 and the results of the assessment of all datasets were further reviewed against the baseline data collated for the marine archaeology study area.

*Table 3 Definition of Archaeological Potential*

Archaeological Potential	Archaeological Definition
High	Anomalies considered to map material of archaeological interest such as wreck or aviation crash sites, buried and confirmed palaeolandscapes and their margins. As per EN-1 (March 2023), "there will be archaeological interest in a heritage asset if it holds, or

Archaeological Potential	Archaeological Definition
	may potentially hold, evidence of past human activity worthy of expert investigation at some point”.
Medium	Anomalies that consist of defined structural outlines or coherent material distributions with strong backscatter, or clearly upstanding objects with shadow, or pronounced scour features; or a combination of these, interpreted as of possible archaeological interest but where further investigation would be required for more detailed interpretation.
Low	Anomalies considered to be of anthropogenic origin but likely related to modern activity with little or no archaeological significance such as modern debris, ropes, chains or fishing gear.

Offshore geotechnical surveys prior to construction will be undertaken following early discussions with the UAU. Areas with geoarchaeological potential that may be affected by development activities will be targeted during geotechnical sampling campaigns and the results of the geoarchaeological assessment will be presented in phased geoarchaeological reports inclusive of publication. The published results will aim to enhance the palaeogeographic knowledge and understanding of the area.

Specialist archaeological input will be incorporated, as a proactive measure, into the survey methodologies and techniques through to the identification of anomalies and subsequent avoidance strategies and mitigation.

Any features assessed as having potential archaeological interest or significance will be avoided where possible, or where impacts cannot be avoided will be further investigated and risk of impacts managed. Any locations of potential geoarchaeological interest or significance that may be affected by development activities will be targeted, where possible, during geotechnical works to contribute to the characterisation of the palaeoenvironment and deposit model. Additional archaeologically specific cores will also be collected.

### Archaeological Post-Construction Monitoring Plan

An archaeological post-construction monitoring plan will be produced in line with this Marine AMP, the archaeological post-construction monitoring plan should focus on areas of identified archaeological interest and outline proposed measures to avoid or monitor such sites. It will also outline how any archaeological post-construction monitoring campaigns will collect, archaeologically assess, and report on changes Historic Environment receptors that may have occurred during the construction phase.

## 1.8.2

# The Implementation of Mitigation Measures

### Mitigation for Known Wrecks and Obstructions

There is one wreck recorded in the UKHO dataset within the marine archaeology study area. The LIVE wreck is that of MFV *Arosa*; (UKHO 58858) wrecked on 3rd October 2000, off Doonguddle rock. *Arosa* was a side trawler of typical Spanish design, built in 1974 in which fishing gear was operated over the starboard side. On 2nd of October 2000, *Arosa* was fishing off the coast of Ireland, when the vessel ceased fishing and travelled to seek shelter in Galway Bay due to a change in the weather. At the end of the working day, one crew member stayed in the wheelhouse in charge of navigational watch. During the night, *Arosa* struck rocks and became grounded in bad weather conditions. 12 of the 13 crew died in the wrecking and only six bodies have been recovered, therefore this wreck is considered a High potential anomaly and will be allocated a 100m AEZ.



The commitment to avoid all known Historic Environment receptors and to further investigate the area of impacts ensuring that unknown Historic Environment receptors are located, and impact mitigated will ensure preservation in situ, which is in keeping with current best practice.

Where Historic Environment receptors cannot be preserved in situ, justification for continued archaeological work including potential impacts will be clearly outlined in the relevant MSs produced ahead of any archaeological works and following agreement with UAU.

### Mitigation For Unlocated Historic Environment Receptors

It is possible that offshore renewable developments will subsequently identify previously unknown and unlocated sites of archaeological interest which should be considered as heritage assets within the marine archaeology study area. Unlocated Historic Environment receptors are of unknown archaeological potential and heritage significance but might still be impacted by indirect or direct impact caused by Project activities. In recent years large offshore renewable developments have located several previously unknown and unlocated sites of High archaeological significance within marine archaeology study area, even after construction.

The combination of geophysical and geotechnical surveys, within the OAA and OECC, completed to a standard where they can be archaeologically assessed and with archaeological objectives work effectively by increasing the likelihood of Historic Environment receptors becoming identified and ultimately protected. Detailed archaeological assessments aim to ensure that to the extent possible, areas of impact are clear of Historic Environment receptors ahead of any intrusive works or further mitigation and archaeological campaigns are taken.

Avoidance is considered the most effective form of protection, as per NPS EN-3 (NPS, 2011) and Draft NPS EN-3 (NPS, 2023). In the case of previously unlocated Historic Environment receptors being identified during survey or construction works, will be established via the use of the PAD reporting until further investigation can be undertaken to determine the character of the discovery. The Protocol makes provision for the implementation of TEZs around areas of possible archaeological interest, for prompt advice, and, if necessary for archaeological inspection of important features through further archaeological assessment that can take place in the form of further geophysical or ROV surveys prior to further construction in the vicinity.

These TEZs may be lifted following further investigation and in consultation with the UAU if the features are determined to be non-archaeological, or they may form the basis of an AEZ, to avoid further disturbance long-term.

The Project specific PAD will be applied during any work where unknown archaeology may be encountered and is designed to operate when it is not practical or safe for an archaeologist to be present. The PAD does not replace the process of archaeological assessment and evaluation but rather acts as a safety net in the event of unexpected discoveries during the course of works.

Implementation of the PAD helps to ensure that any adverse effects of the Project on sites, features or objects of potential archaeological significance encountered and/or recovered during Project works are reduced by establishing rapid communication between key stakeholders, who are then able to implement appropriate mitigation.

### Mitigation for Geophysical Anomalies of Archaeological Potential

The combined geophysical data assessments undertaken to identify material of archaeological potential identified anomalies of Low, Medium, and High archaeological potential within the marine archaeology study area as detailed in Table 3.



While generally no active conservation strategy is proposed, anomalies assessed as being of Medium or High archaeological potential are probably of anthropogenic origin and/or archaeological significance and have therefore been assigned AEZs based on their archaeological potential, their archaeological significance and their size as understood from the geophysical data assessment.

Preservation in situ is ensured by the commitment to avoid all known Historic Environment receptors and to further investigate areas of impacts increasing the potential for unknown Historic Environment receptors to be located.

Where items are being removed from the seabed, conservation strategies will be clearly outlined in the relevant MSs produced and submitted to the UAU ahead of any archaeological works.

Anomalies of low archaeological potential and magnetic anomalies >100 nanotesla (nT) without correlating seabed features have not been assigned AEZs due to the uncertainty of their archaeological potential. Further investigation of these sites will occur during future survey works, where possible, and avoidance of these where possible is recommended as best practise if there is potential for them to be impacted by the Project.

It is possible that geophysical anomalies could represent material from wreck sites or other Historic Environment receptors of significance but are not currently identifiable as such. If these anomalies are likely to be impacted, they should be archaeologically assessed on a case-by-case basis during the future survey works, in agreement with the UAU in order to establish their archaeological potential. If archaeological potential can be confirmed, an AEZ may be put in place to protect the heritage asset. Further assessment may be in the form of investigation undertaken in conjunction with ROV or UXO surveys when an archaeologist will be present on the vessel.

Works during the construction, operation and decommissioning phases of the Project should implement the Project specific PAD (Annex A) and any objects of archaeological potential should be reported, should an archaeologist not be present.

Within the OAA, there is one wreck, MFV *Arosa* (UKHO 58858/WIID W09419) that has been assigned a 100m AEZ.

### Mitigation for Deposits of Geoarchaeological Potential

The baseline review, supported by the geophysical survey data assessment, summarised in Section 1.6, and detailed in the ADCO report (ADCO, 2023), has provided information on the location of palaeolandscapes and areas of geoarchaeological potential within the marine archaeology study area.

It is recognised that all phases of the Project may cause direct impact to deposits which have the potential to be of geoarchaeological interest, however, the impact to the mentioned sediments will be restricted to the required burial and penetration depths, as outlined in the Maximum Design Scenario presented in Table 1-9 in the EIAR.

Any potential impact will be offset by the collection and archaeological assessment of geotechnical data, including dedicated cores for archaeological analysis. The geoarchaeological assessment will be undertaken using a phased approach to assessment and analysis of the collected geotechnical data resulting in Project reports and a deposit model as prescribed in COWRIE guidance (2011) and further outlined in Section 1.6. This collection of geotechnical data and its subsequent geoarchaeological analysis will be used to contribute to seabed mapping and modelling of submerged prehistoric landscapes, resulting in a greater understanding of the prehistoric past and the use and habitation of submerged former terrestrial landscapes.

Specific archaeological sample locations will be recommended in addition to the geotechnical samples collected for the overarching geotechnical campaign will be outlined in a specific MS.

## Mitigation for Impacts Post-Construction

To confirm the effectiveness of the established AEZs and other recommended mitigation, and the stability of Historic Environment receptors, it is expected that some Historic Environment receptors identified during the pre-construction surveys will require further monitoring.

Priority will be given to features and locations of High archaeological potential and/or significance located in proximity to installed infrastructure, particularly where archaeological potential and/or significance has been established through direct observation.

In addition to wrecks or wreck assemblages, attention will also be given to a range of feature types including discrete objects (historic anchors, aircraft components), magnetic anomalies with some degree of surface expression, possible debris, and areas of seabed disturbance.

The archaeological post-construction monitoring plan will be developed and submitted to the relevant UAU and will outline the monitoring methodology and reporting structure.

## Mitigation for Unexpected Archaeological Discoveries

Mitigation for unexpected archaeological discoveries is considered under the recommended archaeological objectives for geophysical and geotechnical surveys, and their subsequent archaeological review.

Additionally, any finds believed to be of archaeological potential that are identified and/or recovered by any operating vessels during construction, O&M or decommissioning phases and where an archaeologist is not present will be reported using the methodology outlined in the Project specific PAD (Annex A).

The Project specific PAD (Annex A) has been produced in reference to the TCE guidance (2014). The PAD aims to mitigate impact on the historic environment by enabling people working offshore to report their finds in an effective and convenient manner.

The PAD anticipates discoveries being made by Project staff who report to a Site Champion (potentially the Client Representative on the vessel or another manager appointed by the contractor), who then reports to the Project's nominated person to coordinate implementation of the PAD (the Nominated Contact) (see Section 1.3).

All discoveries of archaeological material must be reported by the Project, in accordance with the communication plan, to the Nominated Contact, who will then inform the Retained Archaeologist. If the find constitutes 'wreck' within the terms of the *Merchant Shipping Act 1995* then the Retained Archaeologist will produce a report to the Receiver of Wreck. Full contact details for all relevant parties are included in Annex A of this document.

Any finds discovered will be safeguarded for instance, kept in water in a clean, covered container. It is not recommended to remove concretion, clean the finds, or in any other way interfere with them.

Following the application of the embedded environmental measures outlined above, there may be other discoveries during offshore works or geophysical data assessments that have not been previously characterised through the archaeological assessments. Any discoveries that are of archaeological potential may require TEZs to be established.

TEZs must be respected during all activities associated with the windfarm construction, O&M, and decommissioning phases. Measures will be put in place to communicate the position of TEZs to all contractors and to monitor compliance with the TEZs during construction, O&M, and

decommissioning. As with AEZs, TEZs must also consider that the use of anchors and lines, which could impact upstanding features, are adequately considered in the planning of operations.

Following an assessment of the available data for the discovery, ground truthing or new information, the Retained Archaeologist will (in agreement with UAU), provide advice on whether the TEZ may be lifted or will form the basis of a permanent AEZ and become applicable for all activities associated with the Project across all phases of the Project.

Further archaeological works required as a result of the discovery could include survey, recording and/or excavation, to any depth likely to be impacted, prior to the impact occurring and will be detailed in a specific MS.

### 1.8.3 Further Archaeological Works

There are several recommended mitigation measures related to the various construction, O&M, and decommissioning activities. The geophysical and geotechnical surveys can be undertaken prior to construction, other actions linked to future activities, such as AEZs and the archaeological post-construction monitoring plan, which will ensure that potential impacts during the decommissioning phase will be mitigated.

Future planned works which may have an impact on potential Historic Environment receptors and where archaeological assessment will be undertaken will require detailed MSs to be agreed by UAU as per Section 1.2 in this Marine AMP.

Following TCE guidance (2021) this Marine AMP forms the framework for the assumed mitigation that will be submitted with the application to MARA, to be agreed with the Regulator prior to surveys taking place to will ensure archaeological objectives continue to be considered.

Should consent be obtained, the Marine AMP will set out the overarching approach to survey and archaeological investigation agreed by the Regulator prior to pre-construction works commencing; outline when supporting archaeological methodologies will be required and to who and how they are to be submitted for approval prior to work commencing. The datasets in the Marine AMP will be updated during the construction phase with results from pre-construction surveys.

Archaeological works may be undertaken as separate investigations depending on the timing of work or as part of other Project campaigns. Reports generated from each site investigation or survey will be made available between relevant contractors as soon as they become available.

Any future surveys that generate relevant data (both geophysical and geotechnical) will be reviewed. Generally, each phase will provide incrementally greater resolution and more complete coverage as the final scheme footprint becomes more defined.

Further archaeological works, including documents and surveys are summarised in Table 4, as per TCE guidance (2021).

*Table 4 Further Archaeological Works*

Archaeological assessment/document	Summary	Timescale
PAD training	Training for all relevant Project staff and contractors for what to do and who to contact in the event of the discovery of unexpected or unidentified archaeology.	Ongoing, the next training session is to occur prior to geotechnical surveys scheduled for 2024
Geotechnical campaign	Archaeological core sample locations will be recommended based on desk-based and Sub-Bottom Profiler data to further assess the palaeoarchaeological potential of the marine archaeology study area. A phased approach to core sampling will be undertaken to further assess where sites of palaeoarchaeological importance are located and what can be determined from the sediments they contain. All survey works will be preceded by a specific MS and include specific research questions and specific details of methodologies.	To occur post consent
Archaeological watching briefs	If deemed necessary, a watching brief to monitor sites of potential archaeological interest and/or significance. This would be preceded by a specific MS.	To occur post consent
Construction MS	A MS to set out archaeological mitigation during the construction phase following any updates to the final Agreed Marine AMP to include results from pre-construction surveys.	To occur post consent
Archaeological post-construction monitoring plan document	An outline for the archaeological post-construction monitoring plan to understand the potential changes to known archaeological sites and ensure appropriate mitigation can be established.	To occur post consent
Post-construction and O&M MSs	Specific MSs for post-construction monitoring and O&M activities.	To occur post consent

## 1.9 Responsibilities and Communication

### 1.9.1 The Applicant

The implementation of this Marine AMP document will be the responsibility of the Applicant.

Consultation with UAU will be maintained throughout the mitigation works and communication with the UAU is the responsibility of the Applicant. The Applicant may engage a Retained Archaeologist to implement the final AMP and deliver the mitigation measures set out within this AMP.

The Applicant will advise the Retained Archaeologist of all requirements or responsibilities relating to communication with UAU and site investigation and construction contractors, or in relation to scheme-wide documentation.

The Applicant is responsible for all communication with contractors engaged for site investigation and construction activities.

Curatorial responsibility for the aspects of the Project landward of MLWS resides with the terrestrial local authorities.

Communication with the UAU is the responsibility of the Applicant.

The Applicant:

- Will engage a Retained Archaeologist to implement the Marine AMP;
- May engage one or more archaeological contractors to deliver the mitigation measures set out within this Marine AMP;
- Will advise the Retained Archaeologist of all requirements or responsibilities related to communication with UAU and contractors, or in relation to scheme-wide documentation such as Environmental Management Plans; and
- Is responsible for all communication with contractors engaged for construction activities.

### 1.9.2 Retained Archaeologist/Archaeological Contractors

The Retained Archaeologist will report to the Applicant and will provide advice to the Applicant to inform communication with UAU and contractors in relation to implementation of this Marine AMP.

The responsibilities of the Retained Archaeologist are as follow:

- Responsible for ensuring that all other professional standards are maintained, throughout the life of the project;
- prepare and update WSIs and Method Statements for archaeological mitigation;
- ensure clear communication between RED, Construction contractors, the Retained Archaeologist, any appointed Archaeological Contractors, and UAU;
- ensure archaeological involvement, capacity to meet archaeological requirements and clear communication with RED's contractor(s) where warranted;
- agree and advice RED on further mitigation following archaeological works such as ground-truthing;
- consult with RED on survey specifications required for appropriate archaeological analysis to ensure that archaeological considerations are reflected in the survey design at planning stage for both archaeological and non-archaeological surveys;

- implement, provide training on and monitoring the PAD and ensure that relevant finds are reported to the Receiver of Wreck;
- develop archaeological assessment approach and methodologies for the assessment of geophysical data, geotechnical data, data from other campaigns such as diver/ROV and watching briefs to be presented in the form of a Method Statement to UAU;
- advice on specification of any proposed geotechnical surveys to ensure full understanding of the archaeological objectives at planning stage;
- responsible for the implementation, monitoring and updates of AEZs and TEZs, in consultation with UAU;
- advise on measures to optimise archaeological results the process for further investigations for sites of potential archaeological significance during non-archaeological diver/ROV surveys;
- confirm the custodianship for digital data derived from geophysical, geotechnical and visual survey activities;
- maintain a full photographic and videographic record, as appropriate;
- monitoring the preparation and submission of archaeological reports at all stages of assessment and making them available to the UAU;
- ensure provision for the management of finds, materials and archives in consultation with an appropriate museum or suitable repository and ascertain whether there are museums whose collecting policy allows them to accept finds from marine fieldwork;
- monitoring the preparation and submission of a post construction monitoring plan as appropriate and making it available to the UAU; and
- ensure final arrangements for analysis, archive deposition, publication and popular dissemination were required.

The archaeological documents submitted up to the current stage of Project are described in Table 1.1.

### 1.9.3 DHLGH and UAU

The DHLGH have the overall responsibility of heritage matters. The Underwater Archaeology Unit (UAU) of the NMS is responsible for addressing the protection and preservation of the underwater cultural heritage in Ireland, including assessment of impacts and effects that developments will have on known or potential archaeological assets underwater.

The UAU will be provided with copies of all relevant project documentation and will be kept up to date with ongoing project developments.

### 1.9.4 Construction Contractors

The construction contractors will report to the Applicant and will further:

- Familiarise themselves with the applicable requirements of this Marine AMP and make it available to their staff;
- Obey legal obligations in respect of 'wreck' and 'treasure' under the *Merchant Shipping Act 1995* and the *Treasure Act 1996* respectively;
- Respect constraint maps, AEZs and TEZs;
- Assist and afford access to archaeologists employed by the Applicant;
- Inform the Retained Archaeologist of any environmental constraints or matters relating to health, safety, and welfare of which they are aware that is relevant to the archaeologists' activities; and
- Implement the Project-specific PAD and facilitate training for relevant staff.

All legal obligations as outlined in 8.5.42 must be conveyed to the contractor.

1.10

## Arrangements for Review of the AMP

This Marine AMP has presented mitigation measures based on the archaeological assessments undertaken in preparation of the Project's EIAR to accompany the application for development permission. This document forms the framework for mitigation, following review and consultation with the relevant stakeholders (Crown Estate, 2021) and will be reviewed following development permission and any future changes taken into considerations, including relevant conditions of permission. This AMP will therefore be reviewed post consent, pre-construction.

The methodological frameworks for the archaeological analysis and interpretation of survey data are set out in this Marine AMP (submitted as part of the application for development permission) but may be reviewed in consultation with the UAU should any pre-commencement surveys take place, pre-consent to best ensure archaeological objectives are considered (Crown Estate, 2021).

MSs will be produced and submitted to the UAU for all planned archaeological works and include provision for the monitoring of progress of the investigations.

1.11

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# APPENDICES

## **ANNEX A - PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES**

### 1.12 Introduction

The Protocol for Archaeological Discoveries: Offshore Renewables Projects (PAD) is a system developed for monitoring and reporting unexpected and incidental archaeological and historical finds, sites, object or deposits where an archaeologist is not present on site or immediately available. This Project-specific PAD document should be used at all stages of the development process and should be considered as a safety net and not as a replacement for other archaeological mitigation strategies.

This PAD summarises the roles and responsibilities of the Applicant and relevant contractors and contains contact details for the Applicant's reporting chain.

This PAD has been developed based on the Protocol for Archaeological Discoveries Offshore Renewables Projects (The Crown Estate, 2014).

#### 1.12.1 Aims and Objectives

The aim of this PAD is to set out the proposed approach to mitigating the impact of the Project on the historic environment by implementing a Project-specific protocol for unexpected archaeological discoveries if encountered during the course of site investigations or construction activities.

The key objectives for this protocol are to:

- Set out procedures to be followed in order to avoid impacts on unexpected archaeological objects encountered during the course of the development programme; and
- Ensure that all contractors are familiar with the requirements of the protocol through the provision of awareness training and guidance on how to implement the protocol for on-site and office-based staff. Such training will focus on identifying, recording, and reporting archaeologically significant features and material that may be encountered during development, operation and decommissioning of the windfarm.

#### 1.12.2 Relevant Legislation

Relevant legislation is outline below:

- *Maritime Area Planning Acts* 2021 and 2022 - an Act to regulate the maritime area, to achieve such regulation by means of a National Marine Planning Framework, maritime area consents for the occupation of the maritime area.
- The *Coroners Act* 1962 – under this Act, human remains are subject to legal requirements and in the case of accidental discovery of human remains, it is a legal obligation to notify the Garda Síochána.
- *Dumping at Sea Act* 1996 (and various amendments) - Prohibits the dumping at sea from vessels, aircraft or offshore installation of a substance or material unless permitted by the Environmental Protection Agency, which can have an impact on known or potential archaeology underwater.
- *Foreshore Act* 1933 as amended - Makes provision for granting of leases and licences to the foreshore, which is defined as the bed and shore below HWM. An EIAR is required to allow for development to take place, so includes marine archaeology.

- *Heritage Act 1995* - To facilitate and promote interest, education and knowledge of national heritage through the establishment of The Heritage Council, an independent statutory body appointed by the Minister for Culture, Heritage and the Gaeltacht.
- *National Monuments Acts 1930-2016* - Ensures the provision of the protection and preservation of national monuments and archaeological objects including historic wrecks or submerged sites, such as those likely to be encountered in the study area.
- *National Monuments (Amendment) Acts 1987 and 1994* - Wrecks over 100 years old (from date of loss) and archaeological objects found underwater are protected under the act. Significant wrecks and the potential location of wrecks or archaeological objects less than 100 years old can be designated by Underwater Heritage Order on account of their historical, archaeological or artistic importance under Section 3 of the 1987 Act (Amendment).
- *Merchant Shipping (Salvage and Wreck) Act 1993* - the Merchant Shipping (Salvage and Wreck) Act, the director of the NMI has a statutory role regarding notifications of unclaimed wrecks from the assigned Receiver of Wreck and retention on behalf of the State if an unclaimed wreck is of archaeological interest.
- *Minerals Development Act 2017* - The Minister for Communications, Climate Action and Environment has a legal obligation to ensure the protection of the archaeological cultural heritage during development activities, including in the marine zone.
- *Planning and Development Act 2000* (as amended) - Requirement for development plans to include objectives relating to conservation and protection of environment, including archaeology impacted by the development.
- Annex IV (3) of the EIA Directive 2014/52/EU - This directive outlines the minimum requirements for EIAs with the objective of reducing the impact on Historic Environment receptors within the development areas. It states that in order to better preserve historical and cultural heritage and the landscape, it is important to address the visual impact of projects, namely the change in the appearance or view of the built or natural landscape and urban areas in EIAs.
- Institute of Archaeologists of Ireland (IAI) Codes of Conduct - Relating to the professional practice of archaeology with the aim of improving archaeological standards throughout the island of Ireland.:
  - Code of Professional Conduct
  - Code of Conduct for Archaeological Assessment Excavation
  - Code of Conduct for Archaeological Monitoring
  - Code of Conduct for Treatment of Archaeological Objects
  - Code of Conduct for Treatment of Human Remains
- Data and Information Sources for Offshore Renewable Energy Developments (Department of Communications, Climate Action and Environment (DCCAE) and Sustainable Energy Authority of Ireland 2016) - Supportive documents listing all data and information sources for specialist subjects, including marine archaeology, to be used in the preparation of EIAs.
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA) 2022) - Guidelines outlining the EIA Process and information required for EIA reports in relation to the EU directives. Information is provided on sourcing baseline information for archaeology and appropriate mitigation measures.
- Frameworks and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage and the Gaeltacht (DCHG) 1999) - Document outlining the basic principles and approaches for the protection of archaeological heritage in Ireland. It also outlines statutory roles and obligations of stakeholders.
- Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (DCCAE and Sustainable Energy Authority of Ireland 2017) - Guidance outlining stakeholders, required surveys and the process of identifying and assessing impacts on Historic Environment receptors in Ireland.
- Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects, Part 1 (DCCAE 2018a) - A non-technical

summary of the baseline data requirements and monitoring that may be necessary to evaluate potential impacts of offshore renewable energy projects on the marine environment.

- Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects, Part 2 (DCCAE 2018b) - Provides technical guidance for the baseline data requirements and monitoring necessary to evaluate potential environmental impacts of offshore renewable energy projects in the marine area. It also provides an overview of best practice in relation to conducting baseline marine environmental assessments and monitoring programmes to support consent applications for, and operation of, offshore renewable energy projects. The guidance provides specific recommendations for the baseline survey and monitoring of Historic Environment receptors.
- General preliminary requirements for a geophysical survey for archaeological purposes (Underwater Archaeology Unit (UAU) n.d.) - A word document outlining the preliminary requirements for archaeological geophysical survey, including side scan sonar, magnetometry and more general requirements.

Appointed personnel as detailed in the Final PAD will be responsible for the implementation of the PAD.

To ensure that the PAD is being implemented, personnel assigned a role will be required to confirm that they are willing and competent to undertake the tasks required. All relevant personnel will be provided with an introductory presentation outlining the tasks and procedures involved for successful implementation.

The appointments will be made by the Applicant in agreement with the Retained Archaeologist. The PAD document will be circulated among relevant staff and if any changes to named personnel should occur, the document will be immediately updated and re-circulated.

### 1.12.3 **Curators**

The UAU of the NMS will be responsible for heritage matters seaward of MLWS, and the local County Council landward of MLWS.

### 1.12.4 **Retained Archaeologists**

The Retained Archaeologist, when appointed by the Applicant, will act on behalf of the Applicant as liaison between the Nominated Contact and UAU. Advice on Temporary Exclusion Zones (TEZs) and mitigation strategies;

- Advise on the need for a Watching Brief;
- Advise on material conservation, identification, and character of finds;
- Advise on immediate actions to be taken in respect for the find;
- Advise on resolving ownership issues; and
- Liaise with the relevant local authorities, museums, and UAU with regard to reported finds.

### 1.12.5 **Nominated Contact**

The Nominated Contact will be the Environment Manager and/or Principal Contractor within the Applicant's Project team. The Nominated Contact will be responsible for all communications regarding archaeology recovered during the development of the Project. The Nominated Contact will take part in the introductory training session and, if the role is passed on to another member of staff, then the new

Nominated Contact will ensure that they receive suitable training to undertake the responsibilities outlined in the PAD.

The Nominated Contact will:

- Take part in PAD training;
- Keep updated records of the Retained Archaeologist and UAU contact details;
- Designate Site Champion(s) and liaise with the Site Champion(s);
- Notify the Retained Archaeologist of any finds, sites, objects, or deposits as soon as possible;
- Ensure that the records produced by the Site Champion are correct and pass all information on to the Retained Archaeologist;
- If necessary, ensure that a TEZ is established and maintained until further advice is received from the Retained Archaeologist and/or the UAU; and
- Make finds available for inspection by the Retained Archaeologist and/or the UAU.

#### 1.12.6 **Site Champion**

One Site Champion on each vessel will be appointed by the Nominated Contact. The Site Champion will:

- Take part in PAD training;
- Act as the first point of contact for technical staff and crew working on the vessel;
- Liaise with the Nominated Contact;
- Ensure that no operations take place where a feature, anomaly or artefact has been located until the Nominated Contact and Retained Archaeologist have been informed and further advice has been received;
- Examine any deployed equipment to ensure that archaeological material has not been trapped, if relevant;
- Note the occurrence, time, and exact position of any finds in the vessel's log;
- Fill in a Preliminary Record Form;
- Notify the Nominated Contact as soon as possible and pass on all logs, drawings, and photos; and
- Ensure that all finds recovered are stored appropriately in accordance with the training provided.

#### 1.12.7 **All Staff**

Staff on-board vessels that have 'eyes on the seabed' or operate in a supervisory role as well as staff from the onshore facilities at a management level with responsibilities regarding the offshore zone (particularly environmental planning) will be provided with training, where relevant, to ensure that they are aware of the reporting procedures and will report all finds, sites, objects or deposits to their Site Champion. The staff will follow the flowchart presented below in Figure 1 when reporting finds of archaeological potential.

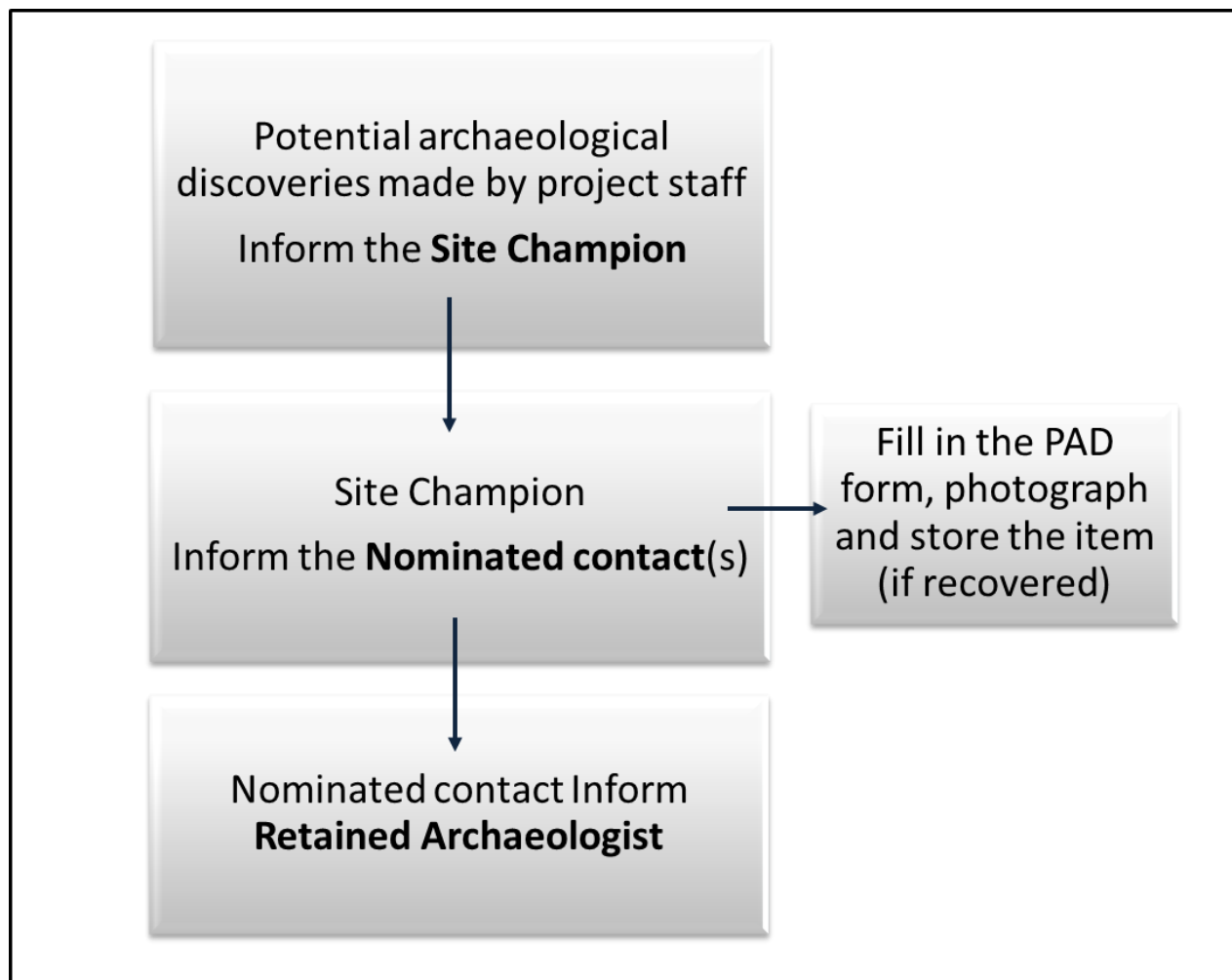


Figure 1 Basic sequence of reporting when an archaeologist is not present



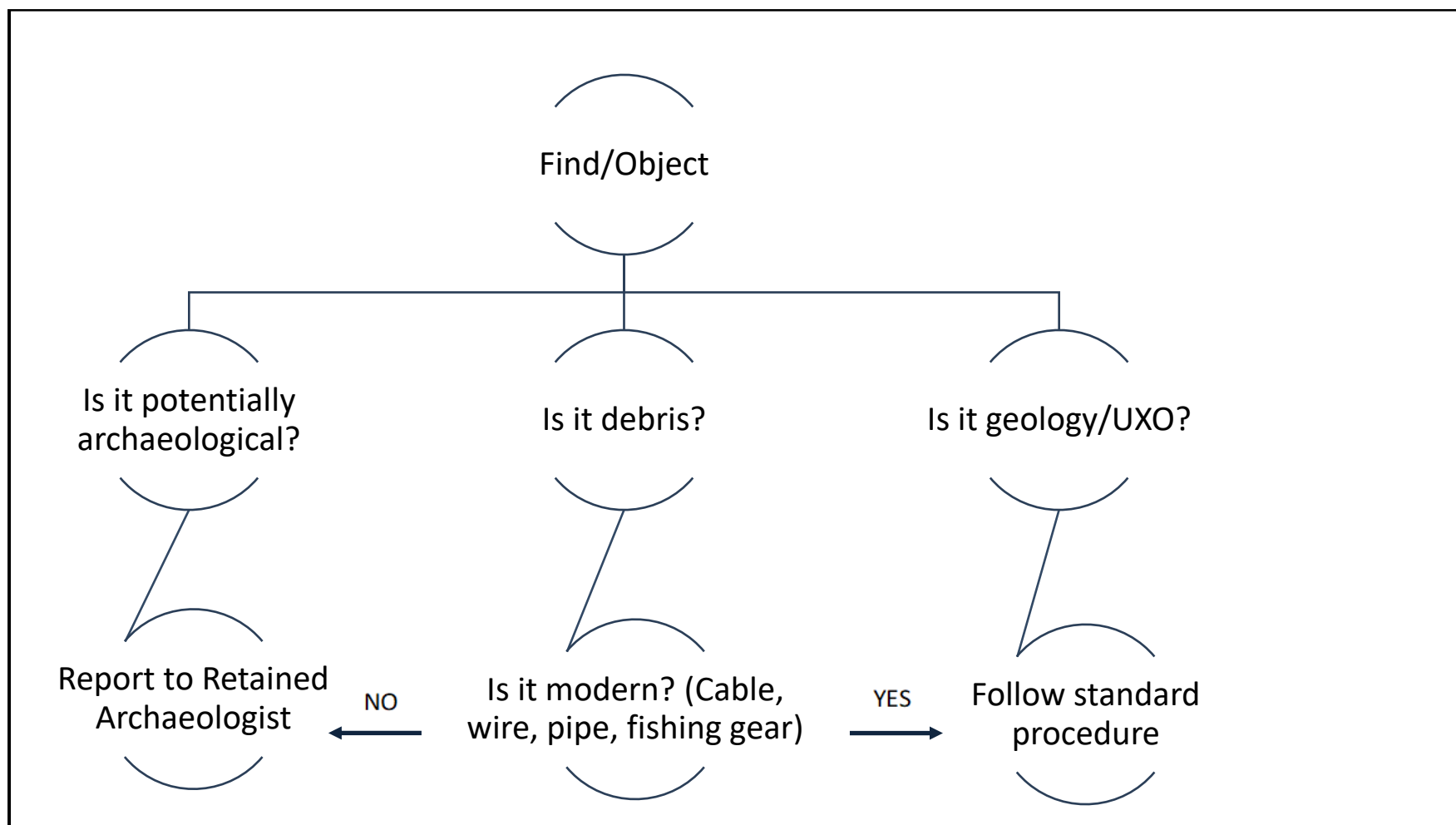


Figure 2 Reporting procedure flowchart

1.13

## Archaeological Finds Protocols

1.13.1

### Finds Identification

Finds and sites can encompass one object or a collection of objects. Table 5 outlines a summary of materials that should be reported to the Retained Archaeologist.

*Table 5 Materials of Archaeological Potential*

Material	Report to the Retained Archaeologist	Archaeological Potential
Rubber plastic and modern materials found with aluminium objects	Yes	Potential aircraft. Military aircraft are also subject to legal requirements under the <i>Protection of Military Remains Act</i> 1986 (UK).
Rubber, plastic, Bakelite and other modern materials	No	n/a
Iron and steel	Yes	Wreck/aircraft or associated debris
Concretions – iron/steel covered by a thick concrete like coating	Yes	Wreck or associated debris
Aluminium, copper, copper alloy (bronze, brass) and precious metals	Yes	Archaeologically important objects
Ordnance (cannonballs, bullets, shells)	Yes	Unexploded Ordnance (UXO) guidance should always take precedence over archaeological requirements
Animal bone, teeth, and tusks	Yes	Prehistoric animals, evidence of transport, butchering and consumption
Human bones	Yes	Human bones are also subject to legal requirements under the Burial Act 1857
Objects made of bone (combs, harpoon points, decorative items)	Yes	Archaeologically important objects
Light coloured wood, or wood that floats easily	No	Unlikely to be of archaeological interest
Roundwood with bark – such as branches	No	Unlikely to be of archaeological interest
Roundwood that has clearly been shaped or made into a point	Yes	Part of a structure

Material	Report to the Retained Archaeologist	Archaeological Potential
Pieces of wood that have been shaped, jointed, or fixed with wooden pegs, bolts, or nails	Yes	Structure or wreck
Objects made from dark, waterlogged wood (bowls, handles, shafts etc.)	Yes	Archaeologically important objects
Small to medium size stones that are shaped, polished and/or pierced	Yes	Prehistoric objects (axe heads, knife blades) of archaeological importance
Large blocks of stone that have been pierced or shaped	Yes	Anchors or weights of archaeological importance
Large collection of stones in the same area	Yes	Ballast mound or navigational cairn
Pottery	Yes	All fragments possess archaeological potential
Bricks with modern proportions and V-shaped hollows ('frogs')	No	n/a
Bricks that are unfroged, 'small', 'thin' or otherwise unusual	Yes	Archaeologically important objects
Peat (black or brown fibrous soil)	Yes	Likely of geoarchaeological interest

### 1.13.2 Finds Handling and Conservation Procedures

Table 6 summarises how the finds or objects, if recovered to the surface should be handled and stored, until passed on to the Retained Archaeologist

Here 'wet finds' refers to finds still wet when found; 'dry finds' are finds that have dried out or were found dry.

*Table 6 Finds Handling Procedures*

Wet Finds	Dry Finds
Photograph the find <ul style="list-style-type: none"> <li>Focus on the object</li> <li>One item at a time</li> <li>Additional close ups of important details</li> </ul>	Photograph the find <ul style="list-style-type: none"> <li>Focus on the object</li> <li>One item at a time</li> <li>Additional close ups of important details</li> </ul>
Fill in the Preliminary Record Form.	Fill in the Preliminary Record Form.
Place the finds in separate watertight plastic containers of appropriate size add fresh or sea water.	Do <b>not</b> put in water
Check the container regularly and top up with water when needed.	Label the container and ensure that associated finds are kept together.

Wet Finds	Dry Finds
Label the container and ensure that associated finds are kept together.	Do not clean or empty the find.
Do not clean or empty the find.	If the item breaks, do not glue it back together.
If the item breaks, do not glue it back together	Place the container in a dark, cold place.
Place the container in a dark, cold place.	

### 1.13.3 Preliminary Record Form

The reporting form as shown in Table 7 is to be used as guidance when reporting a find of archaeological potential. The information can be provided via email and presented in any format used by the contractors.

*Table 7 Preliminary Record Form*

<b>Company Name:</b>
Vessel/Team Name:
Site Name:
Date:
Time of compiling information:
Name of compiler (Site Champion):
Name of finder (if different to above):
Time at which discovery was encountered:
Vessel position at time when anomaly was encountered:
(If on land) Name of vessel from which find originated:
(If on land) Name of area from which find originated:
(If on land) Date on which find was located:
Original position of the anomaly on the seabed, if known:
Notes on likely accuracy of original position stated above (how accurate is the position and is the position the original position or has the material been moved by operations?):
Description of the find:
Apparent size of the find:
Details of any other finds recovered from the same area:
Details of photographs, drawings or other records made of the find:
Details of treatment or storage of find:
Date and time Nominated Contact informed:
General notes:
Signed: Date: