MORAY OFFSHORE WINDFARM (WEST) LIMITED

Protocol for Archaeological Discoveries and Written Scheme of Investigation (Offshore)

Document Name: 8460005-DBHA15-MWW-PLN-000001

Revision: 1

Status: Final

Date: 15-03-2022

Version Control				
Revision	Date	Status	Revision Description	Distribution List
0	11-02-22	Draft	Submission to Moray West for review	Moray West
1	15-03-2022	Final	Submission to MS-LOT	MS-LOT

Document Approval				
Prepared by:	ECoW Review by:	Legal Review:	Approved by:	Approved by:
RHDHV (Victoria Cooper, Alexia Chapman)	RHDHV (Erin Snaith)	Shepherd and Wedderburn (Scott McCallum)	Catarina Rei (Senior Development Manager)	Adam Morrison (Project Director)

Plan Overview

Purpose and Objectives of the Plan

This Protocol for Archaeological Discoveries (PAD) and Written Scheme of Investigation (WSI) (Offshore) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 (S36) consent and Marine Licences issued to Moray Offshore Windfarm (West) Limited (Moray West).

The overall objective of the WSI (Offshore) is to provide the overarching framework for the delivery of archaeological investigation and mitigation prior to, and during, the construction of the Moray West Offshore Wind Farm and Offshore Transmission Infrastructure (OfTI) (collectively referred to as 'the Development'). The PAD sets out what the Company must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development.

The PAD and WSI has been prepared by the retained archaeologist to ensure that those involved in the construction and operation of the Development, including Moray West personnel and all of the associated contractors, are aware of and understand archaeological mitigation measures, and how and when to apply them. These measures are set out to inform consultation with Historic Environmental Scotland (HES) and approval by the Scottish Minsters and are based on commitments made by Moray West and the requirements of the offshore consent conditions.

All Moray West personnel and contractors involved in the Development must comply, as a minimum, with this WSI. The PAD must be implemented in full, at all times, by Moray West personnel and their contractors.

Scope of the WSI and PAD

The scope and format of this WSI is based upon that set out in The Crown Estate guidance on *Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects* (The Crown Estate, 2021). This states that the WSI will form an umbrella document, for all survey, investigation and assessment required for an Offshore Wind Farm (OWF) project. The WSI is supported by activity-specific Method Statements (e.g., Unexploded Ordnance (UXO) investigation, boulder clearance and geotechnical vibrocore surveys). The WSI:

- sets out the roles and respective responsibilities of Moray West, contractors, retained archaeologist and archaeological contractor(s) and formal lines of communication between the parties and with Historic Environment Scotland (HES) (the archaeological curator);
- outlines the known and potential archaeological receptors that could be impacted by the scheme;
- outlines the agreed mitigation and archaeological actions that are to take place in various circumstances;
- sets out the importance of research frameworks in setting objectives that are delivered through realisation of the work; and

- provides summarised details on methodologies for these archaeological actions, which will be clarified in more detail in subsequent activity-specific Method Statements.

The PAD sets out the approach to the reporting and subsequent treatment of unexpected archaeological discoveries. The PAD will be implemented as a mitigation measure in conjunction with the proposed works, as set out in the WSI, 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.

Structure of the Plan

Sections 1 and 2 give an overview of the Development, specify the scope and objectives of the PAD and WSI and details roles, responsibilities and training. The lines of communication and chains of command along with Development reporting requirements are also described.

Section 3 outlines the known and potential archaeological receptors that could be impacted by the scheme, including a summary of previous assessment.

Section 4 provides the overarching methodologies for archaeological investigations and mitigation measures based on commitments made by Moray West and the requirements of the offshore consents conditions. Detailed archaeological Method Statements will be produced prior to survey or construction work, in order to provide a detailed methodology for each package of development or survey works, as required. The PAD is detailed in Section 5.

Section 6 addresses monitoring requirements for the WSI and the PAD.

The accompanying Appendices present Gazetteers and the Offshore Renewables Protocol for Archaeological Discoveries (ORPAD) Preliminary Record Form.

Plan Audience

The WSI and PAD are intended to be referred to by personnel involved in the construction and operation of the Development, including Moray West personnel and contractors. The WSI and PAD has also been prepared to inform agreement on the overarching approach to archaeological investigation and mitigation with the Scottish Minsters in consultation with HES. All Method Statements and archaeological technical reports produced in relation to the Development must comply with this WSI.

Compliance with the WSI and PAD will be monitored by the Moray West Development Team, the Moray West ECoW, Moray West's retained archaeologist and Marine Scotland Licencing Operations Team (MS-LOT).

Plan Locations

The latest version of this WSI and PAD can be obtained from Moray West's document management system, Viewpoint For Projects. Copies of this WSI and PAD are also to be held in the following locations:

- Moray West's main project office in Edinburgh;

- with the contractors;
- with Moray West retained archaeologist and the Environmental Clerk of Works (ECoW(s)); and
- aboard any vessels carrying out the Works.

Table of Contents

Abbreviations and Acronyms

Abbreviation	Description
AC	Alternating Current
ACOP	Approved Code of Practice
ADS	Archaeological Data Service
AEZ	Archaeological Exclusion Zone
ALARP	As Low As Reasonably Possible
AMED	Approved Medical Examiner of Divers
ASA	Archaeological Study Area
CANMORE	National Record of the Historic Environment
CaP	Cable Plan
CIfA	Chartered Institute for Archaeologists
CPT	Cone Penetration Test
DBA	Desk Based Assessment
DP	Decommissioning Programme
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GIS	Geographical Information System
HDD	Horizontal Directional Drilling
HES	Historic Environment Scotland
HMPA	Historic Marine Protected Area
JCCC	Joint Casualty and Compassionate Centre
JNAPC	Joint Nautical Archaeology Policy Committee
MHWS	Mean High Water Springs
MOD	Ministry of Defence
MS-LOT	Marine Scotland Licensing and Operation Team
OASIS	Online Access to the Index of Archaeological Investigations
O&M	Operations and Maintenance
OfTI	Offshore Transmission Infrastructure
OFTO	Offshore Transmission Owner
OMP	Operation and Maintenance Programme
ORPAD	Offshore Renewables Protocol for Archaeological Discoveries
OSP	Offshore Substation Platform
PAD	Protocol for Archaeological Discovery
PEMP	Project Environmental Monitoring Plan
PLGR	Pre-Lay Grapnel Run
PS	Piling Strategy
ROV	Remotely Operated Vehicle
RoW	Receiver of Wreck
S36	Section 36

Abbreviation	Description
ScARF	Scottish Archaeological Research Framework
TEZ	Temporary Exclusion Zone
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
VMNSP	Vessel Management and Navigational Safety Plan
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator

1 Introduction

1.1 Background

The Moray West Offshore Wind Farm and associated Offshore Transmission Infrastructure (OfTI) (referred to as 'the Development') is being developed by Moray Offshore Windfarm (West) Limited (known as 'Moray West'; see Appendix A for defined terms). Consent for the Development was granted on 14 June 2019 under Section 36 (S36) of the Electricity Act 1989 (as amended), Part 4 of the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 from Scottish Ministers. One S36 consent was granted by Scottish Ministers for the wind farm (012/OW/MORLW – 8) and two Marine Licenses were granted by Scottish Ministers, one for the wind farm (MS-00008731) and another for the offshore transmission infrastructure (06764/19/0).

A variation of the S36 consent and Wind Farm Marine Licence (licence number: MS-00008731) were granted by the Scottish Ministers on 7 March 2022. The revised S36 consent and associated Marine Licences are referred to collectively as 'offshore consents'.

1.2 Objectives of the Plan

S36 consent and marine licence conditions (referred to as 'offshore consent conditions') require the production of a Protocol for Archaeological Discoveries (PAD) and Written Scheme of Investigation (WSI) as set out in Table 1.1.

Table 1.1 Consent conditions to be discharged by this PAD and WSI

Consent Condition Reference	Condition	Addressed
S36 consent Condition 30 Wind Farm Marine Licence MS-00008731- Condition 3.2.2.24 OfTI Marine Licence 06764/19/0 - Condition 3.2.2.23	The Company/Licensee must, no later than six months prior to the Commencement of the Development/ Works, submit a Protocol for Archaeological Discoveries ("PAD") and a Written Scheme of Investigation ("WSI") which sets out what the Company/ Licensee must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development, in writing, to the Scottish Ministers for their written approval. Such approval may be given only following consultation by the Scottish Ministers with Historic Environment Scotland ("HES") and any such advisors as may be required at the discretion of the Scottish Ministers. Commencement of the Development/ Works cannot take place until such approval is granted. The Reporting Protocol must be implemented in full, at all times, by the Company/ Licensee. The final PAD and WSI must be sent to Aberdeenshire Council for information only.	This document sets out the PAD and WSI for approval by the Scottish Ministers. This document includes a commitment by Moray West to ensuring that the PAD is implemented in full at all times by their contractors. Consultation to be undertaken by the Scottish Ministers.

This PAD and WSI has been prepared to address the specific requirements of the relevant offshore consent conditions attached to the S36 consent and Marine Licences issued to Moray West.

The overall objective of the WSI is to provide the overarching framework for the delivery of archaeological investigation and mitigation prior to, and during, the construction of the Moray West Offshore Wind Farm and OfTI (collectively referred to as 'the Development'). The PAD sets out what Moray West must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development.

The PAD and WSI has been prepared by the retained archaeologist in line with current legislation and best practice guidance (as set out in Section 2.2) to ensure that those involved in the construction and operation of the Development, including Moray West personnel and all of the associated contractors, are aware of and understand archaeological mitigation measures, and how and when to apply them. These measures are set out to inform consultation with HES and approval by the Scottish Minsters and are based on commitments made by Moray West in the Environmental Impact Assessment (EIA) and the requirements of the offshore consent conditions.

All Moray West personnel and contractors involved in the Development must comply, as a minimum, with this WSI. The PAD must be implemented in full, at all stages of the Development, by Moray West personnel and their contractors. Roles and responsibilities specific to the delivery of the WSI and implementation of the PAD are set out in Section 0.

1.3 Linkages with other Consent Plans

The environmental management framework during the construction of the Development is set out in the Environmental Management Plan (EMP). Together with the PAD and WSI, the EMP is part of a group of approved documents that provide the framework for environmental management of the Development – namely the other consent plans required under the consents. Table 1.2 lists further consent plans with linkages to this WSI.

Table 1.2 WSI linkage with other Consent Plans

Other Consent Plans and Documents	Linkage with WSI
Construction Method Statement (CMS)	Specifies the Development's construction programme, methods, setting out good practice construction measures and how agreed mitigation measures from the EIA report, associated documents, consents and those stated within this WSI are implemented during construction.
Construction Programme (CoP)	
Wind Farm Cable Plan (CaP)	Contains details on environmental sensitivities and design considerations to mitigate, as far as possible, the effects of cable laying and associated protection during installation and operation of the Development. This will include the avoidance of Archaeological Exclusion Zones (AEZs) in undertaking all activities during construction and operation, and any requirements for continued avoidance of features of possible archaeological interest where possible.
Export Cable Plan (ECP)	

Table 1.2 WSI linkage with other Consent Plans	
Other Consent Plans and Documents	**Linkage with WSI**
Operation and Maintenance Programme (OMP)	Sets out the procedures and good working practices for the operation and maintenance (O&M) phase of the Development, including ongoing avoidance of AEZs for all activities during operation, and any requirements for continued avoidance/investigation of features of possible archaeological interest where required.
Piling Strategy (PS)	Piling methods and programme are detailed and includes the need to avoid AEZs in undertaking all activities during piling, and features of possible archaeological interest where possible.
Project Environmental Monitoring Plan (PEMP)	Outlines the monitoring strategy for proposed monitoring to be undertaken pre-construction, during construction and post construction including the integration of archaeological objectives. These objectives will be set out in subsequent activity-specific archaeological Method Statements prepared under the umbrella of this WSI.
Development Specification and Layout Plan (DSLP)	Set out the final design and layout parameters associated with the Development, Presents seabed features of archaeological potential and exclusion zones.
Vessel Management and Navigational Safety Plan (VMNSP)	Provides the management and coordination of vessels to mitigate the impact of vessels, including the avoidance of AEZs when deploying vessel anchors.

1.4 Document Structure and Control

The structure of this WSI is provided in Table 1.3.

Table 1.3 WSI document structure		
Section	**Title**	**Summary of Content**
1	Introduction	An overview of the Development and its associated consent requirements.
2	Approach to Written Scheme of Investigation	Defines the approach taken to the WSI and the delivery of archaeological investigation and mitigation and defines the roles, responsibilities and communications for all parties in agreeing the approach and delivering Moray West's commitments.
3	Archaeological Baseline and Impact Assessment Summary	Sets out the known and potential archaeological baseline and summarises the mitigation and management measures for any effects on the marine historic environment caused by the Development, including commitments made in the EIA.

Table 1.3 WSI document structure		
Section	**Title**	**Summary of Content**
4	Approach to Investigation and Mitigation	Sets out the framework for how marine archaeological investigation, mitigation and monitoring will be delivered and reported.
5	Protocol for Archaeological Discoveries	Sets out what Moray West and their contractors must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development.
6	Monitoring Requirements	Sets out monitoring requirements for the WSI and PAD and to ensure the effective delivery of mitigation, including AEZs, and the relationship between these monitoring requirements and those applicable to the Development as a whole (i.e. pre-construction and post -construction geophysical survey).
Appendix A	Defined Terms	List of terms using in the WSI and PAD requiring definition
Appendix B	Gazetteers	Full details of identified palaeogeographic and seabed features as relevant to the application of mitigation. First draft will include those from the EIA Report with the final WSI including the results of the archaeological assessments undertaken by Wessex Archaeology.
Appendix C	ORPAD Preliminary Record Form	A preliminary record form for staff and contractors to record initial information on the nature of discoveries to be reported under the PAD.

1.4.1 Document Control

This WSI and PAD has been prepared for approval by the Scottish Ministers and to inform consultation on the approach to the delivery of archaeological investigation and mitigation prior to, and during, the construction of the Development, with Moray West, HES, and any other advisors as may be required at the discretion of the Scottish Ministers. This version of the WSI and PAD will be updated at a later date to incorporate the results of geoarchaeological and archaeological assessments of marine geophysical data which is currently being progressed by Wessex Archaeology, before resubmission for reapproval by Scottish Ministers.

Linkages exist between a number of offshore consent plans as highlighted in Section 1.3 within Table 1.2. As plans are updated, there will be a review of inter-linkages with other consent plans to ensure these are also updated as relevant. The document is controlled via Viewpoint For Projects, an electronic document management system.

Prior to the Commencement of the Development, this WSI and PAD will be updated and submitted as final and will thereafter be a 'point-in-time' document, with the specific methodology for any subsequent package of archaeological works to be taken forward through the archaeological Method Statements (see Section 2.3) produced under the umbrella of the WSI and agreed with HES. This will include construction specific approaches to ensure continued avoidance of AEZs and any further features of possible archaeological interest which must be avoided and, prior to commissioning, an Operation and Maintenance (O&M) Method Statement to ensure continued adherence to the PAD and avoidance of AEZs throughout the operation phase of the Development.

2 Approach to Written Scheme of Investigation

2.1 Study Area

The Moray West Site covers an area of approximately 225 km^2 on the Smith Bank in the Outer Moray Firth approximately 22 km from the Caithness coastline (Figure 2-1).

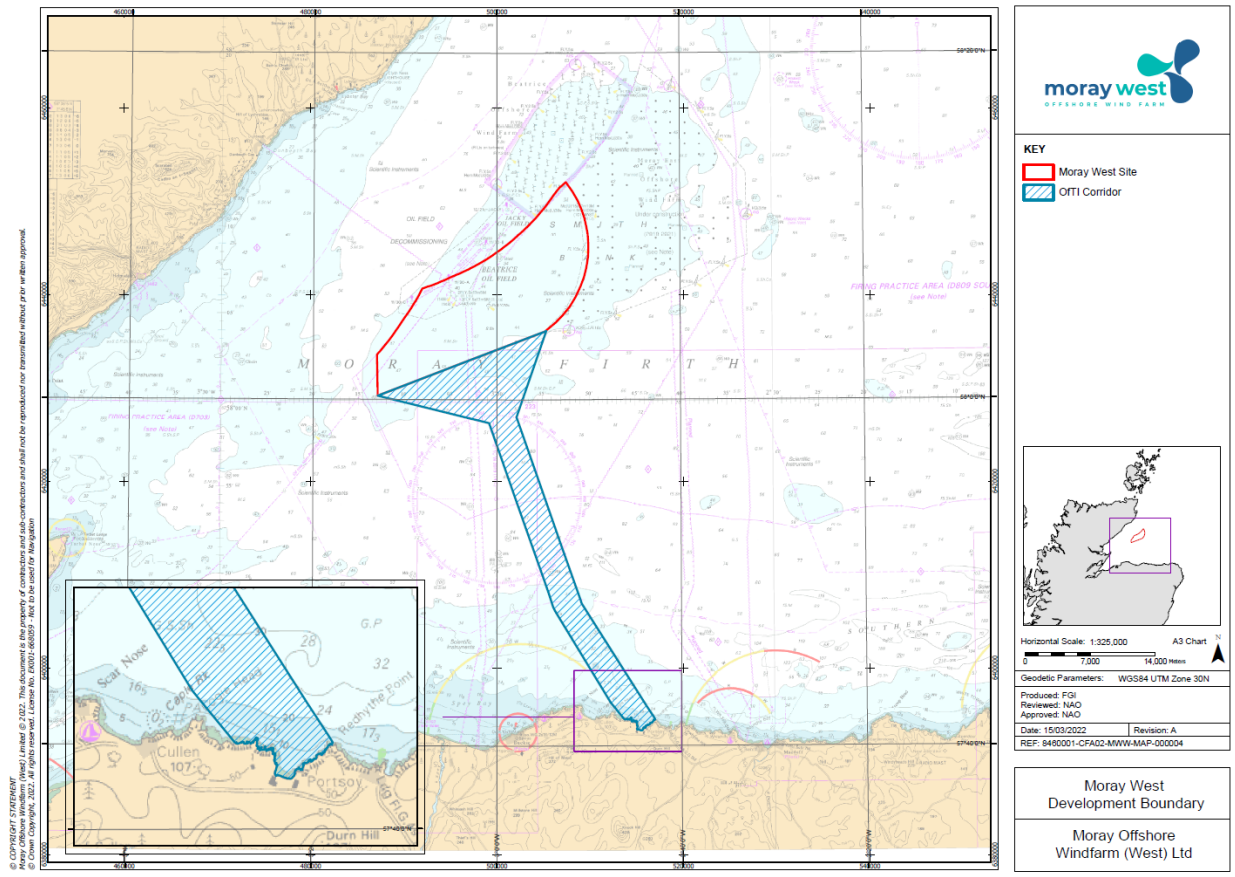


Figure 2-1 Geographical location of the Moray West Site and OfTI Corridor.

For the purpose of the archaeological assessment undertaken for the Moray West EIA Report (Moray West, 2018), a study area referred to as the Development Archaeological Study Area (ASA) was defined to include:

- Moray West Site ASA (including a 2 km buffer); and
- OfTI ASA (including a 2 km buffer except where this would overlap with the Moray West Site ASA and also excluding all areas above Mean High Water Springs (MHWS)).

The 2 km buffer around the two ASAs was included to account for potential effects associated with scour and sedimentation, to address uncertainty regarding the spatial accuracy of offshore cultural heritage

records and to account for the potential for cultural heritage features to extend beyond the boundaries of both the Moray West Site and the OfTI Corridor.

The baseline set out in Section 3 is described with reference to this ASA.

However, as no works will take place beyond the consented boundary for the Moray West Site and OfTI, and with the acquisition of additional site specific geophysical survey data (see Section 4.1) the study area as relevant to the delivery of this WSI and PAD corresponds to the licensed areas only (without the 2 km buffer).

2.2 Scope of Document

This WSI has been prepared in accordance with 'Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects' (The Crown Estate, 2021). As stated in The Crown Estate guidance, a WSI forms an umbrella document, for all survey, investigation and assessment required for a project, supported by activity-specific method statements. A WSI:

- sets out the roles and respective responsibilities of the project team, contractors, and retained archaeologist and archaeological contractor(s) and formal lines of communication between the parties and with archaeological curator(s) (Section 0);
- outlines the known and potential archaeological receptors that could be impacted by the scheme (Section 3.2, Section 3.3 and Section 3.4);
- outlines the agreed mitigation and archaeological actions that are to take place in various circumstances (Section 3.6);
- sets out the importance of research frameworks in setting objectives that are delivered through realisation of the work (see below); and
- provides summarised details on methodologies for these archaeological actions, which will be clarified in more detail in subsequent activity-specific method statements (Section 4 and Section 5).

This document has been prepared to set out the overarching approach to survey and archaeological investigations for agreement with the Scottish Ministers in accordance with the relevant offshore consent condition (Table 1.1). Approval of this WSI and PAD may be given only following consultation by the Scottish Ministers with HES and, once approved, the final document will be sent to Aberdeenshire Council for information only.

The Crown Estate document sets out high level guidance on a range of archaeological methodologies that may be required in the production of WSIs and method statements. For each individual work package set out in Section 4, account has been taken of these standards, high level methodologies and each section sets out how these are relevant to the delivery of the Development and explain any necessary adaptations and amendments for approval by the Scottish Ministers in consultation with HES.

Survey and work package specific archaeological objectives will be established on a case-by-case basis with reference to all relevant project datasets (and associated archaeological and geoarchaeological

interpretations) and to other relevant research and investigations with specific reference to established research agendas, including (but not limited to) the Scottish Archaeological Research Framework (ScARF) and with specific reference to the ScARF Marine and Maritime theme (Atkinson and Hale, 2012).

In demonstrating adherence to industry good practice, this WSI also draws upon available archaeological guidance for offshore development including:

- Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014);
- Chartered Institute for Archaeologists (CifA) Code of Practice and Standards and Guidance (CifA 2014a, 2014b, 2014c, 2014d);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather 2011);
- Historic Environment Guidance for the Offshore Renewable Energy Sector Guidance (Wessex Archaeology 2007); and
- Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee (JNAPC) 2006).

2.3 Method Statements

Once approved, this WSI and PAD will become finalised, and represent a 'point in time' document. The methodology for further archaeological work packages will be set out in method statements as necessary, according to the requirements of the WSI, and appended to it. Each method statement will be prepared by the retained archaeologist (the archaeological consultant retained by Moray West to support and coordinate the implementation of the WSI) in consultation with Marine Scotland Licensing and Operation Team (MS-LOT) and HES.

The objectives for each work package will be set out in the method statement and will take account of applicable objectives from the relevant research framework (ScARF) that will be addressed through the delivery of the work.

As set out in The Crown Estate (2021) guidance, method statements should cover the following key matters, as relevant to each work package:

- specific objectives of archaeological works;
- extent of investigation;
- investigation methodology, to cover:
    - intrusive methods;
    - non-intrusive methods;
    - recording system;
    - finds, including the policy for selection, retention and disposal and provision for immediate conservation and storage;

- environmental sampling strategy;
- relation between licence condition, WSI, PAD and the method statement;
- context in terms of relevant construction works;
- summary results of previous archaeological investigations in the vicinity;
- archaeological potential;
- 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 archaeological curator(s); and
- health, safety and welfare.

2.4 Roles and Responsibilities

Overall responsibility for the implementation of this WSI and PAD lies with Moray West who will ensure that its agents and contractors are contractually bound to adhere to the terms of the WSI and to implement the PAD. However, all Moray West staff and contractors also have a responsibility to comply with the requirements of the WSI.

Table 2-1 details the roles and responsibilities with respect to delivering the WSI and PAD.

Table 2.1 Key responsibilities of personnel relevant to this WSI and PAD	
Moray West Development Team	
Responsibilities:	The Moray West Development Team will act as a first point of contact for Development staff and will liaise with the retained archaeologist regarding the implementation of mitigation measures with respect to archaeology and cultural heritage. Specifically, the Development Team will be responsible for: • Engagement of and continuing liaison with the retained archaeologist; • Approval of the WSI and associated method statements and technical reporting on behalf of Moray West; • Ensuring ongoing compliance with the WSI, supported by the retained archaeologist; • Reporting, returns and notifications to MS-LOT and HES as required by the Development consents; and • Distribution of archaeological briefing notes (see Section 2.5) to contractors and ensuring the inclusion of archaeological requirements at mobilisation/kick off meetings as advised by the retained archaeologist. Contact details for the Moray West Development Team are: • Moray West Development Team

Table 2.1 Key responsibilities of personnel relevant to this WSI and PAD	
	• Moray Offshore Windfarm (West) Limited • Email: development@moraywest.com
Moray West Environmental Clerk of Works (ECoW)	
Responsibilities:	With respect to this WSI and PAD the ECoW is responsible for: • Quality assurance of final draft versions of all plans and programmes, including this WSI and PAD; • Monitoring compliance of the Development with the consent conditions and Consent Plans; and • Monitoring that the Development is being constructed in accordance with the Consent Plans (including this WSI), consent conditions and in compliance with all relevant regulations and legislation.
Moray West Retained Archaeologist	
Responsibilities:	Moray West has retained the services of Royal HaskoningDHV to act as the retained archaeologist and the initial point of contact for the Moray West Development Team. Specific responsibilities include: • Compiling, reviewing and updating this WSI following consultation with Moray West, the regulators (MS-LOT) and curators (HES); • Advising Moray West on their responsibilities regarding the implementation of the WSI and PAD; • Compiling, agreeing and issuing any necessary method statements for archaeological contractors to adhere to, following consultation with Moray West and the regulators and curators (HES); • Advising Moray West on the necessary interaction with the regulators, curators (HES) and other third parties; • Develop and deliver training on relevant aspects of the WSI and PAD to Moray West personnel including input to inductions, presentations, and production of awareness materials; • Supporting Moray West in procuring, monitoring the work of, and liaising with specialist archaeological contractors, where necessary; • Monitoring the preparation and submission of archaeological reports as appropriate and making them available to the regulators and curators (HES) for review and approval; and • Advising Moray West on any final requirements and arrangements for further assessment, analysis, archive deposition, publication and popular dissemination. Contact details for the retained archaeologist at Royal HaskoningDHV, currently engaged to support the implementation of archaeological requirements is: • **Victoria Cooper**

Table 2.1 Key responsibilities of personnel relevant to this WSI and PAD	
	• Senior Marine Heritage Consultant • Royal HaskoningDHV • Tel: 07775536772 • Email: victoria.cooper@rhdhv.com
Archaeological Contractors	
Responsibilities:	For each package of archaeological works considered necessary, as agreed the regulators and curators (HES), Moray West or their agents will, as required, procure the services of specialist archaeological contractors with the requisite experience and expertise to undertake the necessary works. The specific roles and responsibilities of the archaeological contractors will be set out in the relevant method statement for the works.
Moray West Personnel and Contractors	
Responsibilities:	All Moray West personnel and contractors shall ensure that their own procedures encompass and fully discharge the mitigation and management measures and commitments presented in this WSI and PAD. Adherence to the Moray West WSI and PAD will be a contractual requirement. All agents and contractors engaged by Moray West will: • Familiarise themselves with the requirements of this document and make it available to their staff and sub-contractors, explaining the requirements and need for strict adherence; • Ensure the implementation of and adherence to this document by their staff, including ensuring staff awareness of the PAD through dissemination of brifing notes and making staff available for mobilisation/kick off meetings; • Assist and afford access to archaeological contractors as advised by Moray West and the retained archaeologist; and • Inform the retained archaeologist and any archaeological contractors of any environmental or health and safety constraints of which they may be aware that is relevant to the archaeologist's activities on site.
Offshore Client Representatives	
Responsibilities:	Offshore Client Representatives will act as 'Site Champions' under the PAD, a single person on each vessel (or within each worksite team) who is responsible for reporting discoveries to the Nominated Contact (the Moray West Development Team). The responsibilities of a Site Champion are to: • Implement and ensure observation of Temporary Exclusion Zones (TEZ) (see Section 4.3) if required; • Confirm details of discovery and ensure preliminary record forms are completed;

Table 2.1 Key responsibilities of personnel relevant to this WSI and PAD	
	• Inform the Moray West Nominated Contact (the Moray West Development Team); and • Feed back information to site staff.
Relevant Authorities	
Responsibilities	MS-LOT, acting on behalf of Scottish Ministers, is responsible for discharging / ensuring compliance with Moray West's consent conditions. HES is the statutory body for archaeology and cultural heritage within Scotland including marine archaeology in waters adjacent to the Scottish coast up to the mean high water mark and out to 200 nautical miles. In the event of a significant discovery, HES and MS-LOT will be informed of any archaeological or cultural heritage finds, and will as soon as reasonably practicable: • Liaise with other relevant archaeological authorities; • Advise on proposals to further evaluate any finds; and • Advise on proposals to mitigate the effects of work activities upon any finds, if required.

2.5 Training and Awareness

Moray West and their contractors shall ensure that all employees and sub-contractors are made aware of the content of the WSI and PAD that is applicable to them.

For each relevant work package (as advised by the retained archaeologist) a briefing note will be prepared by the retained archaeologist to set out the responsibilities of all staff and contractors engaged in undertaking works within the project boundaries of the Development with respect to archaeology and cultural heritage. Moray West and their contractors will be responsible for ensuring that all relevant staff are issued the briefing note in advance of works commencing and will also ensure awareness through kick off and mobilisation meetings. This may be delivered as a targeted induction or as part of a larger site induction. Inductions to the site shall include, as a minimum:

- identification of specific archaeological impacts associated with the work to be undertaken on site by the inductee;
- any site or task specific mitigation that is required in order to comply with commitments made in the WSI including, for example, the avoidance of AEZs and additional anomalies and adherence to the PAD in the event of an unexcepted discovery;
- role of the retained archaeologist and contact details;
- key roles defined in the PAD (i.e., Nominated Contact and Site Champions) and contact details; and
- any other relevant information including work package specific tasks to support the delivery of this WSI and PAD.

For specific work packages a tailored toolbox talk may also be required to be provided by the retained archaeologist as relevant. For example, for surveys/site investigations additional training may be required to ensure that all operatives are fully informed of the archaeological objectives and requirements for acquiring and delivering data as necessary to understand the archaeological interest of investigated features. The retained archaeologist will advise Moray West when, and for which work packages, tailored toolbox talks will be required. Training will be provided by the retained archaeologist or archaeological contractor as relevant to the specific work package.

3 Archaeological Baseline and Impact Assessment Summary

3.1 Summary of Assessments to Date

Assessment to inform the archaeology and cultural heritage baseline for the Moray West offshore EIA report (Moray West, 2018) was undertaken by Wessex Archaeology within an ASA comprising the extents of the Development plus a 2 km buffer. This included:

- A desk based assessment (DBA) to inform the offshore and intertidal baseline, including reference to:
    - The United Kingdom Hydrographic Office (UKHO) data for charted wrecks and obstructions;
    - The National Record of the Historic Environment (CANMORE) maintained by HES, comprising data on designated heritage assets including sites protected under the Protection of Military Remains Act 1986 and the Marine (Scotland) Act 2010 (i.e. Historic Marine Protected Area (HMPAs);
    - Relevant mapping including Admiralty Charts, historic maps and Ordnance Survey; and
    - Relevant documentary sources and grey literature held by Wessex Archaeology, and those available through the Archaeological Data Service (ADS) and other websites.
- The archaeological assessment of marine geophysical data (sidescan sonar, magnetometer, sub-bottom profiler and multibeam bathymetry) acquired from the Moray West Site only by Osiris Projects in 2010;
- Geophysical data were not acquired from the OfTI at this time although impacts were assessed using desk-based sources and data have since been acquired from the OfTI in 2018/2019 and 2021 (see Section 4.1).

The geophysical data acquired in 2010 from the Moray West Site consisted of 23 main lines at 600 m line spacing and 30 cross lines orientated at 1000 m line spacing (Osiris Projects 2011). There is a 6 km gap in the cross lines to south-west of the centre of Moray West Site (Figure 3-1). The geophysical data were assessed for quality and their suitability for archaeological purposes as follows:

- The sidescan sonar data was rated as average with a number of lines displaying signs of noise in the data. The data was acquired with a wide range setting of 200 m although data coverage was only achieved to approximately 125 m on each channel which made the identification of small objects difficult. However, overall the data quality was found to be suitable for the identification of larger objects;
- The magnetometer data was rated as average with a degree of geological background noise across the Moray West Site which may have masked smaller anomalies. Due to the wide line spacing it is possible that unidentified ferrous material may be present between the survey lines;

- The multibeam bathymetry data was rated as good using the above criteria. The data quality and resolution of 1 m was found to be of a good standard and suitable for archaeological assessment of objects and debris over 1 m in size; and
- The quality of the sub-bottom profiler data was rated as good, with reflectors clearly visible and little background noise identified.

Further geophysical survey within the Moray West Site and OfTI Corridor was carried out in 2018/2019 and in 2021 and the data will be subject to archaeological assessment by Wessex Archaeology (see Section 4.1). Prior to the Commencement of Development, this WSI will be updated with the results of this work.

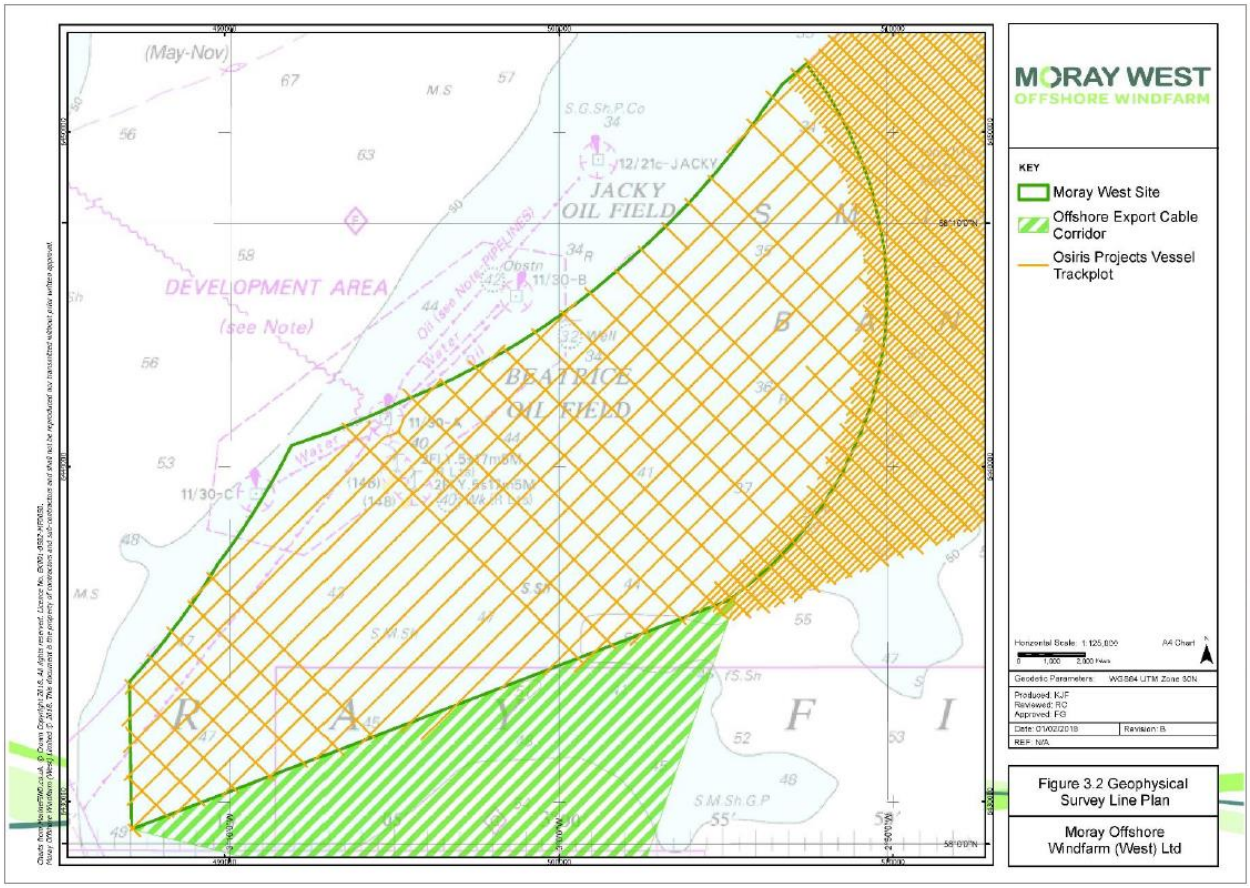


Figure 3-1 Geophysical survey line plan (Figure 3.2 in Wessex Archaeology, 2018)

3.2 Seabed Prehistory

There are no known prehistoric sites within the ASA.

The potential for previously undiscovered archaeological material of prehistoric date to exist within the ASA was assessed by Wessex Archaeology (2018) with reference to a generalised Quaternary stratigraphy based on the sub-bottom profiler data acquired by Osiris Projects in 2010, secondary sources (Andrews *et al*. 1990; BGS 1984a; BGS 1984b) and boreholes from the adjacent lease area for Moray East Offshore

Wind Farm (Wessex Archaeology 2014; MORL 2012). This potential is summarised with respect to interpreted stratigraphic units in Table 3.1.

Table 3.1 Generalised Stratigraphy of the ASA

Stratigraphic Unit	Formation Unit	Description	Environment	Archaeological Potential
Seabed sediments	Holocene Marine	Silty, gravelly sand with occasional shell and organics	Outer estuarine/Marine	Considered of low potential in itself, but possibly contains re-worked artefacts and can cover wreck sites and other cultural heritage.
7	Holocene Estuarine	Well laminated soft silty clays and fine sands with some peaty clays	Possible estuarine, alluvial or terrestrial	High archaeological and palaeoenvironmental potential. Could contain in-situ and/or reworked artefacts and environmental material
6	Devensian	Muds and sandy muds	Periglacial, possible glaciolacustrine	Very low potential due to proximity to ice sheet
5	Devensian	Muddy sands and sandy clays with sands and gravels – Ablation till	Sub glacial/Glacial	Very low potential due to period of ice coverage
4	Devensian	Laminated gravelly, silty clays	Glaciomarine	Very low potential due to period of submersion and close proximity to ice sheet
3	Devensian	Laminated silty clays – Possible reworked Unit 1	Glaciomarine	Very low potential due to period of submersion and close proximity to ice sheet
2	Devensian	Sands	Sub glacial/Glacial	Very low potential due to period of ice coverage
1	Devensian	Gravelly Clay – Till	Sub glacial/Glacial	Very low potential due to period of ice coverage
Bedrock	Cretaceous Bedrock	Mudstone and Sandstone		None – too old to be of archaeological potential

In summary, only Unit 7 is considered to have relatively high potential for the presence of prehistoric archaeological and palaeoenvironmental material. Wessex Archaeology (2018) suggest that this Unit, defined as Holocene in age, was potentially deposited at a time when the ASA was exposed as a terrestrial environment after the last glacial period, post ice retreat but prior to the Holocene marine transgression.

The layers of peats and silts suggest the presence of organic material within these sediments which would support the evidence of a land surface, and therefore suitable for human occupation and settlement.

No individual paleogeographic features (e.g., individual buried palaeochannels) of archaeological interest were identified within the sub-bottom data assessed by Wessex Archaeology (2018). Unit 7 was interpreted as present across a large expanse of the ASA, ranging from 0.5 m to approximately 40 m below the seabed. Some stronger reflective layers of sediments were observed within this unit, which may indicate the presence of more organic or peaty material. A sporadic coverage of gas chimneys was also visible within this layer, which further implies the presence of organic material within or at the base of this layer.

Wessex Archaeology (2018) also suggest that the unit has the potential to contain material of palaeoenvironmental interest which may aid in dating the deposits and determining whether they were deposited on dry land (high archaeological potential), under decaying ice sheets, or under full marine conditions (low archaeological potential).

Boreholes, acquired during a geotechnical survey within the Moray West Site in 2018/2019, and vibrocores, acquired during a geotechnical survey within the Moray West Site and OfTI Corridor in 2021, are currently undergoing geoarchaeological assessment by Wessex Archaeology (see Section 4.2). Prior to the Commencement of the Development, this WSI will be updated with the results of this work.

3.3 Maritime and Aviation Sites

The DBA and the assessment of the 2010 geophysical survey data, acquired by Osiris Projects from the Moray West Site, resulted in the identification of 39 features of archaeological interest within the ASA, 29 within the Moray West Site ASA (Figure 3-2) and ten within the OfTI Corridor ASA (Figure 3-3) (Wessex Archaeology, 2018). Full details are provided in Appendix B.

Wessex Archaeology operate a process of archaeological discrimination as follows:

- A1 – Anthropogenic origin of archaeological interest
- A2 – Uncertain origin of possible archaeological interest
- A3 – Historic record of possible archaeological interest with no corresponding geophysical anomaly

In summary, of the 39 features, 28 are classified as A2 and 11 as A3, including all ten of those within the OfTI where geophysical data is yet to be assessed. There are no A1 anomalies which have been identified on the basis of the assessment undertaken to date.

Of the 11 A3 records, one is located within the Moray West Site corresponding to a wreck (7228) recorded by the UKHO as the *Sunbeam* (Possibly), last identified by geophysical survey for the UKHO in 2008. This wreck location was not covered by the 2010 geophysical survey data (with recorded co-ordinates which fall between the corridors of acquired data) and, as such, its position was not validated, although it can be assumed that it still exists at the recorded location.

Of the ten A3 records within the OfTI Corridor, the five recorded obstructions (7233, 7235, 7236, 7237 and 7238) relate to features that were surveyed by the UKHO in the 1980s, assigned as possibly wreckage, with one (7237) classed as 'dead'. This record refers to an old steamship located 1 mile north east of Cullen and may correspond to a reported loss rather than actual wreck remains.

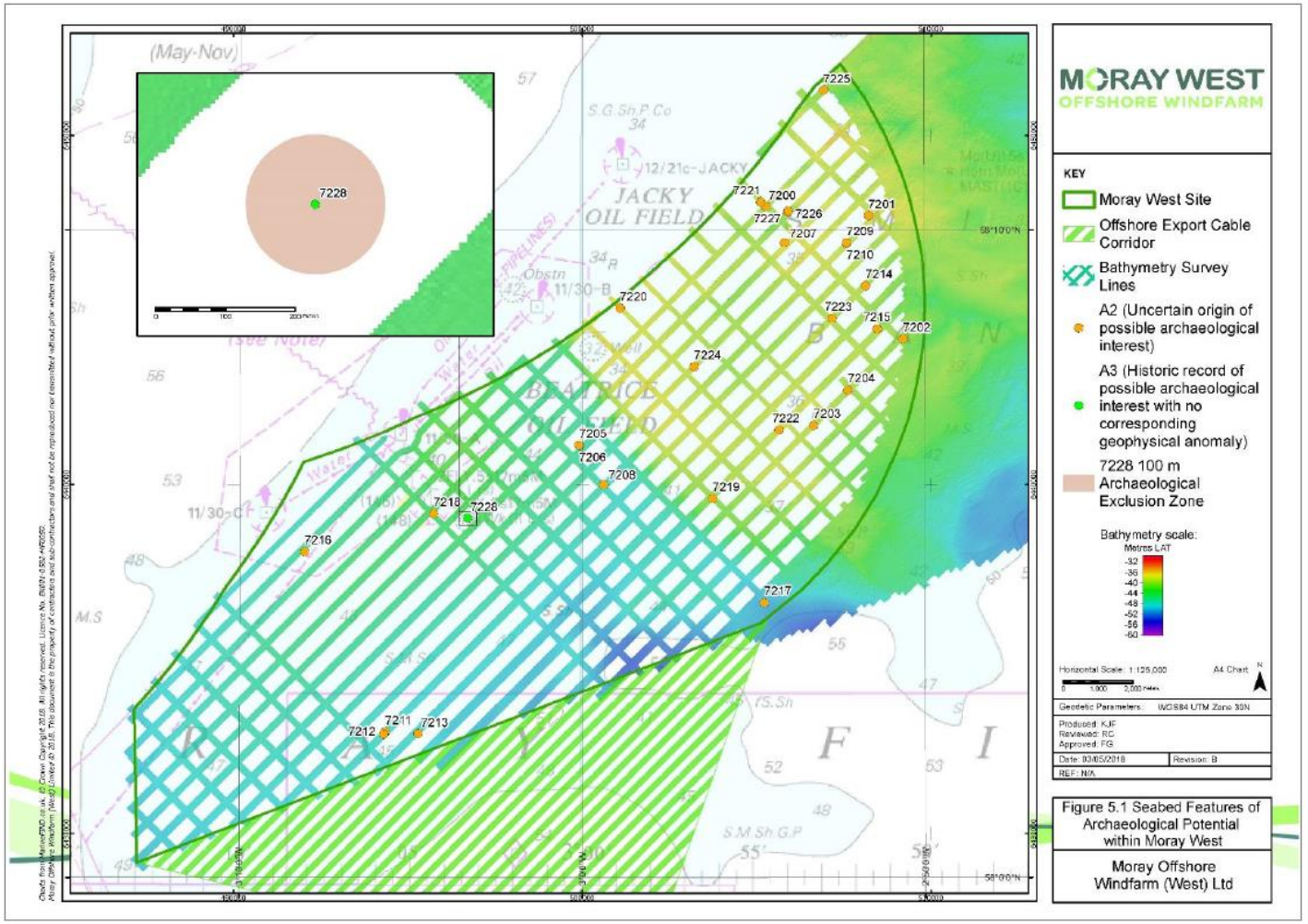


Figure 3-2 Seabed features of archaeological potential within the Moray West Site (Figure 5.1 in Wessex Archaeology, 2018)

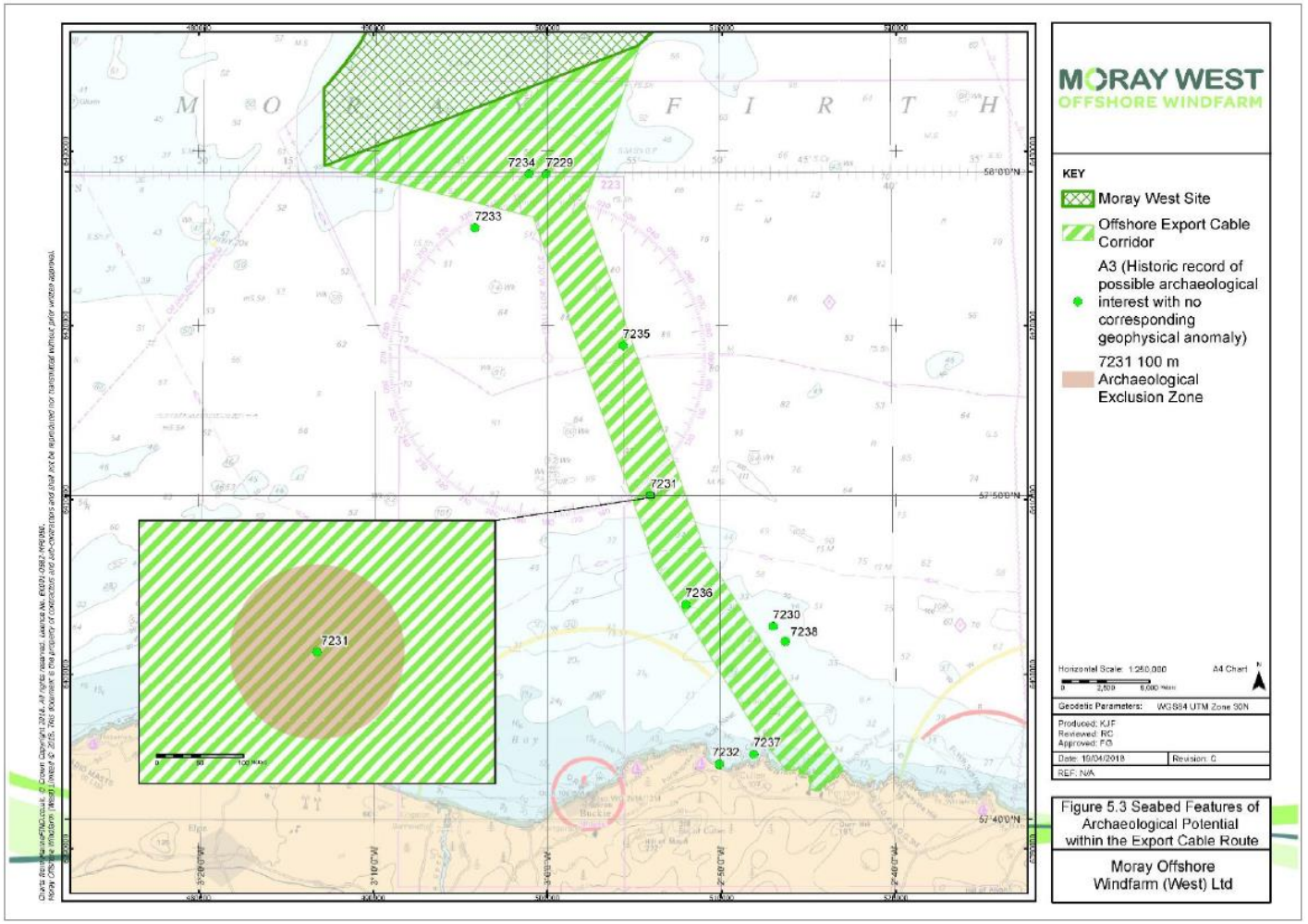


Figure 3-3 Seabed features of archaeological potential within the OfTI (Figure 5.3 in Wessex Archaeology, 2018)

The five wrecks recorded by the UKHO are:

- U77 (7229) a WWI German UE-class minelaying submarine, sunk by gunfire on 7th July 1916. In 1988 no wreck was located within one mile to the north of the original position;
- *Moray Firth* (Probably) (7230) a British steamship which sank on the 28th March 1943 following a collision. In 1987 a search for this record was undertaken, but no wreck was found;
- *Mayflower* (7231) a wooden motor fishing vessel which sank on the 1st February 1973 following a collision. It was last located in 1986;
- *Artemis* (7232) a motor fishing vessel that sank on 2nd September 1974 after grounding in dense fog. In 1987 no wreck was found at the original position; and
- Record 7234 is a possible aircraft wreck of an A/C Day Jet. The aircraft was ditched, although the year of loss isn't recorded and the wreck was not located during the 1987 and 1988 searches.

Although only one of these wrecks is thought likely to correspond to actual remains at the recorded locations (7231, the *Mayflower*, last located in 1986) remains of these wrecks may still be present within the ASA and will be further investigated through the archaeological assessment of geophysical data from the OfTI.

There is also potential for the presence of further maritime craft from the Mesolithic to the modern period, and 20th century aircraft, particularly in relation to Second World War, which have not previously been discovered.

In addition to the UKHO recorded wrecks and obstructions described above Wessex Archaeology (2018) report that a search of records in CANMORE datasets revealed 167 records comprising documented losses of both ships and aircraft within the ASA. Recorded Losses are records for ships or aircraft that are known to have wrecked or crashed offshore, but for which the exact locations are not known and which, therefore, may survive at unknown locations within the ASA.

The documented losses are predominantly reported to have stranded in coastal areas along the Banffshire coast, around Cullen Bay, Sandend Bay and Portsoy (Wessex Archaeology 2018). Other areas mentioned include Buckie, Portessie, Portknockie, and Banff. The losses across the area generally represent 19th and 20th century vessels, including those involved in international trade, steam trawlers and fishing vessels. All of the documented loss of aircraft were lost while in military service and, if found to be present within the ASA, would be automatically protected under the Protection of Military Remains Act 1986. Under this act it is an offence to tamper with, damage, move or unearth any items unless authorised by a licence issued by the Ministry of Defence (MOD) Joint Casualty and Compassionate Centre (JCCC).

Further wrecks and aircraft which were lost without a record being made may also be present within the ASA.

Such remains are most likely to survive associated with modern marine sediments which overlay the uppermost units of the generalised stratigraphy summarised in Table 3.1. Towards the north-east of the ASA a possible sand wave was identified, aligned NNW to SSE and overlying Unit 7, which has the potential to conceal archaeological sites.

3.4 Intertidal Heritage Assets

Wessex Archaeology (2018) do not record the presence of any known intertidal heritage assets, although it is noted that the intertidal zone was likely to have been exploited for subsistence, as well as potentially containing the remains of vessels, boats and other watercraft. This is reflected in the number of documented losses recorded at positions that place them in or on the edge of the intertidal zone.

3.5 Potential Impacts

The Moray West Offshore Wind Farm will comprise 60 Wind Turbine Generators (WTGs), associated substructures and seabed foundations, inter-array cables and any scour protection around substructures or cable protection. The OfTI comprises up to two offshore substation platforms (OSPs) which will be located within the Moray West Site, one OSP interconnector cable and two offshore export cable circuits which will be located within the OfTI Corridor and will be used to transmit the electricity generated by the offshore wind farm to shore.

The offshore export cable circuits will come ashore at east of Sandend Bay, which is located on the Aberdeenshire Coast at Broad Craig, approximately 65 km south of the Moray West Site. Cable installation at the landfall will be via horizontal directional drilling (HDD), with offshore cables connected to the onshore cables via transition joint bays landward of the intertidal zone. The cable will pass beneath the intertidal zone to exit points located in the nearshore zone at a point where marine installation equipment can operate. Moray West will transfer ownership of the transmission asset to an Offshore Transmission Owner (OFTO) who will operate and maintain the transmission infrastructure.

An unexploded ordinance (UXO) survey and clearance programme will be undertaken between June 2022 and March 2023 prior to start of construction activities (excluding HDD offshore activities which are scheduled to start in December 2022). A pre-lay grapnel run (PLGR) will be conducted to remove linear seabed surface debris (i.e., fishing gear, wires, and ropes) along the cable routes and, where boulders are present, they may need to be removed by grab or plough methods where they will be moved onto a patch of seabed adjacent to the cable route.

The development is aiming to be fully operational in 2024/25 with an operational life of over 25 years.

Impacts were assessed in the EIA Report against a realistic worst case envelope encapsulating the parameters described above. As identified by Wessex Archaeology (2018), offshore developments can affect heritage assets in two ways:

- from the direct effect of the physical siting of the project; and
- from indirect changes to the physical marine environment.

In summary, as described by Wessex Archaeology (2018), "impacts to heritage assets and their historic environment occur as a result of changes to their physical environment in terms of loss and/or degradation, which can subsequently reduce the significance of a heritage asset and its wider historic environment. The management and mitigation of such change is based on the principle that archaeological assets are finite, non-renewable and cannot adapt, tolerate or recover from direct impacts".

Activities described by Wessex Archaeology (2018) which may result in impacts that have potential direct and/or indirect effects can include:

- seabed preparation prior to substructure installation and cable laying;
- survey and clearance of UXO;
- installation of turbine substructures (monopile foundations);
- placing of scour protection around turbine locations;
- installation of OSPs (monopile foundations);
- laying of inter-array, OSP inter-connector and export cables (methods include jet trenching and / or mechanical trenching);
- backfilling of cable trenches and protection/stabilisation of surface laid marine cables (options include rock placement, concrete/frond mattresses, or uraduct);
- scour associated with the disturbances listed above; and
- seabed contact by legs of jack-up vessels and/or anchors on vessels associated with the installation, maintenance and decommissioning phases of the Development.

All direct physical impacts on recorded and potential marine archaeology assets in the Development ASA due to construction are considered to be of high magnitude due to the potential for permanent loss of, or damage to, these assets. However, with embedded and additional mitigation (as set out in Section 3.6 below and in accordance with the methodologies set out in Section 4 and the PAD in Section 5) to reduce, remove or offset the impacts on heritage assets, the significance of any associated effects will be reduced. The EIA Report (Moray West, 2018) concluded that, with the implementation of the embedded mitigation measures, the physical impacts to the potential receptors will be reduced to negligible magnitude. This would result in effects of minor adverse significance and therefore not significant in EIA terms.

Indirect physical impacts on marine archaeology assets may occur where changes to normal tide, current and sedimentation patterns lead to physical effects on receptors. These may lead to adverse effects on the asset where protective cover is removed or positive effects where protection is increased. However, Wessex Archaeology (2018) conclude that, based on the assessment of physical processes set out in the EIA Report, changes in hydrodynamic and sedimentary regimes within the Moray West Site and along the OfTI Corridor are predicted to be limited to the mobilisation of fine sand-sized sediments, resulting in a negligible magnitude of impact. The potential significance of the effect on marine archaeology assets is therefore minor and therefore not significant in EIA terms.

Effects upon the setting of onshore cultural heritage assets from the presence of offshore infrastructure were also assessed. However, all potential effects were concluded to be of minor significance. Embedded mitigation as relevant to the assessment of Landscape and Visual Impact Assessment (LVIA) includes the use of a regular grid, similar dimensions for all WTGs and the colour and finish of WTGs. As this embedded mitigation will be delivered through LVIA design principles, mitigation as relevant to the setting of onshore heritage assets are not considered further in this WSI.

3.6 Embedded and Additional Mitigation

As set out in the EIA Report (Moray West, 2018), mitigation for the Development will include a range of embedded mitigation measures to minimise effects which for offshore and intertidal archaeology comprise the following:

- A Development-specific WSI will be prepared, in consultation with HES, once the layout of the Development and infrastructure is established. The WSI will set out the design and implementation of a programme of detailed mitigation works (this document);
- Mitigation strategies for known shipwreck sites will include maintenance of appropriate AEZs between the Development infrastructure including OSP(s) and cables. AEZs preclude development-related activity within their extents (see Section 4.3);
- Analysis of pre-construction survey data will be undertaken to refine the identified potential marine archaeology assets at infrastructure locations. Appropriate micro-siting allowance for identified assets will be agreed in consultation with HES (see Section 4.1);
- Both the micro-siting allowance and AEZs will be detailed in the WSI (this document). This will reduce any potential impacts on marine archaeology; and
- The WSI will include a PAD which will be prepared in consultation with HES. This will mitigate the risk of damage to any previously unrecorded archaeological remains (see Section 5).

It was concluded that implementation of these measures will ensure that the magnitude of impact of the Development will be reduced to a negligible level.

4 Approach to Investigation and Mitigation

4.1 Marine Geophysical Investigations

As set out in the EIA Report (Moray West, 2018), embedded mitigation for the Development includes the analysis of pre-construction survey data, to be undertaken to refine the identified potential marine archaeology assets at infrastructure locations.

Following on from the assessments undertaken for the EIA Report and summarised in Section 3, further marine geophysical data for the Development has been acquired in 2021 by MMT including the acquisition of multi-beam echosounder, side scan sonar, sub bottom profiler and magnetometer data from:

- 300 m corridors along each of the proposed array cable routes that will link the individual WTGs to the OSPs;
- 300 m corridor along a single OSP interconnector cable route; and
- 500 m corridor along defined stretches of the export cable route. These stretches have been defined following reconsideration by a geophysical contractor (Vysus) of historic data acquired in 2018/2019 in order to confirm data gaps.

Archaeological assessment of the acquired data will be undertaken by archaeological geophysicists at Wessex Archaeology. Data will be provided for assessment as necessary to meet archaeological objectives comprising unprocessed data for processing, assessment and interpretation in the following formats:

- MBES data (cleaned, de-spiked and tidally-corrected including navigational data) delivered in ASCII XYZ format;
- SSS in the form of raw .xtf files (or agreed alternative) (not as mosaics) including navigational data and layback;
- Magnetometer data as cleaned, de-spiked ascii text (x, y, magnetic field) files per line, including layback corrected, and raw data files; and
- Raw shallow seismic sub-bottom profiler data shall be provided as SEG-Y files with navigation data and layback.

Data will be provided to Wessex Archaeology by MMT including historic 2018/2019 data where required to provide full coverage of the export cable route.

As described in the EIA Report (Moray West, 2018), the data will be used inform projects understanding of:

- Seabed prehistory (for example, palaeochannels and other features that contain palaeoenvironmental sediment sequences, and early prehistoric sites and derived artefacts e.g. lithic, bone and wooden tools, ecofacts and other archaeological materials); and

- Seabed features, including maritime sites (such as shipwrecks and associated elements including cargo, obstructions and fishermens' fasteners) and aviation sites (aircraft crash sites and associated debris).

The results of the archaeological assessment will subsequently inform any requirements for further marine geophysical survey and assessment. Should further work be required, the approach to survey and assessment will be informed by the advice of the archaeological contractor and co-ordinated by the retained archaeologist. As stated in The Crown Estate (2021) guidance, archaeological input will take the form of advice on the following points:

- available details of sites, features and/or anomalies identified in previous studies;
- archaeological potential of areas where no existing sites, features and/or anomalies are yet known;
- geophysical survey specification including design, geophysical sources and acquisition methodology; and
- requirements for processing and interpreting of resulting data.

The specification of any proposed marine geophysical surveys whose primary aim is non archaeological will be subject to advice from the retained archaeologist to ensure that archaeological input is provided at the planning stage. This will enable archaeological considerations to be taken into account without compromising the primary objective of the survey. Surveys could include the acquisition of further sidescan sonar, magnetometer, multibeam bathymetry or sub-bottom profiler data. The data will also be sufficiently robust to enable professional archaeological interpretation and analysis.

A series of archaeological objectives will be established based upon the results of the EIA Report assessment combined with the assessment of the 2021 data. The overarching objectives of the assessment of marine geophysical survey data are to:

- identify known heritage assets and provide additional detail on the nature and extent of those assets;
- identify previously unidentified seabed features;
- identify buried palaeolandscape features that help to clarify the nature of the submerged prehistoric landscape; and
- monitor construction and post-construction effects.

Before any further geophysical survey takes place, the retained archaeologist will advise Moray West if a method statement will be required to inform additional consultation with MS-LOT and HES. Consultation may be required to ensure the suitability of any data to meet defined archaeological objectives and to answer any questions which may have arisen following the completion of the assessment of 2021 data. The requirements for additional consultation will be determined in advance of the commencement of the survey. Should a method statement be required, this will be issued by the Moray West Development Team in advance of any further geophysical survey commencing. They will be responsible for ensuring that all surveys proceed in line with any planned method statement as agreed with MS-LOT and HES.

It should be noted that not all archaeological remains can be identified through geophysical survey, particularly non-ferrous buried remains such as wooden vessels. Specific consideration will, therefore, need to be given to the scope of geophysical surveys which incorporate archaeological objectives. The limitations of geophysical equipment to penetrate deep into mobile sediment where archaeological material, particularly non-ferrous material, could be buried must also be considered.

On completion of the geophysical surveys the data will be processed, assessed and interpreted by an experienced and qualified archaeological contractor. Geophysical survey data, supplied to an agreed technical standard and specification, at the same level of fidelity as recorded, will be interpreted by an archaeological geophysicist with an appropriate level of expertise. Survey data, together with operational reports and trackplots, should be made available in digital formats to the archaeological geophysicist. Where possible full-fidelity data unreduced in range, frequency, sampling and dimensionality from that recorded must be used as the input for archaeological interpretation. Full detail on the provision of data for assessment is provided in The Crown Estate guidance (2021).

The results of further geophysical interpretation will be compiled as an archaeological technical report consistent with the methodologies for reporting set out in The Crown Estate (2021) guidance and will form part of the project archive as set out in Section 4.9. The resulting spatial interpretation data, such as the locations and extents of identified features and/or deposits of archaeological potential, will be provided alongside the compiled report in a suitable digital format, such as Geographic Information System (GIS) shapefiles or CAD drawing files as agreed with Moray West and, where appropriate, the archaeological curator(s). All reports and digital deliverables relating to the assessment should be available for subsequent data interpretations that may be required during the operation or decommissioning phases of the Development.

4.2 Marine Geoarchaeological Investigations

As stated in the EIA Report (Moray West, 2018), there are currently no known prehistoric sites within Moray West Offshore Wind Farm or export cable route and no individual paleogeographic features (e.g., individual buried palaeochannels) of archaeological interest were identified within the geophysical data assessed by Wessex Archaeology for the EIA Report. However, the Holocene muds, sands, silts and clays which are known to be present across the area have potential to contain material of palaeoenvironmental interest, including the presence of organic materials. This unit, at least in part, correlates to phases of as dry land with high archaeological potential, potentially representing an estuarine or alluvial deposit, which would have been a favourable location for human occupation.

The higher resolution sub-bottom profiler data that has been acquired as part of the 2021 site investigations, combined with the information provided from the marine geotechnical survey will further inform understanding of the potential for archaeological material of a prehistoric date to exist within the project footprint.

The geotechnical survey consisted of a number of core penetration tests (CPTs) and boreholes undertaken in 2018/2019 at planned foundation locations in order to inform project design. The geotechnical

reporting from this campaign will be made available to the retained archaeologist (Royal HaskoningDHV) and Wessex Archaeology in order to inform geoarchaeological assessment.

The 2021 geotechnical survey campaign comprised CPTs at c. 15 to 18 further foundation locations and co-located CPTs and 3m deep vibrocores along the inter-array cable routes (c. 140 no.) and export cable routes (c. 40 no.). Deeper vibrocores to 6 m have been acquired at crossing locations. Preliminary field information was compiled on the vessel with core sections (1 m length) photographed (top and bottom), capped and transferred to shore for laboratory based testing in Rotherham.

An initial review of the preliminary logs was undertaken by Wessex Archaeology's marine geoarchaeological specialist followed by attendance in person at the laboratory in Rotherham during splitting of selected cores. The recording of the cores by Wessex Archaeology revealed no organic deposits and no sub-samples were taken for further geoarchaeological assessment. After viewing the sub-set of cores, Wessex Archaeology provided a preliminary interpretation that silt identified in the preliminary logs is a marine deposit and not of archaeological interest. The full results will be presented in a forthcoming technical report.

It is anticipated that, based upon these preliminary results further geoarchaeological assessment will not be required. However, should further geotechnical campaigns be undertaken for non-archaeological purposes, and for which geoarchaeological objectives are identified, the following overarching methodology will apply.

Detail on the key tasks and aims associated with marine geoarchaeological investigation and assessment is set out in The Crown Estate guidance (2021, Table 4). In summary, these tasks include:

- geoarchaeological input into EIA (to provide a baseline understanding of key deposits and their archaeological significance);
- geoarchaeological input into geotechnical survey planning (to ensure archaeological objectives are considered in the planning stage of the geotechnical survey);
- review of geotechnical logs (to establish the likely presence and depth of deposits of archaeological interest and provide a broad characterisation of the site);
- recording of geotechnical cores (to preserve by record individual core or borehole samples of potential archaeological interest);
- archaeological sampling (to retain adequate samples (quantity and quality) for palaeoenvironmental assessment and analysis and dating); and
- assessment and analysis (to provide a chronostratigraphic and palaeoenvironmental understanding of the area, to inform interpretation of geophysical datasets and ground model).

Where geotechnical surveys are undertaken for primarily non-archaeological purposes, advice will be obtained from the retained archaeologist, to ensure that archaeological considerations are taken into account. These surveys, and subsequent geoarchaeological assessment, will be undertaken in accordance with The Crown Estate (2021) guidance and with industry best practice as set out in:

- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather 2011)

The geotechnical specification will also be informed by any previous stages of work, for example archaeological interpretation of geophysical data and the assessment of the 2018/2019 and 2021 geotechnical surveys as outlined above. This will allow for previous and additional objectives to be achieved.

Geotechnical locations will be micro-sited to avoid recommended AEZs and anomalies of possible archaeological interest, as set out in Section 4.3. Comparison of the proposed locations will also be made to the positions of any identified paleogeographic features and deposits of archaeological interest. This will allow for samples to be obtained to inform archaeological interpretation. Provisions will be made for archaeology specific boreholes to be acquired should deposits of archaeological or palaeoenvironmental potential have been identified.

During all geotechnical surveys, all operatives should observe the PAD, as set out in Section 5. Archaeological briefings for survey staff will be carried out prior to the commencement of surveys (see Section 2.5) and Moray West will be responsible for ensuring that surveys proceed in accordance with any planned method statement agreed with MS-LOT and HES.

Moray West will procure the services of a specialist geoarchaeological contractor to undertake assessment, and, if required, palaeoenvironmental analysis and dating. The primary aim of any geoarchaeological investigations will be the development of a Quaternary (sedimentary) deposit model for the study area.

Geotechnical cores, or a representative sample of cores agreed with the archaeological contractor, will be retained undisturbed until a selection of cores for archaeological recording has been made. If the cores cannot be retained then further steps should be taken, such as having an archaeologist present during sampling operations.

Geoarchaeological assessment will be carried out in accordance with existing interpretations of sub-bottom profiler data assessed for the Development in order to allow for the results of the geotechnical surveys to be incorporated with subsequent geoarchaeological assessment. As set out above in Section 4.1, sub-bottom profiler data acquired during 2018/2019 and 2021 is currently being assessed by Wessex Archaeology. Prior to the commencement of any site investigation campaign the retained archaeologist will advise Moray West if a method statement setting out the specific details of the campaign will be required to inform additional consultation with MS-LOT and HES. Should a method statement be required, this will be prepared by the retained archaeologist and issued by the Moray West Development Team. Consultation with HES may also be carried out on any subsequent geoarchaeological assessments commissioned by Moray West. As stated in The Crown Estate (2021) guidance, it is also recommended that the method statement includes a timetable and policy for the storage, retention and disposal of offshore samples including access to the geotechnical material, agreed at the outset of the geotechnical investigation, between Moray West, HES and any receiving institutions (e.g., the geotechnical testing laboratory).

The results of any further marine geoarchaeological assessments will be compiled as an archaeological technical report consistent with the methodologies for reporting set out in The Crown Estate (2021) guidance and will form part of the project archive as set out in Section 4.9. The final report will integrate the results of review, recording, assessment, analysis and dating. The report will address the palaeoenvironment and prehistory (and any other historical periods as relevant) of the area affected by the development, including relevant data generated by desk-based assessment and other field investigations, including geophysical surveys. Where necessary, the geophysical data interpretation may need to be re-assessed depending on the findings of the geotechnical assessment. If warranted, publication of the findings will need to be considered depending on the results of the assessment.

4.3 Archaeological Exclusion Zones

As set out in the EIA Report (Moray West, 2018), embedded mitigation for the Development includes the maintenance of appropriate AEZs between the Development infrastructure including WTGs, OSPs and cables. AEZs have not been recommended for anomalies that have been interpreted as A2s (uncertain origin of possible archaeological interest) although an avoidance strategy with respect to these anomalies has been advised, where possible. Following the analysis of the marine geophysical survey data, appropriate micro-siting allowance for identified assets will be agreed in consultation with HES, as well as agreement on the number and extent of AEZs.

AEZs agreed between Moray West and MS-LOT and HES will be the primary means employed to preserve features or remains of archaeological interest or potential in situ.

The principal objective of an AEZ is to prevent damage to or disturbance of a wreck, aircraft or features of potential archaeological interest on the seafloor during activities that may cause damage or disturbance. A requirement for provisions to be made, where feasible, for the in-situ conservation of heritage assets is established through the European Convention on the Protection of the Archaeological Heritage (revised) (Valletta 1992) (Article 4).

The implementation, monitoring and modification of AEZs will take place in accordance with the measures specified in The Crown Estate (2021) guidance.

AEZs comprise a boundary placed around a heritage asset or potential assets where no development activities can be undertaken. The AEZ will extend from the boundary of the assets and will include a buffer to ensure that all material associated with that asset is encapsulated inside the boundary, as well as to reduce the risk of unintentional impacts.

The position, extent and design of any AEZs, including the size of the buffer, will take into account all available information including geology, hydrology and sediment transport. As most AEZs will not be a standard shape (i.e., they comprise a buffer around the known extents of the site rather than a circle consisting of a centre-point with a radius distance), the AEZs agreed during the EIA process must be supplied as a GIS shapefile. The list of AEZs is 'live' and will be held in the project GIS maintained by the retained archaeologist. At all stages of the Development, Moray West should supply the retained archaeologist (if different from the previous process) and all contractors with the agreed AEZs as shapefile

data. In addition, all documentation required for project delivery provided to contractors will include the lists and illustrated locations of AEZs.

On the basis of the assessment undertaken for the EIA Report, only two AEZs have been recommended to date by Wessex Archaeology (2018) as shown on Figure 3-2 and Figure 3-3:

- Record 7228 is located within the Moray West Site, consisting of a recorded wreck, (possibly) Sunbeam. Although the 2010 geophysical survey did not locate its position, it can be assumed to still be exist at the recorded location and therefore, a precautionary AEZ of 100m radius is recommended around the location; and
- Record 7231 is located within the OfTI Corridor and was last located in 1986, classified as recorded MFV *Mayflower*. As the record is a known and located wreck an AEZ of 100m radius is recommended around the boundary of the wreck.

As set out in The Crown Estate (2021) guidance, AEZs may be altered (enlarged, reduced, moved or removed) as a result of further data assessment or archaeological field evaluation covering those areas that are subject to AEZs. If new finds of potential archaeological significance come to light during the assessment of marine geophysical data (such as that currently being undertaken by Wessex Archaeology as set out in Section 4.1), during the course of construction, or during operation or decommissioning phases, for example, as reported through the PAD (Section 5), they may be subject to the implementation of a TEZ. A TEZ which will prevent impact to the seabed within their extents but allow activities in other areas to continue. The need for and the design (position, extent) and implementation of any new exclusion zones (TEZs, which may be formalised and converted to AEZs), or any alterations to existing AEZs, will be subject to discussions between the retained archaeologist and Moray West, and in consultation with MS-LOT and HES, confirmed with a formal response. Following alteration, a new plan giving details of the AEZs will be drawn up and issued to each relevant party.

4.4 Avoidance or Further Mitigation

Following completion of the archaeological assessment of geophysical data and identification of any further AEZs, it may be possible for Moray West to microsite the components of the Development to avoid AEZs and any other geophysical anomalies of archaeological potential. This would apply to WTG and OSP foundations, cables, legs of jack-up crane vessels and/or anchors of other vessels. These footprints will likely correspond to areas which will require As Low as Reasonably Possibly (ALARP) certification for risks associated with UXO.

As stated as part of the embedded mitigation, appropriate micro-siting allowance for identified assets will be agreed in consultation with HES. However, until the archaeological assessment of the 2018/2019 and 2021 marine geophysical data is complete, recommendations on micro-siting tolerances will remain uncertain. Recommendations for micrositing will, therefore, be discussed in consultation with Moray West and HES following completion of the archaeological assessment as advised by Wessex Archaeology.

If it is not possible for Moray West to avoid geophysical anomalies of archaeological potential through micrositing of the design, further assessment will need to be undertaken to confirm the character and archaeological interest of anomalies. This will comprise a strategy for further investigation (ground-

truthing) as set out in Section 4.5 and Section 4.6 below. Ground truthing may also be required in order to clarify the extent of a potential archaeological feature of interest in order to alter (enlarge, reduce, move or remove) AEZs as set out in Section 4.3.

Palaeogeographic features such as palaeochannels do not require AEZs or avoidance, but rather potential impacts are mitigated and offset through further assessment of existing material or further investigation, for example through geoarchaeological assessment as set out in Section 4.2 above.

4.5 Non-archaeological Diver/ROV Surveys

Prior to construction, Remotely Operated Vehicle (ROV) or diver surveys may be undertaken for various non-archaeological purposes such as the refinement of the design parameters/layout, for ecological assessment, UXO investigation and obstruction inspection and/or removal. These diver and/or ROV investigations can also provide the necessary ground-truthing information which may be required to establish the archaeological interest of seabed features seen in the geophysical data.

All ground truthing that may be required to inform the construction of the Development will be carried out in accordance with good practice as set out in The Crown Estate (2021) guidance.

To maximise the potential benefits of any proposed non-archaeological diver and/or ROV surveys, Moray West will seek archaeological input from the retained archaeologist at the planning stage of any such works. Any such survey specification will be informed by previous stages of the Development, so that archaeological considerations can be considered.

The selection of geophysical anomalies requiring ground truthing/assessment will require consideration of a multitude of factors. There may be a limited number of geophysical anomalies to assess which can easily be incorporated into the scope of planned ROV surveys. A number of geophysical anomalies identified as being of possible archaeological interest may also correspond to anomalies interpreted as potential UXO or obstructions, for example. There is also potential for a large number of anomalies to be present within the footprint of potential impact, necessitating additional consideration to select an appropriate proportion of anomalies, for example, based on the size of the features or on their location within an area of archaeological potential. The specific approach to the selection of anomalies for ground-truthing will be discussed as part of planning for diver and/or ROV surveys by Moray West and retained archaeologist in consultation with MS-LOT and HES, which will then be captured in an associated method statement.

Where the primary objectives of ROV or diver survey are non-archaeological, but may also contribute to archaeological objectives, consideration will be given to having the retained archaeologist (or the archaeological contractor, if appointed), present during the surveys. For example, when surveying sites of archaeological interest or in areas of high archaeological potential the presence of an archaeological specialist will help to optimise archaeological results and thereby reduce the need for repeat survey. However, their inclusion would only occur when their input has been considered appropriate and proportionate, and has been agreed through consultation with MS-LOT and HES.

For surveys without an archaeologist on-board, training will be provided (i.e. through a briefing note supported by attendance at planned kick off meetings) to ensure that all operatives are fully informed of the archaeological objectives and requirements for acquiring and delivering data as necessary to understand the archaeological interest of investigated features.

All data, including the list of targets, target investigation reports and video footage, will be made available for review by the retained archaeologist (or an archaeological contractor with appropriate expertise). It is recommended that the daily reports and target investigation reports are also provided regularly to the retained archaeologist during survey operations, to ensure timely archaeological advice.

If remains of archaeological interest are identified during diver/ROV surveys, where possible, they will be avoided through the implementation of AEZs (see Section 4.3). Where archaeological remains can't be avoided, if remains are small enough (e.g. anchors and other isolated finds) it may be possible to move these outside of the area of impact. However, if large remains such as a wreck are identified, the scheme design may need to be altered. If this is not possible consultation with MS-LOT and HES will need to be undertaken as to whether an archaeological diver/ROV-based assessment or further mitigation is required. Any further work will require detailed methodologies to be set out in a method statement, to be agreed by Moray West with MS-LOT in consultation with HES. Discussions may also need to include the Receiver of Wreck (RoW) and if aircraft, the Ministry of Defence.

The results of diver / ROV assessment will be compiled as an archaeological technical report consistent with the methodologies for reporting set out in The Crown Estate (2021) guidance and will form part of the project archive as set out in Section 4.9. The report will identify those sites and/or geophysical anomalies that are potentially of archaeological interest significance and may warrant further investigation. It will also identify and characterise those sites that are no longer of archaeological interest, and hence may be removed from the list of AEZs or geophysical anomalies of possible archaeological interest, following consultation with MS-LOT and HES. The applicable digital data, including gazetteers and GIS shapefiles, will be updated by the retained archaeologist and reissued to Moray West and relevant contractors.

4.6 Archaeological Diver/ROV-Based Site Assessment

Where objectives cannot be met through planned non-archaeological investigations, archaeological diver or ROV-based investigations may be required, where the primary objectives are archaeological, and the diving is led by archaeologists.

As above, any planned survey will be carried out in accordance with good practice as set out in The Crown Estate (2021) guidance and the survey methodology will be set out in a method statement, prepared by the retained archaeologist (or the archaeological contractor, if appointed) and agreed between Moray West and MS-LOT in consultation with HES.

Diver/ROV assessment for archaeological purposes will be directed by an archaeological contractor, with the appropriate expertise and experience of the environment/conditions likely to be encountered.

ROV surveys for archaeological purposes may either be undertaken by a suitably qualified and experienced archaeological contractor with an ROV, or by an archaeologist directing an ROV contractor.

Recording will take place in accordance with The Crown Estate (2021) guidance and should be conducted to a level whereby a statement can be made as to the date, character, and extent of archaeological importance of the site, to inform an assessment of archaeological potential.

Similar to the approach outlined for non-archaeological surveys above, if a site is determined to be of high archaeological interest but cannot be avoided a plan for additional mitigation will be required, such as the relocation of material and/or full excavation of a site. This work would require a method statement, to be prepared by the retained archaeologist and/or archaeological contractor through discussions with Moray West and agreed with MS-LOT in consultation with HES.

The results of any archaeological diver / ROV assessment will be compiled as an archaeological technical report consistent with the methodologies for reporting set out in The Crown Estate (2021) guidance and will form part of the project archive as set out in Section 4.9. The report should include any findings that may lead to the alteration of AEZs or TEZs, as well as a statement of the likely requirements (if any) for further archaeological work.

4.7 Archaeological Watching Briefs

As defined in The Crown Estate (2021) guidance, a watching brief is a formal programme of archaeological monitoring that involves attendance by a suitably qualified and experienced archaeologist during groundworks or other site activities/interventions associated with the scheme in the terrestrial or inter-tidal zone, and/ or marine activities such as during offshore obstruction clearance (where considered appropriate).

With the use of HDD to install cables at the landfall, passing below the beach deposits, watching briefs are not anticipated to be required.

Offshore, should activities be undertaken which may result in disturbance to archaeological remains or remains being brought to the surface (e.g. clearance operations and PLGR), an archaeological watching brief may be required, comprising on board supervision by a suitably qualified and experienced archaeologist. If areas subject to clearance are considered to be of medium or high archaeological potential, on board monitoring may be required to ensure consideration is given to any archaeological material brought to the surface. In areas of low archaeological potential any material brought to the surface will be dealt with through the PAD as set out in Section 5.

It is anticipated that the archaeological assessment of high-resolution pre-construction geophysical data (Section 4.1) will allow for the spatial identification of locations where the risk of encountering unexpected archaeological material is higher. Areas where large sand wave features are present for example, have greater potential for concealing archaeological remains, or areas where greater concentrations of geophysical anomalies of archaeological potential have been recorded. Watching briefs may also be required if micro-siting to avoid seabed and sub-seabed features of potential archaeological interest is not possible.

Whilst not common practice offshore, should an on-board watching brief be required, the approach will accord with that set out in The Crown Estate (2021) guidance and will be set out in a method statement prepared by the retained archaeologist in consultation with MS-LOT and HES. If significant archaeological material or palaeoenvironmental deposits are encountered then Moray West, in consultation with MS-LOT and HES, will make provision for the retained archaeologist (or the archaeological contractor, if appointed), to undertake a programme of investigation commensurate with the evidence discovered.

Recording and reporting for any watching briefs, should these be required, will be undertaken in line with the approaches set out in The Crown Estate (2021) guidance.

4.8 Archaeological Recording, Samples and Artefacts

As required by The Crown Estate (2021) guidance, archaeological recording and assessment of samples and artefacts should be undertaken with the goal of addressing objectives set out in published research frameworks, for example, local research frameworks and research frameworks for specific periods or specialisms (such as the ScARF).

The Crown Estate (2021) guidance sets out high-level methodologies for:

- indexing and recording systems;
- position-fixing and levelling;
- environmental sampling strategies;
- environmental samples: handling, labelling, packaging and storage;
- artefacts: handling, labelling, packaging and storage;
- ordnance;
- human remains;
- aircraft;
- wreck; and
- materials conservation and storage.

Any archaeological remains or environmental samples that are found during activities associated with the Development will be treated in accordance with this guidance and best practice as set out, for example, in:

- Standards and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2014d); and
- First Aid for Underwater Finds (Robinson 1998).

Isolated discoveries of artefacts that may come to light during the course of the Development will be dealt with through the PAD as set out in Section 5.

Each method statement for activities where archaeological materials might be encountered will set out the approach to recording and dealing withs samples and artefacts as relevant for each work package based on all relevant and specific guidance and best practice. A general summary of key requirements is included below.

Any finds recovered or exposed during archaeological works will, at the point of discovery, be held by the archaeological contractor in appropriate conditions pending further recording, investigation, study, or conservation. All finds will be recorded and labelled appropriately. Where it is impracticable to recover finds these will need recorded.

Contingency will be made for specialist conservation advice from an appropriately qualified and experienced Archaeological Conservator should unexpected, unusual, or extremely fragile and delicate objects be recovered. All retained finds will be processed in accordance with the CIfA 's Standard and Guidance for the collection, documentation, conservation and research of archaeological material (CIfA, 2014d).

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 archaeological contractors.

Should ordnance be discovered, it should be treated with extreme care as it may still be active. Guidelines on addressing UXO discoveries provided to contractors by Moray West must be followed prior to any recording of items for archaeological purposes.

If human remains are identified, they should be treated with due care and respect. For each situation, the following actions are to be undertaken and, in any event, the retained archaeologist will inform Moray West, who will immediately inform the local Police, and the archaeological curators (HES). If the Police do not propose to investigate the remains the relevant Procurator Fiscal will be contacted by Moray West.

Where practical, the human remains will be left in situ, covered, and protected. Where human remains have been found and the Development will unavoidably disturb them, the remains will be fully recorded, excavated, and removed from the site only once the appropriate licence has been obtained. An appropriate Human Skeletal Biologist will, if required, be available to advise on and assist with the recovery and storage of human remains. The excavation, recording, analysis and storage of any human remains will be undertaken in line with the Guidelines to the Standards for Recording Human Remains (Mitchell and Brickley, 2017) and follow best practice as appropriate (Historic Scotland, 2006; BABAO 2010).

With regard to the remains of crashed aircraft, the majority of aircraft wrecks are military and so fall under the legal protection of the Protection of Military Remains Act 1986 and would have to be avoided without a licence. Any finds that are suspected of being military aircraft will be reported immediately to the retained archaeologist. Should human remains be discovered, they should not be touched, but must be reported immediately to the MOD.

All archaeological artefacts that have come from a ship are 'wreck' for the purposes of the Merchant Shipping Act 1995. For all items of wreck that have been recovered, Moray West, via their retained

archaeologist or archaeological contractors, should ensure that the RoW is notified within 28 days of recovery.

All recovered materials will be subject to a conservation assessment to determine whether special measures are required while the material is being held. 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.

The retained archaeologist or an archaeological contractor with appropriate expertise will implement recommendations arising from the conservation assessment. Where no special measures are recommended, finds will be conserved, bagged, boxed and stored in accordance with industry guidelines.

4.9 Archaeological Reporting, Data Management and Archiving

4.9.1 Data Management

All data management will take place in accordance with the approaches set out in The Crown Estate (2021) guidance.

The retained archaeologist has overall responsibility for all matters related to archaeological data management. Issues regarding data storage and management, such as how long and in what format data should be stored, will be confirmed through discussions between the retained archaeologist and Moray West. Should a different retained archaeologist be appointed for different stages of a project, Moray West should ensure that all relevant data is provided to the new retained archaeologist (for example, shapefiles of AEZs, geophysical anomalies of archaeological potential, areas of high archaeological potential, etc.).

On completion of the construction phase of the Development, the retained archaeologist will produce an Online Access to the Index of Archaeological Investigations (OASIS) form for the whole scheme, and copies of all archaeological reports will be attached. When the OASIS form is submitted, it is automatically sent to the relevant HERs, and notification is also sent to HES, so that they may advise the respective competent authority on compliance with relevant consent conditions.

4.9.2 Reports

Each package of work outlined in the WSI will give rise to one or more archaeological reports, as set out in the method statement relating to the work. As outlined in each of the sections above, this will include reports prepared following the completion of:

- archaeological assessments of marine geophysical data (see Section 4.1);
- marine geoarchaeological assessments (see Section 4.2);
- diver / ROV assessments (see Section 4.5);
- watching briefs (see Section 4.7, not currently anticipated to be required); and
- any further work packages which may be required in the event of an unexpected discovery reported under the PAD (see Section 5) or in the event that avoidance of site is not possible

and further investigation or mitigation (such as excavation) is required (see Sections 4.4. and 4.5).

Each archaeological report will be consistent with this WSI, and The Crown Estate (2021) guidance on reporting, and will demonstrate sufficient planning, recording and data management, with a commitment to archiving and the public dissemination of results. The report will satisfy the method statement for the investigation and will present the project information in sufficient detail to allow interpretation without recourse to the project archive.

Archaeological reports will be prepared in accordance with the guidance given in the relevant CIfA's Standards and Guidance documents. 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;
- proposals for further analysis and publication; and
- illustrations and appendices to support the report.

Each archaeological report will be submitted in draft to the retained archaeologist for submission to Moray West. If the report is prepared by the retained archaeologist, it will be submitted directly to Moray West. Arrangements and timescales for submitting draft archaeological reports by Moray West to HES will be set out in the WSI or method statement relating to the work. The timescales will ensure that HES have sufficient time to comment on findings prior to the next stage of archaeological work commencing

On completion of archaeological works relating to construction of the scheme and to a timetable agreed with Moray West and HES, an overarching report on the archaeology of the scheme will be prepared in draft and final copies in accordance with the methods set out above. The overarching report should serve as an index to, and summary of, the archaeological investigations as a whole.

4.9.3 Post-Fieldwork Assessment

Where required, provisions will be made for post-fieldwork assessment. This will address where possible, the character, extent, date, integrity, state of preservation and relative quality of any archaeological features or remains that are recorded. Costs will be provided for any further research, analysis, publication, and archiving.

Decisions regarding the scope of any post-fieldwork assessment will be made by agreement between Moray West and HES following submission of investigation reports, based on the possible importance of the results in terms of their contribution to archaeological knowledge, understanding or methodological development.

As set out in The Crown Estate (2021) guidance, as a minimum, a single assessment may be carried out after the archaeological work packages associated with the Development have been completed. Such an

assessment may be carried out by expanding the overarching archaeological report to include proposals in respect of analysis, publication, and archiving. An assessment of the potential of the archive for further analysis may include (but is not limited to):

- 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.

4.9.4 Analysis and Publication

Based on recommendations made by the post-fieldwork assessment, and as agreed by the relevant archaeological curators (HES), mitigation requirements will be satisfied by carrying out analysis and reporting of the post-fieldwork assessment. If appropriate, this may include publication of important results in a recognised peer-reviewed journal or as a monograph. The retained archaeologist would confirm the timeframe for the distribution and/or publishing of reports, in consultation with Moray West, MS-LOT and HES, and this would be included in the relevant method statement.

4.9.5 Archive

It is accepted practice to keep project archives, including written, drawn, photographic and artefactual elements (together with a summary of the contents of the archive) together wherever possible and to deposit them in appropriate receiving institutions once their contents are in the public domain. Archives will be developed in line with guidance including:

- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA 2014c)
- Environmental Guidelines for the Permanent Storage of Excavated Material from Archaeological Sites (Institute of Conservation 1984)
- Guidelines for the preparation of excavation archives for long-term storage (Walker, 1990)

The relevant archaeological curators (HES) and the archaeological contractor will agree with the receiving institution a policy for the selection, retention and disposal of excavated material. They will confirm requirements in respect of the format, presentation and packaging of archive records and materials, and will notify the receiving institution in advance of any fieldwork.

The timetable for depositing archives with the receiving institution after completion of the post-fieldwork programme will be agreed based on a method statement prepared for Moray West by the retained archaeologist following fieldwork. For Scotland, HES is the repository for all fieldwork records generated during archaeological fieldwork.

5 Protocol for Archaeological Discoveries

In order to account for unexpected discoveries of archaeological material during construction, operation and decommissioning of the Development, a formal protocol (PAD) will be required. To this end, if any objects of possible archaeological interest are encountered, they will be reported using a PAD based on the Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014) (ORPAD). This will establish whether the objects are of archaeological interest and allow for appropriate mitigation measures to be recommended where necessary.

Activities during which previously unidentified sites or unexpected discoveries of material which may be encountered include:

- Pre-construction surveys, for example:
    - obstructions on the seabed encountered during geotechnical surveys or grab sampling;
    - archaeological material within cores or grab samples; and
    - seabed features identified during ROV surveys.
- Seabed clearance, PLGR (e.g., finds brought to the surface) and clearance of UXO, boulders and other debris.
- Vessel anchoring (e.g., anchor caught on obstruction).
- Installation of cables (e.g., obstruction interactions during cable lay and burial).
- Installation of WTG and OSP foundations (e.g., obstruction interactions with jack-up legs).

The PAD will apply to construction and installation, and operation and maintenance activities when an archaeologist is not present on site. The PAD will allow for the effective reporting of discoveries of archaeological material to ensure that advice, concerning measures to address discoveries, is received, and implemented, in a timely and efficient manner.

Under ORPAD, each vessel or worksite team has a Site Champion (anticipated to be the Offshore Client Representative), a single person who is responsible for reporting discoveries to a Nominated Contact within the Developer's core team. The Nominated Contact will report any new discoveries to the retained archaeologist who will be responsible for implementing the PAD. The Nominated Contact at Moray West is:

- Moray West Development Team
- Moray Offshore Windfarm (West) Limited
- Email: development@moraywest.com

The project retained archaeologist, currently engaged to support the implementation of archaeological requirements, including ORPAD is:

- **Victoria Cooper**

- Senior Marine Heritage Consultant
- Royal HaskoningDHV
- Tel: 07775536772
- Email: victoria.cooper@rhdhv.com

Individual Site Champions for specific activities will be specified in work package method statements and the identity of the Site Champion will be clearly communicated to work teams, via pre-commencement briefings.

Moray West will be responsible for ensuring that teams are provided with appropriate training in the application of the PAD and that all staff and contractors are aware of their responsibilities under the PAD. The PAD documentation, including a full description of the methodology and requirements for implementing the protocol will mirror that of the ORPAD which can be found via the following web link:

- https://www.wessexarch.co.uk/sites/default/files/field_file/2_Protocol%20For%20Archaeological%20Discoveries.pdf

A preliminary record form for recording initial information on the nature of discoveries is included in Appendix C.

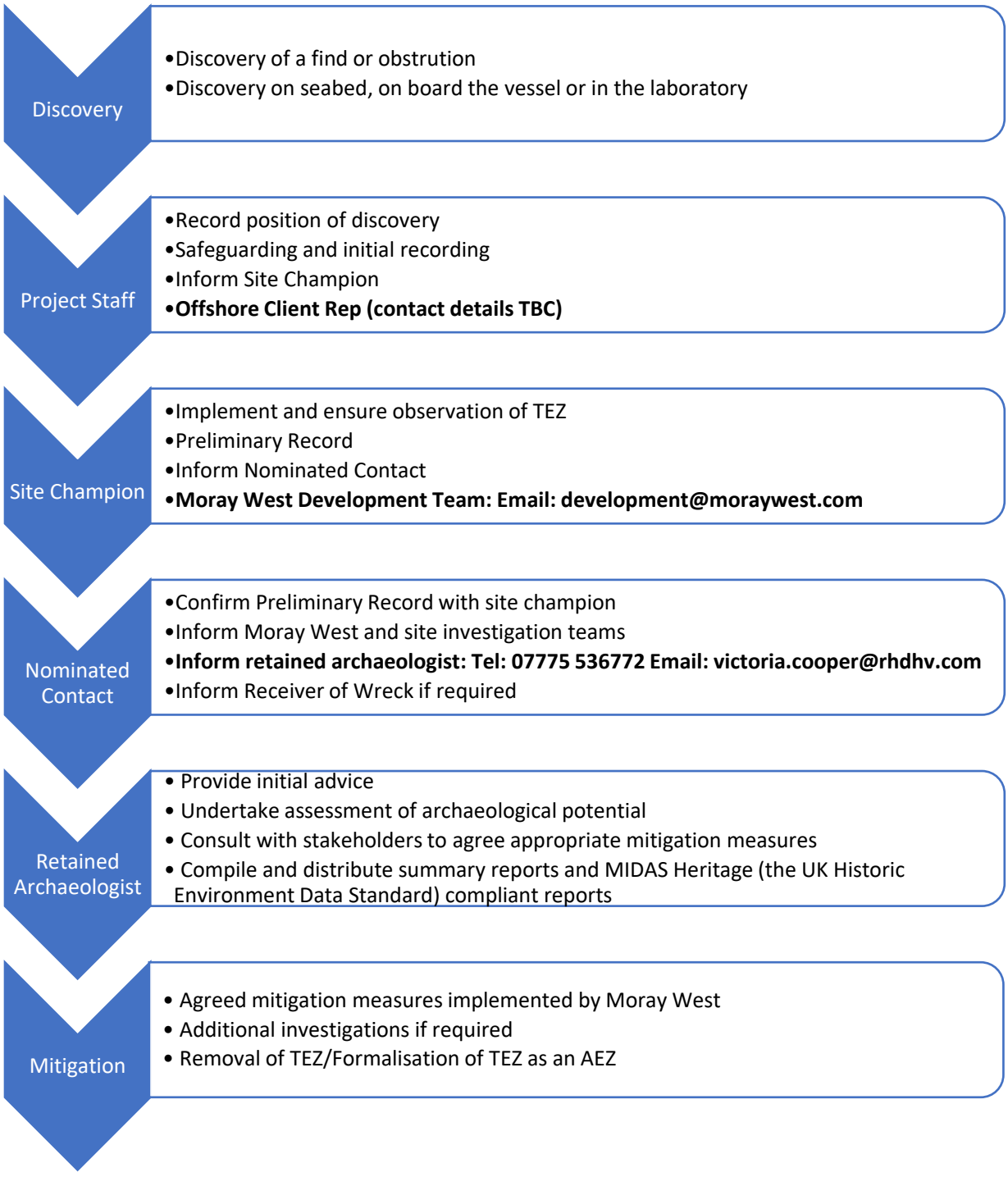
Training will be provided to construction staff, site crews and work teams about the practical application of the PAD in their day to day work. Briefing notes setting out specific responsibilities for relevant work packages will be prepared by the retained archaeologist and issued to work teams in advance of works commencing. This will include detail on the appropriate timescales for reporting finds. Specific information on the implementation of the PAD will also be provided through kick off/mobilisation meetings as relevant.

Provision will be made by Moray West, in accordance with the PAD, for the prompt reporting / recording to MS-LOT and HES of archaeological remains encountered or suspected during works. If the find is a wreck within the meaning of the Merchant Shipping Act (1996) then a report will also be made to the RoW.

In Scotland, if an object that might be treasure trove is found, it must be reported to the Treasure Trove Unit at the National Museums of Scotland or to a local museum or the local council archaeologist. However, the Scots common law right relating to found archaeological and historic items in Scotland (and dealt with through the system of Treasure Trove) does not extend to the marine environment except to the foreshore.

Following completion of the construction phase of the Development, a report will be prepared presenting the results of the PAD implementation during construction activities and submitted to MS-LOT in a timely manner. In the event that no discoveries are made, a nil discoveries report should be compiled in order to demonstrate adherence to the scheme.

A flowchart setting out the process for reporting discoveries under ORPAD is included below.


Discovery
•Discovery of a find or obstrution
•Discovery on seabed, on board the vessel or in the laboratory
Project Staff
•Record position of discovery
•Safeguarding and initial recording
•Inform Site Champion
•Offshore Client Rep (contact details TBC)
Site Champion
•Implement and ensure observation of TEZ
•Preliminary Record
•Inform Nominated Contact
•Moray West Development Team: Email: development@moraywest.com
Nominated Contact
•Confirm Preliminary Record with site champion
•Inform Moray West and site investigation teams
•Inform retained archaeologist: Tel: 07775 536772 Email: victoria.cooper@rhdhv.com
•Inform Receiver of Wreck if required
Retained Archaeologist
• Provide initial advice
• Undertake assessment of archaeological potential
• Consult with stakeholders to agree appropriate mitigation measures
• Compile and distribute summary reports and MIDAS Heritage (the UK Historic Environment Data Standard) compliant reports
Mitigation
• Agreed mitigation measures implemented by Moray West
• Additional investigations if required
• Removal of TEZ/Formalisation of TEZ as an AEZ

6 Monitoring Requirements

The performance of this WSI will be monitored over the course of the Development. If changes are made to the Development design or if particular archaeological issues come to the fore, revisions would be made to the WSI after agreement with MS-LOT in consultation with HES. Any changes would be made through method statements submitted for approval by Moray West.

The reports prepared for each archaeological work package will be distributed to MS-LOT and HES by Moray West. This will allow for results to be reviewed and any archaeological concerns to be addressed.

All assessment reports undertaken for the purposes of archaeological evaluation will be submitted to MS-LOT and HES within a specified timescale of the survey being completed to be agreed with the regulator.

Prior to the start of any work on site that may impact archaeology, MS-LOT and HES will be notified. They will be informed at this time of the name and contact details of the retained archaeologist.

During any site evaluation, investigations, or construction work with the potential to impact archaeology, the retained archaeologist, with notification to Moray West, may liaise directly with HES about monitoring and reporting. Moray West will be kept informed of all contact between the retained archaeologist and the archaeological curators (HES).

As required by The Crown Estate (2021) guidance, provision for monitoring any AEZs that are established will be set out in a method statement agreed between Moray West and MS-LOT (in consultation with HES) in reference to any relevant regulatory consent. Monitoring will take place relative to the baseline data used to establish the AEZ and continue for the duration agreed between Moray West and MS-LOT (in consultation with HES), as set out in the WSI and subsequent method statements.

This may include, for example, periodic archaeological reports prepared by the retained archaeologist, to monitor the effectiveness of the AEZs. These reports will review whether any incursions have been made into any of the AEZs and whether there is still an archaeological need for maintaining them. The frequency of the reports would be agreed with MS-LOT through consultation with HES but would likely include reports at key phases of construction and a post-construction report. This would include an assessment of post-construction geophysical data. If it becomes clear that activities have encroached upon an AEZ, Moray West will seek advice from the retained archaeologist.

A post-construction monitoring report including the archaeological assessment of post-construction geophysical survey data relative to the baseline data will also assess the effects of any indirect impacts that may have occurred to heritage assets as a result of the construction of the Development. Based on the results of the initial post-construction review, any further requirements during the operation phase will be agreed with MS-LOT in consultation with HES. Further monitoring may only be necessary if significant changes to coastal and / or offshore processes are identified or if new information relevant to the integrity of archaeologically important items comes to light.

7 References

Andrews, I.J., Long, D., Richards, P.C., Thomson, A.R., Brown, S., Chesher, J.A., McCormac, M. (1990). United Kingdom offshore regional report: the geology of the Moray Firth London: HMSO for the British Geological Survey.

Atkinson, D. and Hale, A. (eds.) (2012) From Source to Sea: ScARF Marine and Maritime Panel Report. Available at URL: https://scarf.scot/thematic/scarf-marine-maritime-panel-report/

BABAO (2010). British Association of Biological Anthropology and Osteoarchaeology: Code of Practice. Available at URL: http://www.babao.org.uk/assets/Uploads-to-Web/code-of-practice.pdf

BGS 1984a, Caithness, Sheet 58 N - 04 W, Sea Bed Sediment and Quaternary Geology. 1:250000.

BGS 1984b, Moray Buchan, Sheet 57 N - 04 W, Sea Bed Sediment and Quaternary Geology, 1:250 000.

Chartered Institute for Archaeologists (2014a). Code of conduct: professional ethics in archaeology. Available at URL: https://www.archaeologists.net/sites/default/files/Code%20of%20conduct%20revOct2021_0.pdf

Chartered Institute for Archaeologists (2014b). Standards and guidance for an archaeological watching brief. Available at URL: http://www.archaeologists.net/sites/default/files/CIfAS&GWatchingbrief_2.pdf

Chartered Institute for Archaeologists (2014c). Standards and guidance for the creation, compilation, transfer and deposition of archaeological archives. Available at URL: http://www.archaeologists.net/sites/default/files/CIFAS&GArchives_2.pdf

Chartered Institute for Archaeologists (2014d). Standards and guidance for the collection, documentation, conservation and research of archaeological materials. Available at URL: http://www.archaeologists.net/sites/default/files/CIfAS&GFinds_1.pdf

Gribble, J. and Leather, S. (2011). Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Guidance prepared by Emu and issued by COWRIE. Available at URL: https://www.historicenvironment.scot/media/2376/2011-01-offshore-geotechnical-investigations-and-historic-environment-analysis-guidance-for-the-renewable-energy-sector.pdf

Historic Scotland (2006) The Treatment of Human Remains in Archaeology Historic Scotland Operational Policy Paper 5. Available at URL: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=02e7320f-4fb2-4c4a-8aba-a58e00e3f22c

Institute of Conservation (1984). Environmental Guidelines for the Permanent Storage of Excavated Material from Archaeological Sites, Conservation Guidelines No. 3, ICON.

JNAPC (2006). Code for Practice for Seabed Development. Available at URL: http://www.jnapc.org.uk/jnapc_brochure_may_2006.pdf

Mitchell, P.D. and Brickley, M. eds. (2017). Updated guidelines to the standards for recording human remains. Guidance prepared for Chartered Institute for Archaeologists and BABAO. Available at URL:

https://www.archaeologists.net/sites/default/files/14_Updated%20Guidelines%20to%20the%20Standards%20for%20Recording%20Human%20Remains%20digital.pdf

Moray West (2018) Moray West Offshore Windfarm Offshore EIA Report.

MORL (2012) ES Technical Annex 5.5 Headland Archaeology (UK) Ltd., 2012, Environmental Statement Technical Annex 5.5A – Archaeology Technical Report unpublished document for Moray Offshore Renewables Ltd

Robinson, W. (1998). First Aid for Underwater Finds. Archetype Publications Ltd.

The Crown Estate (2014) Protocol for Archaeological Discoveries: Offshore Renewables Projects. Prepared by Wessex Archaeology for The Crown Estate. Available at URL: https://www.wessexarch.co.uk/sites/default/files/field_file/2_Protocol%20For%20Archaeological%20Discoveries.pdf.

The Crown Estate (2021) Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects. Available at URL: https://www.thecrownestate.co.uk/media/3917/guide-to-archaeological-requirements-for-offshore-wind.pdf

Walker, K. (1990). Guidelines for the preparation of excavation archives for long-term storage, ICON.

Wessex Archaeology. (2007). Historic Environment Guidance for the Offshore Renewable Energy Sector. Guidance prepared by Wessex Archaeology and issued by COWRIE. Available at URL: https://www.wessexarch.co.uk/sites/default/files/field_file/COWRIE_2007_Wessex_%20-%20archaeo_%20guidance_Final_1-2-07.pdf

Wessex Archaeology (2014) Transmission Work EIA: Baseline Review of Onshore and Offshore Archaeology. Unpublished Client Report.

Wessex Archaeology (2018) Moray Offshore Windfarm (West) Limited Technical Appendix 16.1: Marine Archaeological Baseline Report.

Appendix A – Defined Terms

Term	Description
Design Envelope	The range of design parameters used to inform the assessment of impacts.
Marine Licence for the Generating Station	Marine Licence for the Moray West Offshore Wind Farm - Licence Number: MS-00008731 - granted under the Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the UK Marine Licensing Area granted to Moray West on 14 June 2019 and varied on 7 March 2022.
Marine Licence for the Transmission Works	Marine Licence for the Offshore Transmission Infrastructure – Licence Number MS-06764/19/0 – granted under the Marine and Coastal Access Act 2009, & Marine (Scotland) Act 2010, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the UK Marine Licensing Area (referred to as the "OfTI Marine Licence"), granted to Moray West on 14 June 2019.
Moray Offshore Windfarm (West) Limited	The legal entity submitting this Protocol for Archaeological Discoveries and Written Scheme of Investigation (PAD and WSI).
Moray West EIA Report	The Environmental Impact Assessment Report for the Moray West Offshore Wind Farm and Associated Transmission Infrastructure, submitted August 2018.
Moray West Offshore Wind Farm	The wind farm to be developed in the Moray West Site (also referred as the Wind Farm).
Offshore Consents	Collective term for the two Marine Licences and the Section 36 consent
Offshore Consent Conditions	Collective term for the conditions attached to the Section 36 Consent and Marine Licences
Offshore Transmission Infrastructure (OfTI)	The offshore elements of the transmission infrastructure.
OfTI Corridor	The export cable route corridor, i.e., the OfTI area excluding the Moray West Site.
Procurator Fiscal	In the event of the discovery of human remains, the Procurator Fiscal is responsible for determining any requirement for further investigation if criminal conduct may have caused to contributed to the death.
Protocol for Archaeological Discoveries (PAD)	Protocol for reporting unexpected discoveries of archaeological material to the retained archaeologist when an archaeologist is not on site. Based on the Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014) (ORPAD).
Receiver of Wreck	The Receiver of Wreck deals with cases of voluntary salvage wreck material across the UK, and makes sure that the interests of both salvor and owner are taken into consideration.

Section 36 Consent	Section 36 consent under Section 36 of the Electricity Act 1989 for the construction and operation of the Moray West Offshore Wind Farm was granted on 14 June 2019 and varied on 7 March 2022.
The Development	The Moray West Offshore Wind Farm and OfTI.
The Development Site	The area outlined in Figure 1 attached to the Section 36 Consent Annex 1, Figure 1 attached to the two Marine Licences, and **Figure 2-1** of this WSI and PAD.
The Moray West Site	The area in which the Moray West Offshore Wind Farm will be located. Section 36 Consents and associated Marine Licence to construct and operate generating stations on the Moray West Site were granted in June 2019 and varied on 7 March 2022.
The Works	The construction and O&M activities undertaken for the Development.
Transmission Infrastructure (TI)	Includes both offshore and onshore electricity transmission infrastructure for the consented wind farm. Includes connection to the national electricity transmission system near Broad Craig in Aberdeenshire encompassing Alternating Current (AC) Offshore Substation Platforms (OSPs), AC OSP interconnector cable, AC export cables offshore to landfall point at Broad Craig, near Sandend in Aberdeenshire continuing onshore to the AC collector station (onshore substation) at Whitehillock and the additional regional Transmission Operator substation at Blackhillock near Keith. A Marine Licence for the OfTI was granted in June 2019.
Written Scheme of Investigation (WSI)	The Written Scheme of Investigation forms an umbrella document for all archaeological survey, investigation and assessment required for an offshore wind farm project supported by activity-specific method statements.

Appendix B – Gazetteers

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
7200	Dark reflector	505258	6447954	A2	5	4.4	1	-	A medium sized distinct dark reflector with a bright shadow located on a gravelly area of the seabed. This anomaly is visible in the bathymetry data as a medium sized distinctive mound located on an otherwise featureless area of the seabed. This could be natural or a piece of debris	
7201	Debris	508203	6447687	A2	29	2.6	0	-	A right angled linear dark reflector with no shadow. This large debris feature that appears to be anthropogenic in origin and is located on a rough and uneven area of the seabed	
7202	Debris	509191	6444173	A2	5	5	0.4	-	A possible piece of debris, a medium sized broken up or possibly partially buried	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									dark reflector with height. One part of the anomaly appears to be 'v' shaped	
7203	Dark reflector	506639	6441688	A2	8.3	7.4	0	-	A large and rounded dark reflector, the anomaly is very indistinct in the data. This may be natural or a piece of debris	
7204	Debris	507617	6442709	A2	5	3.8	1.3	-	A distinct curvilinear shaped dark reflector with a very bright and rounded shadow. This anomaly is visible in the bathymetry data as a medium sized mound with a slightly pointed tip and situated in a depression. Possibly a medium sized piece of debris	
7205	Dark reflector	499910	6441120	A2	5.7	0.8	0	-	A medium sized, slightly curvilinear dark reflector with no shadow but in a slight depression. This could be natural or a piece of debris	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
7206	Dark reflector	499907	6441129	A2	4.8	1.3	0.5	-	An irregularly shaped dark reflector with an indistinct shadow, possibly situated in a slight depression. This could be natural or a piece of debris	
7207	Dark reflector	505792	6446915	A2	6.5	3.1	0.6	-	A thick and curvilinear shaped dark reflector with a dull shadow. This is a medium sized and distinct feature, isolated on a sandy area of the seabed. This could be natural or a piece of debris	
7208	Debris	500596	6439995	A2	7.8	5.5	1	-	A distinct half-moon shaped dark reflector with a bright and tapered shadow, this is an isolated feature. The debris is visible in the bathymetry data as a medium sized oval mound, possibly situated in a slight depression	
7209	Dark reflector	507578	6446910	A2	2.9	0.9	0.6	-	A medium sized distinct dark reflector with	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									a bright shadow, looks anomalous to the surrounding seabed	
7210	Dark reflector	507580	6446918	A2	4.3	0.9	0.6	-	A medium sized dark reflector with a bright shadow that may have some sediment build up around it	
7211	Debris	494350	6432910	A2	3.5	1.1	1	-	A medium sized dark reflector with a small but bright shadow, the anomaly possibly has an internal depression. There is scouring orientated south-west and measuring 25 m associated, possibly debris	
7212	Debris	494294	6432843	A2	4.3	3.3	0.5	-	A medium sized dark reflector with a small internal shadow or depression. A rounded anomaly, distinct possible piece of debris	
7213	Debris	495284	6432861	A2	6.8	5	1.2	-	A medium sized, rounded dark reflector with a bright and tapered shadow. This is visible	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									in the bathymetry data as a medium sized pointed mound on an otherwise featureless area of the seabed. Possible piece of debris	
7214	Dark reflector	508122	6445682	A2	2.2	1	1.1	-	A small and rounded dark reflector with a very bright shadow, could be natural or a piece of debris	
7215	Dark reflector	508456	6444467	A2	4.1	3	0.5	-	A slightly linear and thick dark reflector with a large shadow. This anomaly is located on the edge of a sandwave and is an isolated and distinct feature which could be natural or a piece of debris	
7216	Rope/chain	492029	6438073	A2	28.9	2.4	0	-	A long and thick linear dark reflector with no shadow. This anomaly appears to be anthropogenic in origin and is possibly a rope or chain	
7217	Seafloor disturbance	505218	6436609	A2	24.4	4.3	0.5	-	A large area of possible disturbed seabed comprising a group of	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									small indistinct dark reflectors with height. The anomaly is a long thick linear shape and is located on an otherwise sandy and even area of the seabed	
7218	Magnetic	495733	6439162	A2	-	-	-	230	Large negative monopole identified on more than one survey line. Indicative of possible buried ferrous debris	
7219	Magnetic	503730	6439599	A2	-	-	-	9	Small asymmetric dipole. Indicative of possible buried ferrous debris	
7220	Magnetic	501075	6445052	A2	-	-	-	5	Small dipole. Indicative of possible buried ferrous debris	
7221	Magnetic	505110	6448078	A2	-	-	-	31	Small asymmetric dipole. Indicative of possible buried ferrous debris	
7222	Magnetic	505642	6441562	A2	-	-	-	5	Small dipole. Indicative of possible buried ferrous debris	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
7223	Magnetic	507148	6444756	A2	-	-	-	24	Small asymmetric dipole. Indicative of possible buried ferrous debris	
7224	Magnetic	503206	6443376	A2	-	-	-	7	Small asymmetric dipole. Indicative of possible buried ferrous debris	
7225	Magnetic	506914	6451286	A2	-	-	-	12	Small asymmetric dipole. Indicative of possible buried ferrous debris	
7226	Debris	505881	6447799	A2	7	6	0.8	-	A slightly oval shaped dark reflector with a bright and tapered shadow. This is a very distinct anomaly and possible piece of debris. In the bathymetry data this is visible as a large pointed mound located 38 m to the south-west of a similar feature 7227	
7227	Debris	505907	6447827	A2	6.3	4	0.5	-	A medium sized slightly square shaped dark reflector with a bright but small shadow. This is a distinct possible piece of debris situated on a sandy area of the seabed. In	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									the bathymetry data this is visible as a medium sized, oval shaped mound located 38 m north-west of 7226	
7228	Recorded Wreck	496704	6439032	A3	-	-	-	-	UKHO record of the Sunbeam (Possibly), a wooden sailing vessel with original dimensions of 30.4 m x 7 m x 3.4 m built in 1878 by Massey, Portreath, Cornwall. The vessel was captured by submarine and sunk by gunfire in 1915. The wreck is recorded as being highly degraded, it was identified in sidescan sonar data in 2008 with dimensions of 25 m 20 m x 2.7 m and also in magnetometer data. This location is not covered by the 2010 geophysical survey data.	
7229	Recorded Submarine	499908.59	6428674.2	A3	-	-	-	-	Recorded by UKHO as a wreck of a German WWI UE-class minelaying submarine, identified as U77.	894 (UKHO); 321469 (CANMORE)

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									It sank by gunfire from an unamed British ship on 7th July 1916 after having left Heligoland on 5th July 1916 to lay mines off Kinnaird Head, but did not return or send any reports. In 1988 no wreck was located within 1 mile to the north of the original position. It is believed that the wreck was first located in 1990; 'The wreck lies with a bow up attitude, her stern section of her deck gun completely buried in deep mud...The port side of the wreck is intact, but the plating on the starboard side has fallen away, the conning tower unrecognisable, although to periscoped project upwards from amongst the debris. Her forward hatch is closed.' (Larn & Larn 1998).	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
7230	Recorded Craft (Possible) Steamship	512946.14	6402719.7	A3	-	-	-	-	Recorded by UKHO in 1986 as a possible wreckage at Portsoy, Moray Firth (probably). The wreck is considered to be non-dangerous consisting of a British steam ship which sank on 28th of March 1943 following a collision. It was built at Firth Shipping Co. Ltd.	
7231	Recorded Motor Fishing Vessel	505895.45	6410247.8	A3	-	-	-	-	Recorded by UKHO as a the wreck of a wooden hulled fishing vessel, identified as Mayflower, which sank on the 1st of February 1973 following a collision with MFV Devotion II. The wreck is considered to be non-dangerous and situated at a general depth of 81 m. It was last located in 1986.	
7232	Recorded Motor Fishing Vessel	509842.6	6394826.4	A3	-	-	-	-	Recorded by UKHO consisting of a wreck with potion of hull or superstructure of a motor	

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
									fishing vessel, identified as Artemis. It sunk on 2nd of September 1974 whilst on passage for the Isle of Man. It grounded in dense fog and reported as having been pounded. In 1940 it sustaining damage to keel and stern as it listed to starboard. In 1987 no wreck was found at original position.	
7233	Recorded Obstruction	495817.21	6425583.5	A3	-	-	-	-	Recorded by UKHO in 1987 in the Moray Firth, possibly consisting of fishing gear and situated at a general depth of 54 m.	2118 (UKHO); 101774 (CANMORE)
7234	Recorded Aircraft (Possible)	498922.55	6428674.6	A3	-	-	-	-	Recorded by UKHO in 1965 as a non- dangerous wreck. Thought to be the wreck of a ditched Day Jet aircraft. In 1987 wreck was not located and the following year no wreck was found within 1 mile to the north of the original position.	895 (UKHO); 321470 (CANMORE)

Seabed Features of Archaeological Interest										
WA ID	**Classification**	**Easting**	**Northing**	**Archaeological Discrimination**	**Length (m)**	**Width (m)**	**Height (m)**	**Magnetic Amplitude (nT)**	**Description**	**External References**
7235	Recorded Obstruction	504335.3	6418842.2	A3	-	-	-	-	Recorded by UKHO in 1986 as a possible wreckage situated at a general depth of 90 m in the Moray Firth. Considered to be non- dangerous.	2195 (UKHO); 101806 (CANMORE)
7236	Recorded Obstruction	507919.38	6403975.5	A3	-	-	-	-	Recorded by UKHO in 1986 as a possible wreckage in the North Sea. Considered to be a dangerous wreck situated at a general depth of 30 m.	2204 (UKHO); 101717 (CANMORE)
7237	Recorded Obstruction (Steamship)	511827.38	6395388.7	A3	-	-	-	-	Recorded by UKHO in 1981 as the wreck of an old steamship located about 1 mile north-east of Cullen. Two large boilers were found in a depth of 26 m. Classed as dead.	2172 (UKHO); 101789 (CANMORE)
7238	Recorded Obstruction	513641.92	6401856.9	A3	-	-	-	-	Recorded by UKHO in 1986 as a possible wreckage at Moray Firth. Searched for in 1987 but not found.	

Appendix C – ORPAD Preliminary Record Form

Discoveries forms are also available as downloads from the ORPAD webpages at:

- https://www.wessexarch.co.uk/our-work/offshore-renewables-protocol-archaeological-discoveries

Protocol for Archaeological Discoveries: Offshore Renewables Projects

Preliminary Record Form: Discoveries on the Seabed/ on board / in the inter-tidal zone / on land

Company Name:
Vessel/Team Name:
Site/sea area 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:
a) Latitude
b) Longitude
c) Datum (if different from WGS84)
Original position of the anomaly on the seabed, if known:
Notes on likely accuracy of original position stated above:
a) How accurate is the position?
b) Is the position the original position or has the material been moved by operations?
c) Details of circumstances and activity that lead to the discovery

THE CROWN ESTATE

Protocol for Archaeological Discoveries: Offshore Renewables Projects

Preliminary Record Form: Discoveries on the Seabed/ on board / in the inter-tidal zone / on land

Description of the find/anomaly:
Apparent size/extent of the anomaly:
Details of any find(s) recovered:
Details of photographs, drawings or other records made of the find(s) (e.g. location figure):
Details of treatment or storage of find(s):
Date and time Nominated Contact informed:
General notes:
If discovered on the seabed:
a) Derived from: e.g. Obstacle Avoidance Sonar, Cable Tensiometer?
b) Apparent size/extent of anomaly (length, width, height above seabed)
c) Extent of deviation/route development
Signed: Date: THE CROWN ESTATE