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## Marine Archaeological finds plan

### LTooooo09 - Shetland HVDC Link

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## LTooooo9 - Shetland HVDC Link

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## Abbreviations

<b>Abbreviation</b>	<b>Description</b>
AEZ	Archaeological Exclusion Zone
HM	Her Majesty
HVDC	High Voltage Direct Current
km	Kilometre
MEA	Marine Environmental Appraisal
MHWS	Mean High Water Springs
MIDAS	Monument Inventory Data Standard
MW	Megawatt
NKT	NKT HV Cables AB
PAD	Protocol for Archaeological Discoveries
PLGR	Pre-Lay Grapnel Run
RCAHM	Royal Commission on the Ancient and Historical Monuments
ROTV	Remotely Operated Towed Vehicle
ROV	Remotely Operated Vehicle
SHE Transmission	Scottish Hydro Electric Transmission Plc
TEZ	Temporary Exclusion Zone
UK	United Kingdom

## 1 Introduction

This Archaeological Finds Plan relates to the marine cable installation works to be carried out as part of the Shetland High Voltage Direct Current (HVDC) Link is submitted to Marine Scotland and the Shetland Islands Council to discharge:

- Condition 12 (in part) of the Shetland Islands Council Marine Works Licence 2020/011/WL;
- Condition 18 of Marine Licence 07203/20/0; and
- Condition 17 of Marine Licence 07357/20/0.

The document is designed to cover all works below Mean High Water Springs (MHWS).

Table 1.1 below sets out the details of these conditions and how they are addressed, with more detail on the structure of the document provided in Table 1.2:

**Table 1.1: Relevant licence conditions**

<b><u>Relevant Licence Condition</u></b>	<b>Relevance to this Plan</b>
Shetland Islands Council Marine Works Licence 2020/011/WL (12.) Prior to any works commencing an archaeological Written Scheme of Investigation shall be undertaken and submitted to the Planning Authority and agreed in writing. The Planning Authority will consult Historic Environment Scotland and the Regional Archaeologist for advice before any submission is approved. Should any archaeological remains be discovered during the installation of the cable, post-installation inspection surveys or during decommissioning, the Planning Authority, Historic Environment Scotland and the Regional Archaeologist will be immediately informed and appropriate mitigation shall be agreed in writing from the Planning Authority and implemented. Provision shall also be made in the Written Scheme of Investigation for the proper analysis of any peat samples/cores taken during the cable installation works.	Plan sets out provisions should any archaeological remains be found during installation.
Marine Licence 07203/20/0 18. The licensee must ensure that Protocols for Archaeological Discoveries (PAD) published by Wessex Archaeology dated July 2014 are followed.	Plan sets out how the PAD will be implemented
Marine Licence 07357/20/0 17. The licensee must ensure that Protocols for Archaeological Discoveries (PAD) published by Wessex Archaeology dated July 2014 are followed.	Plan sets out how the PAD will be implemented

**Table 1.2: Structure of the document highlighting where specific requirements of the licences are met**

Section of this Document		Contains information on:	Addresses Requirement
Section 1	Introduction	<ul style="list-style-type: none"> <li>Purpose of this plan</li> <li>Background information on the Project</li> </ul>	Condition 12 (in part) of the Shetland Islands Council Marine Works Licence 2020/011/WL;
Section 2	Known and Potential Archaeology	<ul style="list-style-type: none"> <li>describes known items of archaeological interest in the vicinity of the project</li> </ul>	Condition 18 of Marine Licence 07203/20/0;
Section 3	Implementation	<ul style="list-style-type: none"> <li>implementation principles of the PAD</li> </ul>	and
Section 4	Protocol for Archaeological Discoveries (PAD)	<ul style="list-style-type: none"> <li>Roles and responsibilities under the PAD</li> </ul>	Condition 17 of Marine Licence 07357/20/0.
Appendices	A: Preliminary recording Form	<ul style="list-style-type: none"> <li>Form for recording information on archaeological finds</li> </ul>	

## 1.1 The Project

Shetland is not presently connected to the UK mainland electricity transmission grid and as such is solely reliant on island-based generation, this generation is in the majority derived from fossil fuels with the support of onshore wind.

There is currently approximately 600 MW of consented renewable energy generation on the Shetland Isles, which will require connection to the UK mainland transmission network once these projects are constructed. Scottish Hydro Electric Transmission Plc (SHE Transmission) is the licensed Transmission Owner in the north of Scotland, and as such, has a requirement to provide connection to the UK's network when requested by a generator.

In order to meet the dual requirement of the provision of reliable transmission level supply and export surplus renewable generation, SHE Transmission are planning to install a single circuit 253 km long, 600 MW High Voltage Direct Current (HVDC) link between Weisdale Voe in Shetland and Noss Head in Caithness ('Shetland HVDC Link' or 'the Project'). The marine cable infrastructure will consist of a single bundle comprising two conductor cables and one fibre optic communications cable, to allow control of the substation and HVDC converter station. Marine cable solution provider, NKT HV Cables (NKT), will be responsible for the manufacture and installation of the subsea cable.

## 1.2 Purpose of the Plan

This Archaeological Finds Plan has been developed specifically for the Shetland HVDC Link, based upon the Protocols for Archaeological Discoveries (PAD) published by Wessex

Archaeology on behalf of the Crown Estate (The Crown Estate, 2014), with reference to Advice Note 10 (Archaeology) produced by the Shetland Islands Council and Shetland Amenity Trust (undated). It sets out a procedure for reporting discoveries of potential archaeological interest termed a Protocol for Archaeological Discoveries (PAD). The PAD is detailed in Section 3 of this Archaeological Finds Plan and distinguishes between Developer (SHE Transmission), Contractor (NKT) and Subcontractor responsibilities.

The PAD is applicable to all activities associated with the laying and burial of the subsea cable. This includes pre-lay seabed preparation and investigation, cable lay and burial including any pre- or post-lay inspection or survey, together with associated maritime activities, and during cable landfall works. All of these activities are referred to collectively as 'subsea cable installation'.

The aim of the plan is to reduce any adverse effects of the development upon the historic environment by enabling NKT and sub-contractors, to report their finds to SHE Transmission in a manner that is both convenient to their every-day work and effective with regard to curatorial requirements.

The reporting of archaeological finds made by project staff is important because they may shed light on past human use of the landscape, sea and seabed. The information that such discoveries bring to light can help archaeologists to better understand what happened in the past, and therefore to better protect those aspects of our shared history that should be conserved on behalf of future generations.

### **1.3 Scope of the Plan**

The plan applies to finds of archaeological interest made during subsea cable installation works, including any cultural heritage material encountered while carrying out any pre-lay or post-activity surveys.

## 2 Known and Potential Archaeology

### 2.1 Review of Known Archaeology

Marine archaeology known to be present in the vicinity of the Shetland HVDC link is detailed in the Marine Environmental Appraisal (MEA). No wrecks or other features of significant archaeological potential were identified in the survey data within the installation corridor.

### 2.2 Potential Impacts

The most obvious way in which any archaeological feature can be negatively impacted during cable installation projects is by direct damage, for example from the movement of anchors, during site preparation (e.g. Pre-Lay Grapnel Run (PLGR), boulder grab) and excavating the trench (e.g. jet-trenching and/or mechanical cutting).

These impacts may occur immediately or may result from long term post-lay processes, such as scouring. They may be summarised as follows:

- displacement, which disturbs the context of the archaeological deposit (the relationship between the structures or artefacts that make up the deposit and their surroundings) and thereby reduces the amount of archaeological information that can be gained from it;
- erosion of the deposit or surrounding/covering seabed, resulting in destruction or damage and possibly prompting further erosion or instability; and
- destabilisation, which results in accelerated deterioration of the deposit through corrosion or erosion.

## 3 Implementation

### 3.1 Roles and responsibilities

The legal responsibility for ensuring the PAD is developed and adhered to rests with the SHE Transmission, while the contractual responsibility for implementing the PAD rests with both the SHE Transmission and NKT. Responsibilities of both parties are outlined here in order to describe the whole PAD process.

The following roles are considered to be fundamental to the effective implementation of the PAD:

- **Archaeological Curators** are Historic Environment Scotland (formerly Historic Scotland) and relevant local heritage record offices: i.e. Highland Historic Environment Record, and Shetland's Sites and Monuments Record. In Shetland, this includes the Regional Archaeologist (Shetland Amenity Trust). Any discoveries of archaeological material made during the subsea cable installation works will be reported to Historic Environment Scotland, Highland Historic Environment Record, and Shetland's Sites and Monuments Record and Regional Archaeologist. Historic Environment Scotland is advisor to Marine Scotland (the regulator) in relation to the subtidal historic environment in Scottish Territorial Waters and offshore waters and therefore has curatorial responsibility.
- **SHE Transmission Personnel**
  - the **Nominated Contact** is the person who has been nominated as the responsible point of contact for matters relating to cultural heritage. Interaction with Historic Environment Scotland and the Archaeological Curators will be administered by the Nominated Contact.
- **NKT Personnel and appointed sub-contractors**
  - the **Site Champion** is the person formally appointed by NKT to be directly responsible for reports of archaeological discoveries arising from a particular activity or location. The Site Champion



could be the Vessel Master, a Cable Foreman, a Remotely Operated Towed Vehicle (ROTV) Superintendent, NKT Representative, or any other person in a position to control the immediate works. The Site Champion shall be provided training in the implementation of the PAD.

- **Project Staff** are persons working for NKT or any of its sub-contractors. NKT and all relevant sub-contractors will implement their responsibilities under the PAD at all times and be made aware of the potential for archaeological material to be identified, the types of find that may be of archaeological interest, the potential importance of any archaeological material encountered during the course of subsea cable installation, and the immediate actions to be undertaken in the event of an archaeological find. Project Staff will also respect constraint maps and any archaeological protection measures in place as instructed by SHE Transmission. They will be informed of the possible importance of such finds and trained in the requirements of the PAD via inductions and toolbox talks, and via information contained within the induction pack for subsea cable installation works. Copies of the PAD will be available to all relevant contractors and sub-contractors.

The PAD relies on three principal ‘supports’ to be effective:

- Awareness training and provision of information regarding archaeology or cultural heritage to relevant project staff/teams;
- the promotion, support and effective actions of the Site Champion (NKT); and
- the promotion, support and effective actions of the Nominated Contact (SHE Transmission).

If one of these key supports does not function for whatever reason the PAD ceases to operate successfully. All parties will therefore ensure that these key supports are in place and adequate resourcing is available.

NKT will ensure that all relevant staff are trained on the PAD, ensuring they are aware of archaeological communication requirements and the appointment of on-board vessel representatives (Site Champions).

### 3.2 Key Personnel

Key personnel relevant to the plan are detailed in Table 3.1.

**Table 3.1: Key personnel**

Role	Personnel/Organisation
Site champion	NKT On-board Representative
Nominated Contact	SHE Transmission Representative or Marine Consents Manager
Archaeological Curator	Historic Environment Scotland Regional Archaeologist (Shetland Amenity Trust) Highland Historic Environment Record Shetland’s Sites and Monuments Record
Competent Authority	Shetland Island Council Marine Scotland

## 4 Protocol for Archaeological Discoveries (PAD)

### 4.1 Actions by NKT

Actions required by the NKT under the PAD are detailed below, with a flowchart also provided for quick reference (Figure 4.1).

#### 4.1.1 Step 1: Project Staff Inform the Site Champion

If objects or structures that may be of an historical or archaeological nature are encountered during on-site works (e.g. survey works, route clearance works (PLGR or boulder grab), main marine construction works (cable lay, trenching, or cable protection) or nearshore construction works (duct installation)), Project Staff shall inform the Site Champion as soon as is safe to do so.

Where it is possible to identify the seabed position from which the find of archaeological interest originated, this information should be passed to the Site Champion also.

If the discovery is ordnance, then Project Staff will abide by their specific operational procedures which are to take precedence to ensure safe conduct of construction and installation operations. Historic ordnance may also be of archaeological interest and can then be reported via the PAD once safe to do so.

Depending on the find, it may be necessary to temporarily cease construction activities in the vicinity of the seabed location, or move to an alternate location, until the advice of the Archaeological Curator has been obtained.

If a find is made onboard a construction vessel (for instance, caught in a grapnel/anchor), Project Staff will immediately inform the Site Champion.

If an anomaly is identified in advance of impact, such as on the forward-looking sonar of a Remotely Operated Vehicle (ROV) or cable burial tool, the object should be avoided where possible. The position of the anomaly will be reported to the Site Champion.

If an anomaly comes to light in the course of geophysical survey or drop-down video survey the Surveyor will ensure that the position of the anomaly is noted on navigational software and that the Site Champion is informed.

Staff examining sample material (e.g. core material; benthic samples) should consider the potential for archaeological and/or palaeo-environmental material being recovered within their samples. Where such discoveries are made Project Staff should inform the Site Champion and pass on details of the sample number and its position.

If an anomaly comes to light in the course of processing or interpreting geophysical survey data, video or other photographic data, Project Staff should inform the Site Champion and pass on details of the data files and navigational information relating to the positions where the data were obtained.

All personnel engaged in the development of the project shall:

- familiarise themselves with the requirements of the PAD and make copies available to their staff;

- obey legal obligations in respect of 'wreck' and 'treasure' under the Merchant Shipping Act 1995 and the Treasure Act 1996 respectively;
- respect constraint maps and any measures in place for the protection of archaeological heritage as instructed by SHE Transmission;
- assist and afford access to archaeologists employed by SHE Transmission; and
- implement their responsibilities under the PAD at all times.

#### **4.1.2 Step 2: Actions by the Site Champion**

The Site Champion will note the occurrence or potential object as soon as possible in the vessel's log, together with the time and seabed position. The log entry should include a close approximation of the original position of the anomaly or find on the seabed. Additionally, the area shall be tagged or noted within navigational software.

Where it is possible to identify the position from which the discovery originated, the Site Champion will liaise with SHE Transmission who will instruct on whether there is a requirement for a Temporary Exclusion Zone (TEZ) to be put in place within which construction activities will cease temporarily, or move to an alternate location, until the advice of the archaeological curator has been obtained. It is noted that it is not possible to stop the cable laying operation once commenced. Therefore, if a find is made during cable laying, the operation will continue, but the project will attempt to divert the cable around the find, where possible.

Where items of archaeological interest are recovered, Project Staff (under direction of the Site Champion) will:

- Handle all material with care.
- Any rust, sediment, concretion or marine growth should not be removed and 'groups' of items or sediments should not be separated.
- If possible, photograph the item in the condition in which it was recovered.
- Record the position at which the artefact/sediments were recovered.
- Label artefact appropriately and add the unique ID when provided by the archaeological curator.

The Site Champion will arrange for any finds (of archaeological material) to be carefully contained and protected:

- If waterlogged: immersed, bagged and placed in a protective container, or placed in seawater in a suitable clean container, which should be covered and stored in a cool, dark place.
- If dry: placed in a suitable container and stored in a cool, dark place.
- Any dirt, rust, concretion or marine growth should not be removed.

A Preliminary Record of the occurrence will be compiled on the vessel by the Site Champion (Appendix A).

#### **4.1.3 Step 3: Site Champion Inform the Nominated Contact**

The Site Champion shall inform the Nominated Contact of the discovery and pass on all available information, including a copy of the Preliminary Record and copies of any photographs, drawings or any other records that have been made.

Following implementation of the PAD, if a find is identified as not of archaeological interest, then it will be treated as waste and disposed of responsibly in accordance with the relevant Waste Management Plan.

#### **4.1.4 Reporting**

A copy of this document and the Preliminary Recording Form (Appendix A) will be provided for use by the Site Champion.

## **4.2 Actions by SHE Transmission**

SHE Transmission as the Nominated Contact will enable prompt recording and reporting of archaeological remains encountered or suspected during works, to Historic Environment Scotland and the other Archaeological Curators, as required. If the find is a 'wreck' as defined in terms of the Merchant Shipping Act 1995 then a report will also need to be made to Her Majesty's (HM) Receiver of Wreck. If the find is 'treasure' within the meaning of the Treasure Act 1996 then a report will also need to be made to the Coroner/Ministry of Justice as appropriate.

The Nominated Contact shall need to ensure that data pertaining to the historic environment obtained during the works will be compiled using Monument Inventory Data Standard (MIDAS) Heritage, the UK's historic environment data standard (Historic England (formerly English Heritage) 2012) and submitted to Historic Environment Scotland (and other archaeological curators as required) for inclusion into their national record database (formerly the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHM)). Where the find is located within the Shetland Islands 12 NM limit, the Nominated Contact will also inform the Regional Archaeologist (Shetland Amenity Trust)<sup>1</sup>.

If a find of archaeological interest is discovered, the Nominated Contact should inform other teams engaged in potentially damaging activities in the same area, to ensure that they are aware of the position of the discovery so that further possible damage to the historic environment can be avoided.

The Nominated Contact will liaise with the Site Champion for arrangement of a TEZ or move to an alternate location. As before, it is noted that if a find is made during cable laying operations, operations will continue, but the project will attempt to divert the cable around the find, where possible.

If there is a need to implement any additional measures for the protection of archaeological heritage (e.g. implementation of Archaeological Exclusion Zones (AEZs) or watching briefs), NKT will be instructed in this regard by SHE Transmission who will agree any requirement for additional measures with the Regulator and relevant Heritage Agencies.

If the discovery is something to which specific legal provisions apply (treasure, human remains, wreck etc.), the Nominated Contact will undertake such statutory reporting as is

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<sup>1</sup> In accordance with Shetland Islands Council Advice Note 10 – Archaeology (<https://www.shetland.gov.uk/downloads/download/9/planning-application-advice-notes-checklists>).

required. The Nominated Contact may, however, request the Archaeological Curator makes statutory reports alongside reporting under this Protocol.

### 4.3 Actions by the Archaeological Curator

The Archaeological Curator will review the information about the discovery in conjunction with geophysical and/or desk-based information, where available. Additional communication may take the form of email correspondence and/or telephone conversations (where internet access is restricted).

The Archaeological Curator will send an Initial Response to the Nominated Contact to acknowledge the report.

Where the report is urgent, the Initial Response will include an assessment of archaeological potential and a recommendation on the continuation or removal of the TEZ.

The assessment of archaeological potential will be based on the following guidance:

The following types of discovery are likely to be of **low potential**:

- Reports of single, apparently isolated, finds that are not datable or are of modern (post-1800) or later date;
- Peat deposits.

The following types of discovery are likely to be of **high potential**:

- Reports of single finds that are of post-medieval or earlier date;
- Reports of single finds that relate to military aircraft;
- Reports of multiple finds from the same area;
- Reports indicating the presence of a wreck or other structural remains;
- Reports of peat or other fine-grained sediments that contain worked flint, charcoal or bone.

#### High potential discoveries

In the case of a discovery of high potential, construction will not recommence in the TEZ without the approval of the Archaeological Curators. The Archaeological Curator will confirm the extent of the area of the TEZ and will provide details of any further actions required.

Further actions may include call-out investigations, the conversion of a TEZ to an AEZ, and/or the institution of a watching brief. The rationale for conclusions reached will be provided to the Nominated Contact.

#### Low potential discoveries

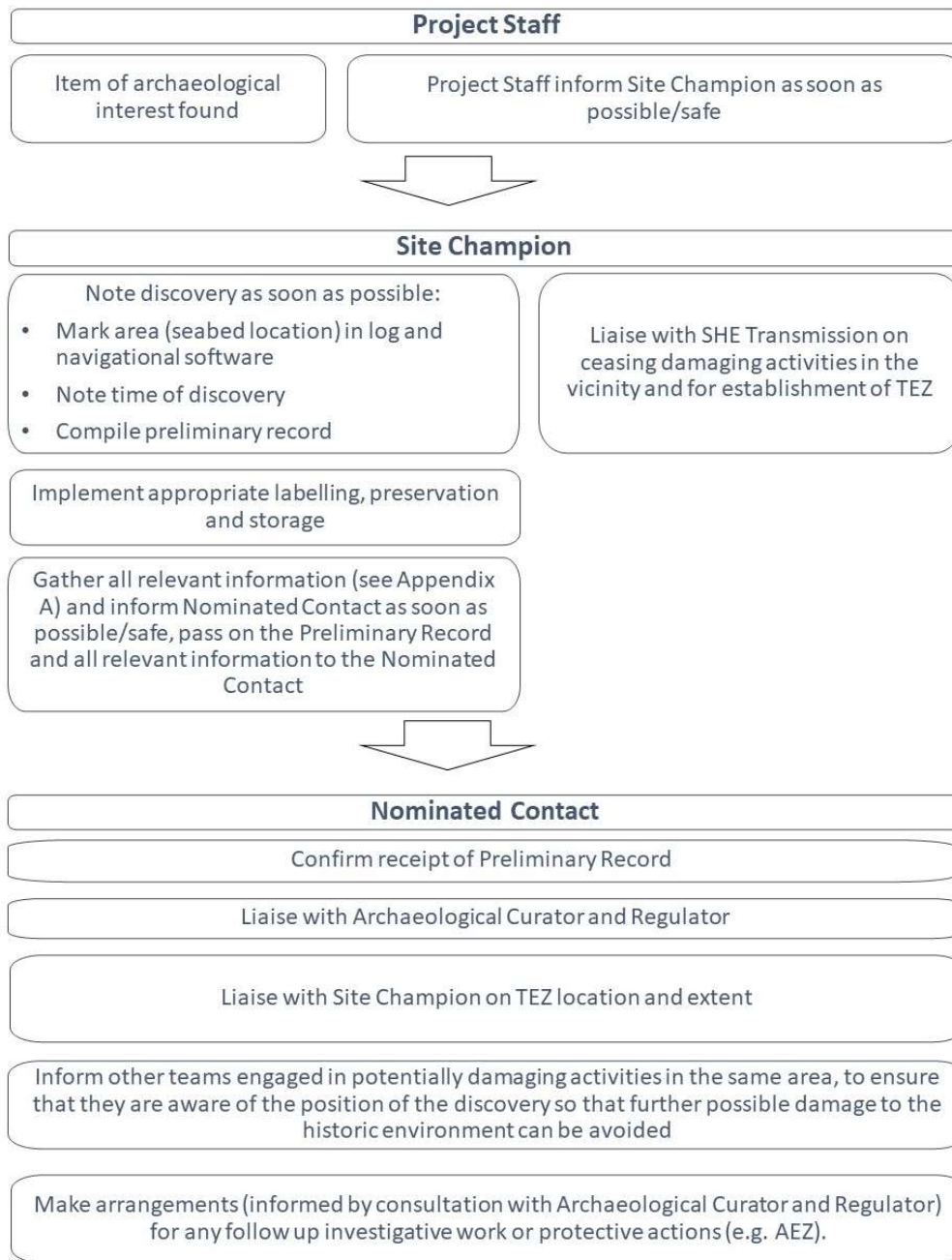
In the case of discoveries of low potential, the Archaeological Curators will advise the Nominated Contact that the TEZ may be lifted and that construction activities in the vicinity of the discovery may recommence.

#### Reporting by the Archaeological Curator

The Archaeological Curator will send a Summary Record of the report to the Nominated Contact and to other relevant parties. The Summary Record will include:

- advice on the identification of finds and the character of their seabed locations;

- an assessment of the archaeological potential of the report, including the rationale for the conclusion reached;
- advice on actions to be taken in respect of the discovery, including any recovered finds.



**Figure 4.1** Flow Chart for archaeological finds

## References

Historic England, 2012, MIDAS Heritage: the UK Historic Environment Data Standard, version 1.1. Accessed online at <https://historicengland.org.uk/images-books/publications/midas-heritage/>.

Shetland Islands Council and Shetland Amenity Trust, undated, Advice Note 10: Archaeology. Accessed online at <https://www.shetland.gov.uk/downloads/file/2122/advice-note-10-archaeology>.

The Crown Estate, 2014, Protocol for Archaeological Discoveries: Offshore Renewables Projects. Published by Wessex Archaeology, Salisbury, on behalf of The Crown Estate.

## Table of Modifications

<b>Rev.</b>	<b>Date</b>	<b>Prepared by</b>	<b>Description</b>
A	2020-12-08	Foster, Andrew	First issue of document
B	2021-01-29	Foster, Andrew	Second issue of document
C	2021-02-26	Foster, Andrew	Third issue of document
D	2021-03-11	Foster, Andrew	Fourth issue of document



## Appendix A


### Preliminary Recording Form

**Table 1: Discoveries: Preliminary Record**

**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



**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:
	