**TIDAL LAGOON SWANSEA BAY:**
**DRAFT MARINE ARCHAEOLOGICAL WRITTEN SCHEME OF INVESTIGATION AND REPORTING PROTOCOL**

CA Project 5478

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<tr>
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<th>Sea Change Heritage Consultants Limited</th>
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Contents

1 INTRODUCTION .............................................................................................................................. 5

2 STANDARDS AND GUIDANCE USED ............................................................................................... 6

3 RESPONSIBILITIES AND COMMUNICATION ................................................................................... 7

4 PROJECT DESCRIPTION AND STUDY AREA ..................................................................................... 9

5 OFFSHORE ARCHAEOLOGICAL BASELINE SUMMARY .................................................................... 9

5.1 PREHISTORIC ARCHAEOLOGY ................................................................................................ 9

5.2 MARITIME ARCHAEOLOGY .................................................................................................... 10

5.3 INTERTIDAL ARCHAEOLOGY .................................................................................................. 11

5.4 GEOPHYSICAL ANOMALIES ............................................................................................... 11

5.5 ASSESSMENT OF SIGNIFICANCE .................................................................................... 11

5.6 RESEARCH QUESTIONS FOR INVESTIGATION .................................................................. 12

6 ARCHAEOLOGICAL MITIGATION STRATEGY ................................................................................. 13

6.1 ESTABLISHMENT AND AMENDMENT TO ARCHAEOLOGICAL EXCLUSION ZONES .................. 13

6.1.1 Archaeological Exclusion Zones Proposed for the Project .................................................. 13

6.1.2 Implementing and Managing the Archaeological Exclusion Zone ..................................... 14

6.1.3 Establishing New Archaeological Exclusion Zones ............................................................ 14
9.2 REPORTS .............................................................................................................................. 27
9.3 PUBLICATION ..................................................................................................................... 28

10 HEALTH AND SAFETY ........................................................................................................ 28

11 REFERENCES ...................................................................................................................... 28

APPENDIX 1: ARCHAEOLOGICAL GAZETTEER FOR THE TLSB OFFSHORE WORKS AREA .......... 30

APPENDIX 2: PROTOCOL PRELIMINARY RECORD FORM ....................................................... 36

APPENDIX 3: GUIDELINES FOR IDENTIFYING FINDS OF ARCHAEOLOGICAL INTEREST AND HANDLING ARTEFACTS .......................................................................................................................... 38

APPENDIX 4: PROGRAMME FOR PRODUCTION OF ARCHAEOLOGICAL METHOD STATEMENTS ........ 40

APPENDIX 5: LINES OF COMMUNICATION FOR THE PROTOCOL FOR ARCHAELOGICAL DISCOVERIES 43

Figures

Figure 1: Recorded Heritage Assets in Swansea Bay Tidal Lagoon offshore works area

Figure 2: Proposed seabed dredging options on Swansea Bay Tidal Lagoon offshore works area
1 INTRODUCTION

Tidal Lagoon Swansea Bay (TLSB) submitted an application to the Planning Inspectorate for a Development Consent Order (DCO) for the construction of a tidal lagoon in Swansea Bay, (henceforth ‘the Project’). The Secretary of State granted the DCO on 9 June 2015.

Under the terms of the DCO, TLSB are required to provide a programme of archaeological work, including a Written Scheme of Investigation (WSI), to cover the proposed offshore works associated with the Project. This must be submitted to and approved by the relevant planning authorities in consultation with Cadw. TLSB also expects that the production of a WSI will be required under the terms of the Marine Licence, currently being considered by Natural Resources Wales (NRW) Marine Licencing Team (MLT).

Requirement 16 of the DCO stipulated that:

16. (1) No part of the authorised development in any phase is to commence until a programme of archaeological work including a written scheme of investigation has been submitted to and approved by the relevant planning authorities following consultation with Cadw. The written scheme of investigation is to include an assessment of significance and research questions appropriate for investigation and-

(a) a programme and methodology of site investigation and recording having regard to the on- and offshore nature of the authorised development;

(b) a programme for post-investigation assessment;

(c) provision for analysis of the site investigation and recording, as well as retention of historic assets in situ where reasonably practicable;

(d) provision for publication and dissemination of the analysis and records of the site investigation;

(e) provision to be made for archive deposition of the analysis and records of the site investigation;

(f) and nomination of a competent person or persons to undertake the works set out within the written scheme of investigation.

(2) No part of the authorised development is to take place other than in accordance with the written scheme of investigation approved under sub-paragraph (1) of this Requirement.

(3) The site investigation and post-investigation assessment are to be completed in accordance with the programme set out in the written scheme of investigation approved under subparagraph (1) and provision is to be made in the written scheme of investigation for analysis, publication and dissemination of results and archive deposition.

This WSI has, therefore, been prepared for TLSB to satisfy the consent requirements imposed in respect of archaeological mitigation for the offshore work during the lifetime of the Project.
The aim of this WSI is to define an appropriate and agreed programme of archaeological mitigation during the construction of the tidal lagoon, based on the results of the archaeological impact assessment carried out for the Project and reported within the Environmental Statement (TLSB, 2014). Chapter 20 in Volume 1 of the Environmental Statement (Cultural Heritage: Marine Archaeology) made recommendations for offshore archaeological mitigation.

These have been taken as the basis for this WSI but have been adapted to reflect construction and dredging methodologies proposed for the tidal lagoon that were finalised for the Project after the submission of the Environmental Statement.

This WSI sets out the responsibilities of TLSB, its development contractors and its archaeological contractor/s in respect of the marine historic environment. This includes:

- Establishing a programme and methodology for the archaeological mitigation works for the offshore Project works, and associated post-investigation analysis and assessment (See Sections 6 and 7);

- Describing the formal lines of communication between TLSB, its construction contractor/s and its archaeological contractor/s, and with NRWMLT or the relevant planning authority and archaeological curators: Cadw (below the low water mark) and Glamorgan-Gwent Archaeological Trust (GGAT) (above the low water mark);

- Establishing and describing the position and extent of any Archaeological Exclusion Zones (AEZs), the rules that apply to them and the methods and procedures for their monitoring, modification and/or removal during the life of the Project;

- Describing the archaeological watching briefs that will be required for Project activities;

- Describing any archaeologically-specific work to be undertaken by TLSB to mitigate Project impacts;

- Making provision for archaeological input into the specification of any future geophysical and/or geotechnical investigations associated with the Project, and setting out the requirements for the archaeological review, recording and sampling of the resultant data;

- Making provision for archaeological involvement in any potential obstruction surveys (for example, diver and/or Remotely Operated Vehicle (ROV)) conducted for the Project, including input into the survey planning and the review of the results;

- Setting out a Protocol for reporting finds made during an archaeological watching brief proposed for dredging works associated with the construction of the tidal lagoon; and

- Describing the reporting, analysis, publication, conservation, dissemination and archiving requirements for the archaeological mitigation works undertaken in the course of the offshore Project works.

2 STANDARDS AND GUIDANCE USED

This document has been prepared using archaeological and historic environment best practice and guidance for offshore development which include:
• COWRIE’s Historic Environment Guidance for the Offshore Renewable Energy Sector (2007);
• COWRIE’s Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather 2010);
• The Crown Estate’s Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects (2010a) and Protocol for Archaeological Discoveries (2010b);
• Historic Environment Guidance for Wave and Tidal Energy (Fjordr, 2013); and
• The Joint Nautical Archaeology Policy Committee’s Code for Practice for Seabed Development (2008).

3 RESPONSIBILITIES AND COMMUNICATION

The responsibility for implementing this WSI and the Protocol for Archaeological Discoveries (Protocol) rests with TLSB.

TLSB will retain the services of a suitably qualified and experienced archaeological contractor (the Retained Archaeologist) to ensure the effective implementation of the WSI and other commitments in relation to offshore archaeology. The Retained Archaeologist is ……………………………………………(complete once known). His/her contact details are:

| Address: | 
| Phone: | 
| Email: | 

TLSB will provide the Archaeological Curator with the name and contacts details of the Retained Archaeologist, as well as his/her qualifications and experience prior to the commencement of construction.

The Archaeological Curator at Cadw is

| Address: | 
| Phone: | 
| Email: | 

The Archaeological Curator at GGAT is:

| Address: | 
| Phone: | 
| Email: |
TLSB’s Environmental Manager, advised by the Retained Archaeologist, will liaise with the Archaeological Curator with regard to offshore archaeology and the implementation of this WSI. TLSB’s Environmental Manager is ………………………………………… (complete once known). His/her contact details are:

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<th>Address:</th>
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<tbody>
<tr>
<td>Phone:</td>
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<tr>
<td>Email:</td>
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</table>

In relation to the implementation of the WSI, the Retained Archaeologist will report to TLSB’s Environmental Manager who will advise the Retained Archaeologist of TLSB’s requirements or responsibilities under the Construction or Operational Environmental Management Plans and/or any Construction Method Statement/s produced for the Project.

Similarly, the Retained Archaeologist will advise TLSB’s Environmental Manager with regard to the implementation of archaeological requirements applicable to the Project-related activities identified below which may affect archaeological receptors. The Retained Archaeologist will also provide input into and review all relevant Project-related method statements, to ensure that they meet licence conditions in respect of archaeological considerations.

The Retained Archaeologist will liaise with Cadw for any finds reported under the Protocol for Archaeological Discoveries (See Section 6.6).

Interaction with TLSB’s construction contractors in respect of this WSI and any matters relating to offshore archaeology and the historic environment will be administered by TLSB’s Environmental Manager, advised by the Retained Archaeologist.

Detailed archaeological method statements will be prepared as required for each relevant Project activity, in line with the requirements of the WSI. The Retained Archaeologist will produce these, for submission to and approval by GGAT/Cadw as appropriate, who will advise NRW MLT or the relevant planning authority in respect of their approval. A programme for the production of the detailed archaeological method statements, and a programme of when they will be implemented in line with the Project activities, is provided below in Section 7. It should be noted that a number of the method statements can only be produced and finalised upon receipt of the detailed construction method statements from construction contractors and therefore production will be phased in line with the phasing of the construction of the Project (see the Construction Phasing Scheme (TLSB, October 2015; Document Ref. TLSB-DCO-October15-03-1.0)).

The maintenance, review and updating of this WSI will be carried out by the Retained Archaeologist, as will the monitoring of the implementation of the Protocol for Archaeological Discoveries (detailed in Section 6.6), the monitoring of the work of TLSB’s Archaeological Contractor/s (where this is not the Retained Archaeologist), and the monitoring of the preparation and submission of archaeological reports as appropriate, ensuring that they are made available to GGAT, Cadw and NRW MLT or the relevant planning authority.

The Retained Archaeologist will also advise TLSB on final arrangements for archaeological analysis of material recovered under this WSI, archive preparation and deposition, and the publication and popular dissemination of information generated from archaeological work undertaken or finds made under the WSI.
The success of the implementation of the WSI and the Protocol will depend to a large extent on the co-operation of TLSB construction contractors. All TLSB construction contractors engaged in the Project will, therefore, be required to familiarise themselves and their staff with the requirements and operation of the WSI, to respect constraint maps and AEZs issued as part of this WSI and to obey legal obligations in respect of ‘wreck’ and ‘treasure’ under the Merchant Shipping Act 1995 and the Treasure Act 1996 respectively. TLSB’s Environmental Manager will be responsible for ensuring TLSB’s construction contractors are fully aware and conversant with the requirements of the WSI.

Construction contractor staff must familiarise themselves with the guidelines provided in Appendix 3 for identifying finds of archaeological interest.

Construction contractors will be required to assist archaeologists employed by TLSB, affording them the necessary access and help in carrying out their duties under this WSI, and will inform the Retained Archaeologist of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologists' activities.

4 PROJECT DESCRIPTION AND STUDY AREA

The Project will be located within Swansea Bay, between the Rivers Tawe and Neath, adjacent to and south of the Port of Swansea (Figure 1). The Project will encompass an area extending c. 4km out into the Bay, with a total seawall length of approximately 9.5 km.

This WSI applies only to those elements of the Project below the Mean High Water Spring mark with the potential to impact archaeological resources, and in the area that will be occupied by the offshore Project works plus a 500m buffer (Figure 1).

5 OFFSHORE ARCHAEOLOGICAL BASELINE SUMMARY

An offshore archaeological baseline assessment of the known and potential offshore archaeology within the PProject area was conducted by Cotswold Archaeology in 2013 and reported in the Environmental Statement (TLSB, 2014).

The assessment included the archaeological review of geophysical and geotechnical data acquired in 2012 and 2013 (Titan, 2012; Atkins, 2013, Stratascan, 2013), the results of four intertidal walkover surveys (15 January and 27 February 2013, and 5 and 17 February 2014) (Cotswold Archaeology, 2014), and historical data from a number of sources.

The assessment found that there is limited potential for the Project to affect known historic features and archaeology. However, in certain areas of the development footprint the impact of the Project is such that it might have a significant negative effect on buried and therefore currently unknown archaeology.

The key findings of the archaeological assessment as they are relevant to this WSI are summarised below.

5.1 PREHISTORIC ARCHAEOLOGY

The absence of contemporary sedimentary deposits means that the potential for Lower, Middle and Early Upper Palaeolithic archaeology within the area of the offshore works is restricted to derived or re-deposited artefacts occurring within later sediments (i.e. the Unit 4 (Devensian) boulder clay and
later Unit 3 (Holocene) infill sediments), or deposits that lie deeply buried under the boulder clay, well beyond any excavation associated with the Project (TLSB, 2014, Chapter 20).

During the last, Devensian glaciation the tidal lagoon site lay under the outer edges of the ice sheet. Consequently, the post-Devensian prehistoric potential of the site is focused on the period between the withdrawal of the ice and the inundation of the area caused by sea level rise during the Holocene.

Although there is a general level of potential on the surface of the boulder clay ridge running down the centre of the tidal lagoon, any sites at that level are likely to have been eroded by the rising sea.

The greatest area of prehistoric archaeological potential, therefore, lies within any preserved peat deposits in the infilled valleys on either side of the boulder clay ridge. Peat shelves and deposits have previously been identified at locations across Swansea Bay. The earliest of these peats date from the Late Upper Palaeolithic, with eight or nine successive phases of peat identified in other areas of the bay, culminating in the levels dating to the Iron Age identified at Brynmill (TLSB, 2014, Chapter 20).

There is thus the potential for peats containing archaeological or palaeo-environmental remains spanning the Holocene, to be present within the tidal lagoon area. The geotechnical evidence suggests that these peats generally lie deeply buried, recorded in boreholes 102-104 from 8.5m below seabed level. However, a deposit of possible archaeological interest was noted in vibrocore VC202 at 4.65m below the current seabed in an area close to the navigation channel into the port, and thin deposits of sandy peat were recorded at 1.25m and 1.55m below seabed level in vibrocores VC206 and VC208 respectively (Cotswold, 2014).

To the south of VC202, any peats lie deep within the valleys that run under the eastern and western edges of the tidal lagoon area, beyond the investigative limits of the geotechnical survey carried out in 2012 (Atkins, 2013).

5.2 Maritime Archaeology

The very low number of known wrecks within the tidal lagoon area is likely to be a reasonable indication of the overall chance of finding new sites during construction (see Appendix 1).

However, the discovery of the inter-tidal wreck (Wreck 05 on Figure 1) in 1996 and its subsequent (and current) burial does emphasise that there is some potential for the discovery of further wrecks which are buried within the seabed sediments of the tidal lagoon site and thus not visible in the geophysical data. Such finds may date as far back as the Mesolithic, but wrecks of medieval and later date are more likely.

The degree of potential burial for any sites cannot be stated with any certainty. However, based on the thickness of the surface sediment and the composition of the underlying shallow geology, burial of wrecks under more than 2m of sediment is considered unlikely (TLSB, 2014, Chapter 20).

In addition to the documented losses of ships, at least five aircraft are thought to have been lost in the Swansea Bay area during World War II (TLSB, 2014, Chapter 20) (see Appendix 1).

Although the remains of these aircraft have not been located on the seabed, any wreck of a military aircraft is automatically protected by the Protection of Military Remains Act (1986) and may not be disturbed without a licence from the Ministry of Defence.
5.3 **INTERTIDAL ARCHAEOLOGY**

Fishing weirs have been identified across Swansea Bay, notably to the west of the docks. Within the study area, lines of stones thought to represent the remains of fishing weirs have been recorded in the intertidal area and there is evidence to suggest that raised sand levels may be masking a wider range of features (Cotswold Archaeology, 2014).

The degree of potential burial for any sites cannot be stated with any certainty. However, based on the thickness of the surface sediment and the composition of the underlying shallow geology, the burial of fish traps of medieval and later date (i.e. those most likely to occur) beneath more than 2m of sediment is considered unlikely.

5.4 **GEOPHYSICAL ANOMALIES**

In addition to the archaeological receptors described above, the archaeological review of the geophysical data within the works area identified 25 seabed anomalies of confirmed or potential anthropogenic origin.

These anomalies were summarised in the ES as follows:

- 15 represent debris of potentially anthropogenic origin;
- 5 were interpreted as wire or ground tackle associated with channel marker buoys; and
- 5 are characterised by areas of disturbed or reflective seabed.

None were identifiable as a wreck, and all were assessed to be of low archaeological potential. Although some may represent buried cultural remains it was not possible to interpret these anomalies further in the archaeological assessment and overall their potential was therefore classed as uncertain.

5.5 **ASSESSMENT OF SIGNIFICANCE**

The archaeological significance of the known and potential archaeological features was summarised in the ES as follows. Figure 1 shows the positions of the identifiable sites:

**Table 1: Significance ratings for identifiable archaeological receptors**

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Description</th>
<th>Significance Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>Documented aircraft loss</td>
<td>High</td>
</tr>
<tr>
<td>05</td>
<td>Inter-tidal wreck</td>
<td>Moderate</td>
</tr>
<tr>
<td>04, 24-25, 27-32</td>
<td>Post medieval/modern fish traps</td>
<td>Low</td>
</tr>
<tr>
<td>33-35, 37-39, 43-55, 57-58</td>
<td>Features and geophysical anomalies identified as potentially anthropogenic debris</td>
<td>Unknown</td>
</tr>
<tr>
<td>01-02</td>
<td>Lifted Wrecks</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>
In addition to the known archaeological sites and features shown above, Table 2 below lists three categories of archaeological sites and material highlighted by the baseline study as potentially being present in the tidal lagoon work area.

**Table 2: Significance ratings for potential archaeological receptor classes**

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<tr>
<th>Archaeological Receptor Class</th>
<th>Significance Rating</th>
</tr>
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<tbody>
<tr>
<td>Potential buried maritime archaeology – principally 19th century and earlier shipwrecks</td>
<td>Low-High</td>
</tr>
<tr>
<td>Potential buried prehistoric archaeology – principally Late Upper Palaeolithic to Iron Age sites and associated deposits</td>
<td>Moderate-High</td>
</tr>
<tr>
<td>Potential buried inter-tidal archaeology – principally Roman to postmedieval fish traps</td>
<td>Low-Moderate</td>
</tr>
</tbody>
</table>

In respect of these site types, available evidence suggests that in the tidal lagoon work area:

- Shipwrecks will be rare, but where they occur medieval and post-medieval finds are the most likely;
- Prehistoric sites dating from the Late Upper Palaeolithic to the Iron Age may exist within the area, possibly at depths of -7.6mOD although most likely more deeply buried; and
- Fish traps of Roman to post-medieval date are likely to be present given the evidence elsewhere within Swansea Bay, but if they exist within the tidal lagoon area they are buried.

### 5.6 Research Questions for Investigation

The nature of offshore development-led mitigation limits the extent to which specific archaeological research questions can be framed in advance of work taking place.

Known sites of significance are generally excluded from development-related effects, through measures such as Archaeological Exclusion Zones, and are thus not subject to archaeological investigation as part of the PProject. In the case of Swansea Bay Tidal Lagoon, Wreck 05 will be excluded from development impacts through the implementation of an Archaeological Exclusion Zone (see Section 6.1 below).

Mitigation-driven research will thus generally be confined to investigating 1) known sites of lesser significance, where these will be affected by Project activities, and 2) new discoveries of archaeological
material made in the course of seabed works. It is likely that such discoveries will fall into one of the three classes of archaeological sites and material with an unquantified potential for being present in the development area, highlighted in the baseline and summarised above.

Any investigation of archaeological finds affected by the Project will, under the terms of this WSI, be guided by the relevant, current research agendas, such as The Research Framework for Wales (see http://www.archaeoleg.org.uk/documents2011.html) that contains themed research questions to be considered in archaeological work in Wales.

6 ARCHAEOLOGICAL MITIGATION STRATEGY

Avoidance, archaeological watching briefs, a protocol for reporting finds and dedicated archaeological survey and sampling will be the principal methods used during the construction and operation of the tidal lagoon Project to mitigate impacts on archaeological receptors.

6.1 ESTABLISHMENT AND AMENDMENT TO ARCHAEOLOGICAL EXCLUSION ZONES

Confirmed sites, materials or deposits of known or potential archaeological interest will be preserved, in situ, through avoidance during seabed development. This is achieved, in large part, through the implementation of Archaeological Exclusion Zones (AEZ) around such sites.

AEZs are areas of the seabed within which no Project activities are permitted, formed by establishing a buffer around the known extents of archaeological sites or geophysical anomalies.

The prohibition on activities within AEZs applies to all works, vessel mooring and any other related or supporting activities that may disturb the seabed during the construction, operation or decommissioning of a Project.

6.1.1 Archaeological Exclusion Zones Proposed for the Project

The archaeological impact assessment identified only one site within the offshore works area for which an AEZ was recommended. This is Wreck 05, a wreck first reported exposed in the intertidal zone in 1996. Although now buried, the likely location of the site was pinpointed through geophysical survey work undertaken as part of the archaeological assessment for the Project (Cotswold Archaeology 2014).

Wreck 05 lies within the Crymlyn Burrows Site of Special Scientific Interest (Figure 1), within which no Project-related works will take place. As precautionary measure, however, an AEZ with a radius of 100m will be implemented around the position of the wreck. The details of this AEZ are shown in Table 7.1 below:

<table>
<thead>
<tr>
<th>AEZ</th>
<th>AEZ Radius (m)</th>
<th>Position co-ordinates (NGR)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wreck 05</td>
<td>100</td>
<td>270500</td>
<td>192500</td>
</tr>
</tbody>
</table>

This AEZ is based on information available contained in the Environmental Statement. It may therefore be subject to change, in the manner detailed below, if further information becomes available in future.
6.1.2 Implementing and Managing the Archaeological Exclusion Zone

TLSB will require its construction and/or maintenance contractors to conduct all activity in such a way as to prevent any impacts by Project works within the AEZ, including impacts from plant and equipment that is not directly engaged in the works.

TLSB will ensure that the AEZ is marked on the Project master plans, including contract documents, and that all of its contractors are aware of the total exclusion of the relevant portion of the Project work area from any Project-related activities.

Any actual or suspected breach of the AEZ will be reported immediately by the contractor concerned to TLSB’s Environmental Manager, who will inform the Retained Archaeologist.

Any future alteration or removal of the AEZ will be immediately and formally communicated with all relevant parties, particularly Project contractors operating in the vicinity.

Because the location of Wreck 05 is in Crymlyn Burrows SSSI, within which no work is permitted, Project-related activities will not affect the AEZ placed around it. Monitoring of the AEZ during construction is therefore not considered to be required.

Archaeological monitoring of potential medium- to long-term, indirect effects of the construction of the Project on this AEZ will be included in any post-construction monitoring programme undertaken by TLSB, to a timetable to be agreed with GGAT/Cadw.

The duration of such post-construction archaeological monitoring will be consistent with the monitoring of processes that may have indirect negative effects on Wreck 05, for example, sediment transport away from the current beach. The findings of the beach monitoring undertaken as part of Objective CP1 of the TLSB Adaptive Environmental Management Plan (AEMP) will be used for this purpose. Transect T215 is in the area of the AEZ and data (initially collected on an annual basis) will be reviewed as part of the AEMP reporting process. If significant change, ie erosion, is detected at T215 and trigger levels are reached, a competent archaeologist will undertake further assessment to identify if there is any change to the asset.

6.1.3 Establishing New Archaeological Exclusion Zones

Finds of archaeological material made during Project activities will be reported to the TLSB Environmental Manager through a Protocol for Reporting Archaeological Discoveries (Protocol) (see Section 7.3 below).

Where finds are made outside of the archaeological watching brief described in Section 6.2, the TLSB Environmental Manager will immediately inform the Retained Archaeologist and the report/find will be assessed for its archaeological interest and/or significance according to the process set out in the Protocol.

In the event of a find of archaeological material, Project activities that may impact on the seabed at the location of the find will cease until the advice of the Retained Archaeologist has been sought and received and, if necessary an archaeological inspection of the material and/or site has taken place. During this period the location of the find may be designated as a temporary AEZ.

If the find is assessed to be of archaeological importance, the location from which it was recovered may be subject to the implementation of a new AEZ. Where a temporary AEZ is already in place, this may be converted into a permanent AEZ.
TLSB, supported by the Retained Archaeologist will consult with GGAT/Cadw on the need for, and position, extent and implementation of any new AEZs. GGAT/Cadw will advise NRW MLT or the relevant planning authority in this regard. Should a new AEZ be implemented, this will be included on updated versions of the relevant works plans.

6.1.4 Altering or Removing Archaeological Exclusion Zones

AEZs may be altered (enlarged, moved, reduced or removed) on the basis of the results of archaeological assessment of future geophysical surveys and/or archaeological field evaluation. Archaeological field evaluation may include high-resolution marine geophysical survey, and/or survey by diver or ROV.

Where future geophysical survey work by TLSB has an objective to re-survey previously identified sites and/or anomalies, or survey the area of a find, in order to alter or remove an AEZ, provision will be made for a) archaeological input into the survey specification and b) for a suitably qualified Archaeological Contractor to review the data collected. This is to ensure that the best possible data are collected for those anomalies subject to review.

The alteration of AEZs will only be undertaken following consultation with and, agreement by GGAT/Cadw.

Following any such alteration of an AEZ, a new plan giving details of the revised exclusion zone will be drawn up for TLSB by the Retained Archaeologist and issued by the TLSB Environment Manager to its PProject team and construction contractors for immediate implementation. Should an alteration be made to an existing AEZ, this will be included on updated versions of the relevant works plans.

6.1.5 Monitoring New Archaeological Exclusion Zones

Should any new AEZs be implemented within the PProject works area, compliance in their implementation during the construction phase of the Project will be monitored on a quarterly basis through review by the Retained Archaeologist of dredger track plot and any available construction vessel anchor spot data.

These quarterly reviews will report on whether there have been any unreported incursions into AEZs.

Where a breach of an AEZ be suspected, this will be resolved by further investigation, which may include a) the requirement to carry out a geophysical or diver/ROV survey of the area thought to be affected and b) an archaeological review of the resultant data.

Archaeological monitoring review reports will describe unreported incursions into AEZs and the outcomes of any resultant survey work. They may include recommendations regarding amendment of the extent, removal of existing AEZs and/or creation of new AEZs, as necessary.

Following completion of construction, a report will be compiled by the Retained Archaeologist on the effectiveness of the AEZ during PProject works, any new AEZs implemented, any alterations to them, and the results of any monitoring. Where necessary, recommendations will be made with respect to ongoing monitoring of AEZs during the operation of the Project.

6.2 Pre-Dredge Anomaly Ground-Truthing

Receptors of archaeological interest but unknown significance identified in the Environmental Statement that lie within the Project dredge footprints will be disturbed or destroyed by dredging.
Because the dredging methods proposed for the Project (suction dredging and/or grabbing do not support archaeological monitoring through watching briefs in respect of these receptors, pre-dredge ground-truthing of areas of archaeological interest within the proposed dredge footprints will be undertaken by TLSB.

The following sites, features and seabed anomalies will be subject to ground-truthing:

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Description</th>
<th>Significance Rating</th>
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<tbody>
<tr>
<td>03</td>
<td>Documented aircraft loss</td>
<td>High</td>
</tr>
<tr>
<td>33-35, 37-39, 43-55, 57-58</td>
<td>Features and geophysical anomalies identified as potentially anthropogenic debris</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Site 3 is an aircraft wreck, which is protected under the Protection of Military Remains Act and may not be disturbed without a permit from the Ministry of Defence. Ground-truthing will aim to establish whether the wreck is present at the given position or whether one of the geophysical anomalies noted in the vicinity, such as the debris described as Site 33, may represent this wreck. Alternatively, Site 33 may be something else of archaeological value.

The nature of the geophysical anomalies listed in the table above is not clear from the available geophysical data (see Appendix 1). Ground-truthing will aim to confirm the nature of these features and anomalies and thus their archaeological interest and significance.

Ground-truthing may take a variety of forms. It may consist of the collection of geophysical data of a higher resolution than that which is currently available for the areas in question, or it may comprise drop-down video survey, ROV survey or diver survey.

Once the final method statement for the dredging activities associated with the marine works has been produced, the TLSB Environmental Manager will consult the Retained Archaeologist, before the ground-truthing survey takes place, to seek his/her advice and input into the scope and specifications of the planned survey/s. The Retained Archaeologist will provide a detailed method statement for the survey, covering the appropriate equipment and settings, survey methodology(s), and requirements for archaeological data analysis, interpretation and archiving. This will ensure the generation of archaeologically useful results.

For any ROV and/or diver surveys, a suitably qualified archaeologist will be present on the survey vessel during the survey. This will ensure immediate archaeological feedback and advice on information coming from the seabed.

If the results of the ground-truthing indicate that the sites, features and anomalies assessed are not of archaeological interest, this will allow dredging to proceed unhindered. If sites or anomalies are assessed to be of archaeological interest, the Retained Archaeologist will recommend measures to TLSB to either protect them (through the implementation of AEZs, for example) or mitigate them (through sampling, recovery or excavation) if they cannot be avoided.
6.3 COLLECTION OF ARCHAEOLOGICAL VIBROCORES

As with the sites, features and geophysical anomalies discussed in Section 6.2 above, the proposed dredging methods for the Project will not allow the recovery of samples of the peat deposits identified in the area of the proposed turbine house.

TLSB will collect a number of vibrocores in the peat rich areas around the turbine house and they will be archaeologically recorded, sampled, analysed and dated, and the results published.

A detailed method statement for the archaeological review of these vibrocores will be produced by the Retained Archaeologist three months before collection of the vibrocores, and submitted to and approved by NRW MLT or the relevant planning authority, advised by GGAT/Cadw.

The collection and archaeological analysis of these vibrocores will serve as compensatory mitigation in respect of submerged prehistoric archaeology at the turbine house location and no archaeological watching brief will be required during dredging operations in this area.

6.4 INTERTIDAL FISH TRAP SURVEY

The fish traps identified in the intertidal archaeological survey do not lie within the proposed dredging footprint of the Project. However, sediment movement resulting from the construction of the lagoon, including both accretion that may necessitate maintenance dredging in future and sediment drawdown resulting from dredging, may affect these fish traps in future.

As a compensatory mitigation measure a survey will be conducted by a suitably qualified archaeological contractor to record these sites in greater detail than was necessary for the ES, prior to the commencement of the marine works.

A detailed method statement for the inter-tidal survey and recording of the fish traps will be produced by the Retained Archaeologist and approved by NRW MLT or the relevant planning authority, advised by GGAT/Cadw, three months in advance of the work being undertaken.

6.5 ARCHAEOLOGICAL WATCHING BRIEF

An archaeological watching brief can be broadly defined as a formal programme of archaeological monitoring involving attendance by an archaeological contractor during activities associated with a Project which may impact archaeological receptors (The Crown Estate, 2010a; CIfA, 2014b).

As stated above in Section 6.2, the implementation of a watching brief for all dredging operations, given the dredging options to be used for the Project, will not be useful or practical.

Instead, there will be a series short-duration archaeological watching briefs during the dredging of areas of archaeological interest / potential.

All watching brief activities under this WSI will be conducted in accordance with the CIfA Standard and guidance for an archaeological watching brief (CIfA, 2014b), as well as this WSI.

6.5.1 Scope of the Watching Brief

The following watching briefs will be implemented for this Project:

- An Archaeological Contractor will be present on the dredger during operations around sites 3, 33-35, 37-39, 43-55, 57-58 (see Appendix 1). Depending on the results of the ground-truthing of
these sites and geophysical anomalies, TLSB and the Retained Archaeologist may remove the need for a watching brief for some / all these sites, subject to the approval of Cadw;

- If items of debris listed in the archaeological gazetteer (navigation lights and buoys, ground tackle, etc.) and material like wooden supports for the Neath Training Wall need to be lifted in advance of dredging an Archaeological Contractor will be present during such operations.

### 6.5.2 Implementation of the Watching Brief

TLSB will ensure that there is an archaeologist present on contractor vessels during the dredging and recovery operations described above.

In the event of archaeological material being found during the watching brief, the Archaeological Contractor will have the power to stop or divert dredging until the find has been properly reported and assessed.

Where the Archaeological Contractor has the power to suspend work, he or she will, in exercising such power, follow procedures previously agreed with TLSB and the construction contractors.

Within the constraints of the requirements of archaeological investigation, the Archaeological Contractor will minimise any impact on TLSB’s works programme and will not cause unreasonable disruption to the maintenance of the work schedules of other contractors.

If significant archaeological or palaeoenvironmental deposits are encountered then TLSB, in consultation with GGAT/ Cadw, will make provision for the Archaeological Contractor to undertake a programme of investigation commensurate with the significance of the evidence discovered.

The Archaeological Contractor will keep a record of the date, time, duration and details of all watching briefs, the timing and position of any finds made and describe any actions taken. This watching brief log will be submitted to the Retained Archaeologist (where this is not the Archaeological Contractor) on a regular basis, and at the end of the construction of the Project, will form part of the watching brief report.

### 6.6 Protocol for Archaeological Discoveries

A Protocol for Reporting Archaeological Discoveries will be implemented during all offshore construction works for the Project.

The Protocol makes provision for dealing with finds of archaeological material made in the course of the construction of the tidal lagoon by the staff of TLSB contractors, when an archaeologist is not present on site.

The objective of the Protocol is to provide a mechanism for such finds to be rapidly reported and appropriately dealt with. It is therefore designed to be convenient to implement in the course of daily Project activities and, at the same time, meet the heritage management requirements of GGAT and Cadw in respect of safeguarding the marine historic environment.

Once detail with respect to Project contractors, staff and vessels is known, but before construction on the Project commences, the Retained Archaeologist will update the Protocol set out in the following sections for use during the construction and operation of the Project.

The Protocol will be submitted to GGAT and Cadw and implemented by TLSB and its contractors.
6.6.1 Implementation of the Protocol

The Protocol is in place to allow any discoveries of archaeological material made by the staff of PProject contractors to be reported to an agreed representative on their vessel - known as the Site Champion and usually, and ideally, the Master - who then reports the find to a so-called Nominated Contact.

The Nominated Contact is an individual on the contractor’s staff who has been nominated to coordinate implementation of the Protocol on behalf of that contractor.

The Nominated Contact will inform the TLSB Environmental Manager and the Retained Archaeologist of the discovery.

Once the find has been archaeologically assessed, GGAT and Cadw will also be informed.

Figure 1 of Appendix 5 sets out the finds reporting process in broad terms. Detail of the responsibilities of each key participant in the implementation of the Protocol are described in the following and shown in Figures 2 - 4 of Appendix 5.

6.6.2 Timing

The Protocol requires action to be taken by the various parties when a find is made. The timescales within which actions occur will be critical to safeguarding finds of archaeological interest and to avoiding unreasonable disruption to Project operations.

Where contractor staff on a vessel notice something that may be of archaeological interest, it is important that action is taken immediately.

Any occurrence will therefore, be noted and brought to the attention of the Site Champion and/or Master immediately. The Site Champion will take the actions necessary to safeguard finds and information relating to them, in the short term.

It is important that information is then passed on promptly to the Nominated Contact, TLSB Environmental Manager and the Retained Archaeologist, so that decisions on how to deal with the finds, which may have operational implications, can be taken promptly.

6.6.3 Discoveries on the Seabed

Tell the Site Champion (Figure 2):

• If resistance on the dredgehead or the interruption in the flow of dredged material indicates that an object or structure has been encountered on the seabed, the Officer on Watch will inform the Master immediately, who will normally be the Site Champion. Immediate action is required not only for the sake of any potential archaeological material, but also to ensure the safety of the dredgehead.

• Where it is possible to identify the position of the anomaly, the Officer on Watch will avoid making additional dredging passes in the vicinity of the seabed location until archaeological advice has been obtained.

• The Officer on Watch will arrange for dredging gear to be examined as soon as possible to see if any archaeological material is trapped within it, and will inform the Master and Site Champion accordingly.
Actions by the Site Champion (Figure 2):

- The Site Champion will note the occurrence as soon as possible in the vessel’s log, together with the time and exact vessel position. Where possible, the log entry will include a close approximation of the original position of the anomaly on the seabed. The area must also be marked on navigational software.

- Where the position of a seabed anomaly or find is reasonably certain, the Site Champion will implement a temporary AEZ to ensure all dredging operations or other Project works are excluded until archaeological advice has been obtained.

- The Site Champion will compile a record of the occurrence using a Preliminary Record Form (see Appendix 2).

- The Site Champion will inform the Nominated Contact of the occurrence as soon as possible and pass on all available information, including a copy of the preliminary record and copies of any photographs, drawings or other records that have been made.

- If finds have been recovered, the Site Champion will arrange for them to be immersed in seawater in a suitable clean container, which should be covered and stored in a cool, dark place. Items must be fully immersed and any rust, concretion or marine growth must not be removed.

- If no archaeological material has been recovered, then no additional actions are required of staff on the vessel.

6.6.4 Discoveries on Board

Tell the Site Champion (Figure 2):

- If a find of archaeological interest is made on board the dredging vessel (see Appendix 3), either within the cargo or trapped in the dredge gear, the vessel staff must immediately inform the Officer on Watch. The Officer on Watch will inform the Master, who will normally be the Site Champion.

- Where it is possible to identify the seabed position from which the find originated, the Officer on Watch will avoid making additional dredging passes in the vicinity of the seabed location until archaeological advice has been obtained.

Actions by the Site Champion (Figure 2):

- The Site Champion will note the occurrence as soon as possible in the vessel’s log, together with the time and exact vessel position. Where possible, the log entry will include a close approximation of the original position of the anomaly on the seabed. The area must also be marked on navigational software.

- Where the position of a seabed anomaly or find is reasonably certain, the Site Champion will implement a temporary AEZ to ensure all dredging operations or other Project works are excluded until archaeological advice has been obtained.
• The Site Champion will compile a preliminary record of the occurrence using a Preliminary Record Form (see Appendix 2).

• The Site Champion will inform the Nominated Contact of the occurrence as soon as possible and pass on all available information, including a copy of the preliminary record and copies of any photographs, drawings or other records that have been made.

• The Site Champion will arrange for the finds to be immersed in seawater in a suitable clean container, which should be covered. Items must be fully immersed and any rust, concretion or marine growth must not be removed.

6.6.5 All Discoveries

Actions by the Nominated Contact (Figure 3):

• Once informed of a find by a Site Champion, the Nominated Contact will confirm with the Site Champion that all the details in the Preliminary Record are comprehensive and correct.

• The Nominated Contact will then simultaneously pass on to the Retained Archaeologist and TLSB all available information relating to the circumstances of the find. This will include a copy of the Preliminary Record and copies of any photographs, drawings or other records that have been made.

• If artefacts have been recovered, the Nominated Contact will make them available for inspection by the Retained Archaeologist and TLSB.

• The Nominated Contact will inform other vessels dredging in the area of the find and of the introduction of the temporary AEZ.

Actions by the Retained Archaeologist (Figure 4):

• On receipt of a report by the Nominated Contact, the Retained Archaeologist will carry out a rapid review the information provided, using available geophysical, geotechnical and desk based data as applicable, to assess the archaeological interest or potential of the find.

• The Retained Archaeologist will send an initial response to Nominated Contact who will acknowledge receipt. Assuming receipt of a fully detailed Preliminary Report, and depending on the nature of the find, the Retained Archaeologist will produce the initial response within 24 hours of the notification.

• If the initial review suggests the find to be of low archaeological interest and within the lagoon footprint dredge area, within one week the Retained Archaeologist will, after more detailed assessment, advise the TLSB Environmental Manager that the temporary AEZ may be lifted and that construction activities in the vicinity of the discovery may recommence. If the find is within the footprint of the lagoon breakwater or temporary bund, due to the programme critical nature of these works and constrained working footprint meaning a temporary AEZ would delay working, the Retained Archaeologist will provide a more detailed assessment within 48 hours and advise whether the temporary AEZ may be lifted. Finds of low archaeological interest include reports of single, apparently isolated, finds that are not datable or are of modern (post-1800) or later date.
• If the initial review assesses the find to be of high archaeological interest and within the lagoon footprint dredge area, within one week the Retained Archaeologist will confirm the retention of the temporary AEZ and notify GGAT/Cadw of the discovery, making any recovered finds available to them for inspection. If the find is within the footprint of the lagoon breakwater or temporary bund, due to the programme critical nature of these works and constrained working footprint meaning a temporary AEZ would delay working, the Retained Archaeologist will provide a more detailed assessment within 48 hours and notify GGAT and Cadw. Finds of high archaeological interest include material that is of post-medieval or earlier date; material that relates to military aircraft; multiple finds from the same area; material that indicates the presence of a wreck or other structural remains on the seabed; and peat or other fine-grained sediments that contain worked flint, charcoal or bone.

• Construction may not recommence in the temporary AEZ, following the notification of GGAT and Cadw, without the written approval of GGAT or Cadw, to be received within the timescales set out below.

• All available information relating to the circumstances of the occurrence, including a copy of the Preliminary Record and copies of any photographs, drawings or other records that have been made will be passed on to GGAT and Cadw.

• Within two weeks of the receipt of a report of a find within the lagoon footprint dredge area, GGAT and Cadw will advise the Retained Archaeologist of any further actions as might be required. These may include further action to be taken in respect of the find; advice on the identification of finds and the character of their seabed locations; advice on proposals to further evaluate any finds; and advice on proposals to mitigate the effects of dredging on any finds. Should finds be encountered within the footprint of the lagoon breakwater or the temporary bund, then within 3 days of the receipt of a report of a find, GGAT and Cadw will advise the Retained Archaeologist of any further actions required.

• In formulating their advice GGAT/Cadw may liaise, as appropriate, with: the county or local government archaeological officer(s); the Portable Antiquity Officer; the Receiver of Wreck; the Ministry of Defence; and the Crown Estate (TCE). GGAT/Cadw will take account of the views of the above and inform them of subsequent actions in respect of any find.

• On receipt of advice from GGAT/Cadw, the Retained Archaeologist will advise the TLSB Environmental Manager and the Nominated Contact of the implications of the discovery and of further actions that will be required. These may include the conversion of a temporary AEZ into an AEZ or the implementation of a watching brief (if this is not already in place for the specific activity) or further investigative activity. The reasons for conclusions reached about the find will be provided to the Nominated Contact and TLSB.

• The implementation of such subsequent actions will be the direct responsibility of TLSB and will be agreed on a case-by-case with GGAT/Cadw and NRW MLT or the relevant planning authority, with the assistance of the Retained Archaeologist.

• The Retained Archaeologist will arrange with the TLSB Environmental Manager to hold the finds, pending deposition with the Project artefact repository.

• The Retained Archaeologist will produce a summary report which describes the material recovered, the circumstances and location of its recovery, the results of the assessment of its
archaeological potential, and the actions agreed with the curator/s. This report will be submitted to:

i. The TLSB Environmental Manager, the Nominated Contact, the Site Champion and all other relevant Project staff;
ii. NRW MLT or the relevant planning authority and Cadw/GGAT; and
iii. The museum that has agreed to act as the Project repository.

Other Notifications Required (Figure 4):

• If the find is ‘wreck’ within the meaning of the Merchant Shipping Act (1995) then a report must be made to the Receiver of Wreck (RoW) within 28 days of the discovery. Where the find is ‘treasure’ under the Merchant Shipping Act 1995 and Treasure Act 1996 the local coroner must be informed within 14 days. These are legal requirements and failure to report is a criminal offence.

• The Receiver of Wreck can be contacted at:
  Address: Spring Place, 105 Commercial Road, Southampton, SO15 1EG
  Phone: 02380 329 474
  Email: row@mcga.gov.uk

• The Coroner for Swansea can be contacted at:
  Address: Civic Centre, Oystermouth Road, Swansea, SA1 3SN
  Phone: 01792 636237
  Email: coroner@swansea.gov.uk

6.6.6 Monitoring the Protocol
Every quarter the Retained Archaeologist will prepare and submit to the TLSB Environmental Manager, a report for GGAT and Cadw on the implementation of this Protocol.

The report will describe finds made in the preceding three months and provide additional information, where available, about finds made earlier in the programme and subject to archaeological assessment/analysis.

6.7 Archaeological Input into Supporting Activity Works and Surveys
If new geophysical, geotechnical and other site investigations are commissioned by TLSB during the pre-construction or construction phases of the Project, archaeological input into the design, specification and/or survey outputs will be sought in advance by TLSB. As these investigations will be subject to their own licensing and consenting process, separate consideration will be given to the requirements for archaeological mitigation or management and therefore are excluded from this WSI, which specifically addresses the Project activities consented by the DCO.
7 ARCHAEOLOGICAL METHOD STATEMENTS

Each package of archaeological work will be subject to a Method Statement that is consistent with this WSI. Method Statements will be prepared for TLSB by the Retained Archaeologist, and the following method statements will be prepared:

- Establishment and amendment to Archaeological Exclusion Zones
- Pre-dredge anomaly ground truthing
- Review of archaeological vibrocores
- Intertidal fish trap survey
- Archaeological watching brief
- Protocol for archaeological discoveries

It is considered that the methods for the establishment and amendment to AEZ, implementation of the archaeological watching brief and implementation of the protocol for archaeological discoveries are provided in sufficient detail within this WSI to be able to be carried out effectively and in line with the appropriate standards and guidance.

A programme for the production of the remaining detailed method statements and subsequent activities is provided in Appendix 4.

TLSB will submit each Method Statement to GGAT/Cadw in advance of the archaeological works, which will not commence until the archaeological curator/s have confirmed their agreement with the Method Statement and have advised NRW MLT or the relevant planning authority in this regard. GGAT, Cadw and NRW MLT or the relevant planning authority’s approval will be assumed if no response is received within 21 days of submission.

For each activity, TLSB will make provision for GGAT/Cadw to monitor the conduct of the archaeological work as appropriate, including site visits, interim statements and/or meetings with TLSB, the Retained Archaeologist and the Archaeological Contractor.

The remaining Method Statements will address the following, as appropriate to the works being proposed:

- Relation between DCO requirements, Marine Licence condition(s), the WSI and the Method Statement;
- The context of the proposed work relevant to Project construction works;
- A summary of the results of previous archaeological investigations in the vicinity;
- The specific objectives of archaeological works and the extent of the proposed investigation;
- An investigation methodology, which will describe the methods to be employed, the recording system, and the approach to finds, including the policy for selection, retention and disposal and provision for immediate conservation and storage;
- Any environmental sampling strategy envisaged;
- Anticipated post-investigation actions, including the 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;

• A timetable for the work, to include investigation and post-investigation actions;

• Monitoring arrangements, including monitoring by GGAT/ Cadw if required; and

• Health, safety and welfare issues.

8 MONITORING AND REVIEWING THE WSI

8.1 MONITORING

The performance of this WSI in respect of Project activities will be monitored through compliance reports produced to meet the DCO requirements and Marine Licence conditions following the completion of Project activities.

The monitoring of the AEZ around Wreck 05 during construction is not required (see Section 6.1.2). The implementation of any new AEZs will be monitored according to the procedure and at the intervals set out in Section 6.1.5.

Monitoring of the results of other archaeological activities undertaken during construction will be provided by a series of activity-specific reports prepared following work by either an Archaeological Contractor or the Retained Archaeologist (see Section 9.2 below).

TLSB’s Environmental Manager and the Retained Archaeologist will agree the system for archaeological reporting before the commencement of the Project.

Reports will be submitted by the Retained Archaeologist to the TLSB Environmental Manager who will, in turn, ensure their submission to GGAT/Cadw and NRW MLT or the relevant planning authority.

Work undertaken in terms of this WSI will abide by the detailed information related to the requirements and minimum standards for archaeological reporting, archiving and publication in Section 2 (Archaeological Recording, Reporting, Data Management and Archiving) of the Crown Estate’s Model Clauses for Archaeological WSIs (The Crown Estate, 2010a).

8.2 MONITORING VISITS

Archaeological method statements prepared as part of the implementation of this WSI will also include provision for GGAT/Cadw to monitor the progress of the archaeological investigations directly, as appropriate to that element; be that through site visits or meetings with TLSB, its contractors and the Retained Archaeologist.

GGAT/Cadw will thus be notified in advance by TLSB of work timetables and the commencement of any work on site that may impact on the archaeology. TLSB will inform GGAT/Cadw at this time of the Retained Archaeologist’s key staff. A programme of archaeological monitoring visits, if deemed appropriate by GGAT/Cadw and TLSB, will be then agreed in advance of the commencement of work on site.
8.3 WSI REVIEWS AND REVISIONS

This WSI is a living document and may be reviewed and revised during the life of the Project, if elements of the Project change or particular archaeological issues that are not anticipated in the current document come to light.

Any revisions of the WSI will be prepared by the Retained Archaeologist and submitted to the TLSB Environmental Manager who will ensure they are submitted to and approved by NRW MLT or the relevant planning authority, advised by GGAT/Cadw.

Approval of the changes by GGAT/Cadw and NRW MLT or the relevant planning authority will be assumed if no contrary response is received within 21 working days of submission.

9 ACTIVITIES SUBSEQUENT TO ARCHAEOLOGICAL INVESTIGATIONS

Post-fieldwork assessment forms part of the mitigation requirements to be satisfied as part of this WSI.

The scope of any post-fieldwork assessment of archaeological material recovered by the Project will be agreed between TLSB and GGAT/Cadw, following submission of investigation reports by the Retained Archaeologist.

The extent of such work will be based on the potential importance of the results that arise, in terms of their contribution to archaeological knowledge, understanding or methodological development, and will include publication of important results in a recognised peer-reviewed journal or as a monograph.

In the course of post-fieldwork assessment, any archaeological finds and environmental samples recovered during the construction of the tidal lagoon will be processed according to professional archaeological standards for finds analysis, environmental sampling and archive preparation, and in accordance with CIfA’s Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014a).

Finds and other items of archaeological interest recovered in the course of investigation are the property of the Crown Estate as the landowner, with the exception of items that are 'treasure' for the purposes of the Treasure Act 1996 and 'wreck' for the purposes of the Merchant Shipping Act 1995.

TLSB will seek permission from the landowner to donate any finds to an appropriate Museums Service prior to depositing the archive.

9.1 ARCHIVES

It is accepted practice to keep together a Project archive, comprising written, drawn, photographic and artefactual elements and a summary of its contents. This archive is, at the end of any Project once their contents are in the public domain, deposited and in an appropriate receiving institution where the material and documents will be available for future reference and study.

GGAT/Cadw and the Retained Archaeologist will agree, in advance of the commencement of works, with an appropriate receiving institution in Wales, a policy for the selection, retention and disposal of any archaeological material recovered during the course of the Project. This agreement will define 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.
GGAT’s Historic Environment Record (HER) is the official register in the south-east of Wales of archaeological sites. At a national level, the National Monuments Record of Wales (known as Coflein) is maintained by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) to ensure that Wales’s archaeological and maritime heritage is recorded.

The archive repository/s will be notified of each archaeological investigation in advance of fieldwork and any specific requirements from them relating to the preparation and deposition of Project archives will be accommodated, as appropriate in the method statement for that work.

Written archives will be on clean, stable materials, and will be suitable for photocopying. The materials used will be of the standard recommended in Guidelines for the Preparation of Excavation Archives for Long-term Storage (Walker 1990).

Archives will be prepared in accordance with procedures outlined in Standards in the Museum Care of Archaeological Collections (Museum and Galleries Commission 1992), Archaeological Documentary Archives, Preparation, Curation and Storage (Ferguson and Murray 1997) and in accordance with the requirements of the recipient institution.

Written, drawn and photographic archives will be compiled to a standard that allows for the publication of a summary report.

Archives, including written, drawn, photographic and material elements (together with a summary of the contents of the archive), will be deposited in accordance with the requirements of the appropriate Museums Service.

The timetable for depositing information from individual investigations to the archives will be set out in the relevant Method Statements, as informed by TLSB’s overall provision for the management of the Project archives, however all information will be deposited not more than six months from the completion of the construction phase unless specific requirements for deposition prevent this from being achieved.

9.2 Reports

Each package of archaeological work undertaken during the construction of the Project will result in an Archaeological Report.

Each Archaeological Report will satisfy the Method Statement for the investigation in question 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 Standards and guidance document, but will, at a minimum contain a non-technical summary; a statement of the aims and objectives of the work; a description of the methodology employed; the results achieved and conclusions reached.

Reports will include illustrations at appropriate scales, relevant supporting data (tabulated or in appendices), an index to and location of the Project archive and a list of references.

Each report will be submitted in draft to the Retained Archaeologist for submission to TLSB’s Environmental Manager who will forward a copy of to GGAT and/or Cadw. If the report is prepared by the Retained Archaeologist it will be submitted directly to TLSB.
On completion of archaeological works relating to the Project, and to a timetable agreed with TLSB and GGAT/Cadw, the Retained Archaeologist will prepare an overarching report on the archaeology of the Project. Full copyright of each report shall be retained by the originator under the Copyright, Designs and Patents Act 1988 with all rights reserved, excepting that TLSB will be licensed to use each report in all matters directly relating to the Project as described in the specification.

9.3 PUBLICATION

Publicly accessible research is intrinsic to historic environment practice and enables all parties to gain maximum benefit from the investigations that are undertaken as part of any Project.

Archaeologically significant results of investigations undertaken in connection with the Project will be published in at least one appropriate peer-reviewed local, national, thematic or period-based journal or as a monograph.

The Retained Archaeologist, following construction, will propose details of recommended Project-based publications in a final post-investigation assessment.

10 HEALTH AND SAFETY

TLSB’s Health and Safety Manager will ensure that the Retained Archaeologist and Archaeological Contractor are made aware of the relevant requirements of Project Health and Safety Plans.

Health and Safety arrangements must be agreed and understood by all relevant parties before work commences and risk assessments carried out and documented for every field Project.

Any archaeological method statements prepared to meet the requirements of the WSI will be compliant with the requirements of TLSB’s Health and Safety Plans for the Project.

Health and Safety considerations will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times.

All work will be carried out in accordance with the Health and Safety at Work etc. Act 1974 and the Management of Health and Safety Regulations 1992, and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

The Archaeological Contractor undertaking the works must ensure that he or she has adequate public and employer’s liability and some relevant form of civil liability indemnity or professional indemnity insurance in place.

The Retained Archaeologist will supply a copy of their Risk Assessment to TLSB and their on-site contractors before the commencement of any fieldwork. This document will be read and acknowledged by all members of staff involved in the fieldwork. This will incorporate an interface document between the Health and Safety system of the Retained Archaeologist and that of the construction contractor.

11 REFERENCES


Chartered Institute for Archaeologists, 2014a, *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials*, Available online


Walker, K., 1990, Guidelines for the preparation of excavation archives for long-term storage, UKIC.
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<td>Documented loss of Bristol Beaufighter IIF T3146. Recorded as being lost in Swansea Bay – no indication of wreckage at this location – for filing only.</td>
</tr>
<tr>
<td>4</td>
<td>268990</td>
<td>19208</td>
<td>General</td>
<td>90542</td>
<td>Cartographic / HER record</td>
<td>Fish trap</td>
<td>Modern</td>
<td>A large 'V' shaped fish trap is visible on an historic Admiralty chart (1883-4) and is represented by what appears to be a wide scatter of stones (up to 200m in places), indicating that it had fallen into disrepair at the time the area was surveyed. The majority of the fish trap is located under what is now King's Dock and Queen's Dock.</td>
</tr>
<tr>
<td>5</td>
<td>270500</td>
<td>19250</td>
<td>General</td>
<td>04633</td>
<td>HER record</td>
<td>Wreck</td>
<td>Post-medieval</td>
<td>Crymlyn Burrows Wreck. Substantial remains of a timber wreck, possibly a barge or trow but classification cannot be definite, partially obscured by build-up of sand and standing water, lying on open beach approx. 150m seaward of dunes known as Crymlyn Burrows. Evaluated in 1997 (Nayling 1997).</td>
</tr>
<tr>
<td>6</td>
<td>266700</td>
<td>19200</td>
<td>General</td>
<td>03113</td>
<td>HER record</td>
<td>Pier</td>
<td>Post-medieval</td>
<td>West Pier, Breakwater.</td>
</tr>
<tr>
<td>7</td>
<td>266526</td>
<td>19193</td>
<td>Precise</td>
<td>308198</td>
<td>HER record</td>
<td>Navigation light</td>
<td>Post-medieval</td>
<td>Swansea Harbour Lights West Pier</td>
</tr>
<tr>
<td>8</td>
<td>265280</td>
<td>18860</td>
<td>General</td>
<td>506648</td>
<td>HER record</td>
<td>Oyster beds</td>
<td>Post-medieval</td>
<td>Green Grounds Oyster Beds recorded on the HER (there is some doubt as to the location given due to the proximity of the record to the navigation channel)</td>
</tr>
<tr>
<td>9</td>
<td>266310</td>
<td>19085</td>
<td>Precise</td>
<td>506621</td>
<td>HER record</td>
<td>Navigation buoy</td>
<td>Modern</td>
<td>Channel Buoy</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>266840</td>
<td>188940</td>
<td>Precise</td>
<td>506645</td>
<td>Navigation buoy</td>
<td>Modern</td>
<td>Green Grounds Buoy</td>
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<tr>
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<td>Navigation buoy</td>
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<tr>
<td>12</td>
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<td>River Tawe Channel Buoy</td>
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<tr>
<td>13</td>
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<td>506628</td>
<td>Navigation buoy</td>
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<tr>
<td>14</td>
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<td>191930</td>
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<td>River Neath Channel Buoy</td>
<td></td>
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<tr>
<td>15</td>
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<td>191030</td>
<td>Precise</td>
<td>506630</td>
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<td>River Neath Channel Buoy</td>
<td></td>
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<tr>
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<tr>
<td>17</td>
<td>270880</td>
<td>191260</td>
<td>Precise</td>
<td>506634</td>
<td>Navigation light</td>
<td>Modern</td>
<td>Training Wall Light</td>
<td></td>
</tr>
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<td>18</td>
<td>271860</td>
<td>192280</td>
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<td>506638</td>
<td>Training wall</td>
<td>Modern</td>
<td>Wooden Stake associated with the River Neath training wall</td>
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</tr>
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<td>19</td>
<td>271600</td>
<td>191980</td>
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</tr>
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<td>191880</td>
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<td>21</td>
<td>271070</td>
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<tr>
<td>Precise</td>
<td>HER record</td>
<td>Training wall</td>
<td>Precise</td>
<td>HER record</td>
<td>Navigation light</td>
<td>Modern</td>
<td>Modern</td>
<td>Training Wall Light</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>Precise</td>
<td>Training Wall for the canalised mouth of the Neath river.</td>
<td></td>
<td>Precise</td>
<td>Training Wall Light</td>
<td></td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Precise</th>
<th>This study</th>
<th>Archaeological survey</th>
<th>Fish trap</th>
<th>Post-medieval/Modern</th>
<th>Stone Line – probably part of a fish trap. Recorded during walkover survey.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Training wall</td>
<td>Post-medieval</td>
<td>Stone Line associated with the River Neath training wall. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Stone Line – probably part of a fish trap. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Stone Line – probably part of a fish trap. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Timber – probably part of a fish trap. Recorded during walkover survey.</td>
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<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Stone Pile – probably part of a fish trap. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Stone Line – probably part of a fish trap. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Archaeological survey</td>
<td>Fish trap</td>
<td>Post-medieval/Modern</td>
<td>Stone Pile – probably part of a fish trap. Recorded during walkover survey.</td>
</tr>
<tr>
<td>Precise</td>
<td>This study</td>
<td>Aerial photo</td>
<td>Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern</td>
<td>Wreckage noted on 1966 aerial photo close to eastern breakwater of Swansea Docks</td>
</tr>
<tr>
<td>Precise</td>
<td>S</td>
<td>Geophysical – sidescan and Magnetic anomalies</td>
<td>Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern</td>
<td>Sidescan anomaly, potentially anthropogenic debris. 3m long associated with a 11nT magnetic anomaly</td>
</tr>
<tr>
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<td>Precise</td>
<td>S2</td>
<td>Geophysical – sidescan anomaly</td>
<td>Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern</td>
<td>Sidescan anomaly, potentially anthropogenic debris. 6m long by 0.7m high</td>
</tr>
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<td>Precise</td>
<td>S3</td>
<td>Geophysical – sidescan anomaly</td>
<td>Buoy</td>
<td>Modern</td>
<td>3m long sidescan anomaly – likely to be ground tackle for modern buoy</td>
</tr>
<tr>
<td>Precise</td>
<td>S5</td>
<td>Geophysical – sidescan anomaly</td>
<td>Debris – possibly</td>
<td>Post-medieval/Modern</td>
<td>Sidescan anomaly, potentially anthropogenic debris. 1.5m long by 0.8m high</td>
</tr>
<tr>
<td>Precise</td>
<td>S6</td>
<td>Geophysical – sidescan anomaly</td>
<td></td>
<td></td>
<td>Sidescan anomaly, potentially anthropogenic debris. 1.3m wide by 0.6m high</td>
</tr>
<tr>
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<td>S7</td>
<td>Geophysical – sidescan and Magnetic anomalies</td>
<td>Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern</td>
<td>Sidescan anomaly, potentially anthropogenic debris. 1.3m long by 1m high, associated with a 10nT magnetic anomaly</td>
</tr>
<tr>
<td>Precise</td>
<td>S8</td>
<td>Geophysical – sidescan and Magnetic anomalies</td>
<td></td>
<td></td>
<td>Sidescan anomaly identified a 12m diameter coil of wire, associated with a 23nT magnetic anomaly</td>
</tr>
<tr>
<td>Precise</td>
<td>S9</td>
<td>Geophysical – sidescan anomaly</td>
<td>Buoy</td>
<td>Modern</td>
<td>4m long sidescan anomaly – likely to be ground tackle for modern buoy</td>
</tr>
<tr>
<td>Precise</td>
<td>S10</td>
<td>Geophysical – sidescan anomaly</td>
<td>Buoy</td>
<td>Modern</td>
<td>40m long sidescan anomaly – likely to be ground tackle for modern buoy</td>
</tr>
<tr>
<td>Precise</td>
<td>S11</td>
<td>Geophysical – sidescan anomaly</td>
<td>Anomaly disturbed seabed</td>
<td>Post-medieval/Modern</td>
<td>Sidescan anomaly comprising a 5m diameter area of disturbed seabed</td>
</tr>
<tr>
<td>ID</td>
<td>Date</td>
<td>Precise</td>
<td>ID1</td>
<td>Description</td>
<td>Location Details</td>
</tr>
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<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>44</td>
<td>267492</td>
<td>Precise</td>
<td>S12</td>
<td>Geophysical side scan anomaly – Anomaly – disturbed seabed</td>
<td>Post-medieval/Modern. Sidescan anomaly comprising a 5m diameter area of disturbed seabed</td>
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<tr>
<td>45</td>
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<td>S13, M35</td>
<td>Geophysical side scan anomaly – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Sidescan anomaly, potentially anthropogenic debris. 2.5m long by 0.3m high associated with a 15nT magnetic anomaly</td>
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<td>46</td>
<td>267579</td>
<td>Precise</td>
<td>S14</td>
<td>Geophysical side scan anomaly – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. 7m long sidescan anomaly, potential anthropogenic in origin</td>
</tr>
<tr>
<td>47</td>
<td>268177</td>
<td>Precise</td>
<td>S15</td>
<td>Geophysical side scan anomaly – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Low sidescan anomaly, 9m by 12m, potentially anthropogenic in origin</td>
</tr>
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<td>48</td>
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<td>S16</td>
<td>Geophysical side scan anomaly – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Sidescan anomaly, potentially anthropogenic debris. 7m long by 0.2m high</td>
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<td>49</td>
<td>266783</td>
<td>Precise</td>
<td>S18, M36</td>
<td>Geophysical side scan and Magnetic anomalies – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Low sidescan anomaly, 7m by 5m, potentially anthropogenic in origin associated with a 9nT magnetic anomaly</td>
</tr>
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<td>50</td>
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<td>Precise</td>
<td>S19</td>
<td>Geophysical side scan anomaly – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Sidescan anomaly, potentially anthropogenic debris. 10m long</td>
</tr>
<tr>
<td>51</td>
<td>267505</td>
<td>Precise</td>
<td>S20, M38</td>
<td>Geophysical side scan and Magnetic anomalies – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Sidescan anomaly, potentially anthropogenic debris. 5m long, associated with a 9nT magnetic anomaly</td>
</tr>
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<td>52</td>
<td>266658</td>
<td>Precise</td>
<td>S21, M51</td>
<td>Geophysical side scan and Magnetic anomalies – Anomaly – disturbed seabed</td>
<td>Post-medieval/Modern. Sidescan anomaly consisting of a 15m diameter disturbed area of seabed associated with a 10nT magnetic anomaly</td>
</tr>
<tr>
<td>53</td>
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<td>S22, M52</td>
<td>Geophysical side scan and Magnetic anomalies – Debris – possibly anthropogenic</td>
<td>Post-medieval/Modern. Sidescan anomaly consisting of a 2m diameter cluster of small objects associated with a 8nT magnetic anomaly</td>
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<tr>
<td>No.</td>
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<td>Site</td>
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<td>S23, M59</td>
<td>Geophysical sidescan and Magnetic anomalies</td>
<td>Debris – possibly anthropogenic</td>
</tr>
<tr>
<td>55</td>
<td>269832</td>
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<td>S24, M63</td>
<td>Geophysical sidescan and Magnetic anomalies</td>
<td>Debris – possibly anthropogenic</td>
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<tr>
<td>56</td>
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<td>S25</td>
<td>Geophysical sidescan anomaly</td>
<td>Wire</td>
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<td>Precise</td>
<td>S26</td>
<td>Geophysical sidescan anomaly</td>
<td>Anomaly – possible debris</td>
</tr>
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<td>58</td>
<td>269262</td>
<td>Precise</td>
<td>S27</td>
<td>Geophysical sidescan anomaly</td>
<td>Anomaly disturbed</td>
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</table>
# Protocol for Archaeological Discoveries: Offshore Renewables Projects

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

<table>
<thead>
<tr>
<th>Company Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel/Team Name:</td>
</tr>
<tr>
<td>Site/sea area Name:</td>
</tr>
<tr>
<td>Date:</td>
</tr>
<tr>
<td>Time of compiling information:</td>
</tr>
<tr>
<td>Name of compiler (Site Champion):</td>
</tr>
<tr>
<td>Name of finder (if different to above):</td>
</tr>
</tbody>
</table>

| 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
### Description of the find/anomaly:

<table>
<thead>
<tr>
<th>Description of the find/anomaly:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Apparent size/extent of the anomaly:

<table>
<thead>
<tr>
<th>Apparent size/extent of the anomaly:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Details of any find(s) recovered:

<table>
<thead>
<tr>
<th>Details of any find(s) recovered:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Details of photographs, drawings or other records made of the find(s) (e.g. location figure):

<table>
<thead>
<tr>
<th>Details of photographs, drawings or other records made of the find(s) (e.g. location figure):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Details of treatment or storage of find(s):

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

### Date and time Nominated Contact informed:

<table>
<thead>
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<th>Date and time Nominated Contact informed:</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

### General notes:

<table>
<thead>
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</tbody>
</table>

### If discovered on the seabed:

<table>
<thead>
<tr>
<th>If discovered on the seabed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Derived from: e.g. Obstacle Avoidance Sonar, Cable Tensiometer?</td>
</tr>
<tr>
<td>b) Apparent size/extent of anomaly (length, width, height above seabed)</td>
</tr>
<tr>
<td>c) Extent of deviation/route development</td>
</tr>
</tbody>
</table>

### Signed: Date:

<table>
<thead>
<tr>
<th>Signed: Date:</th>
</tr>
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<td></td>
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</tbody>
</table>
APPENDIX 3: GUIDELINES FOR IDENTIFYING FINDS OF ARCHAEOLOGICAL INTEREST AND HANDLING ARTEFACTS


14.1.1 Rubber, Plastic etc
In most cases, rubber, plastic, bakelite and similar modern materials are not of archaeological interest and can be disregarded.

One exception is where such materials are found in the same area as aluminium objects and structures, which may indicate aircraft wreckage from World War II. Such material will be reported.

14.1.2 Iron and Steel
The potential range and date of iron and steel objects is so wide that it is difficult to provide general guidance. In broad terms, iron and steel objects which are covered by a thick amorphous concretelike coating (‘concretion’) are likely to be of archaeological interest and will be reported. Pieces of metal sheet and structure may indicate a wreck and will be reported. Specific operational measures are likely to apply in respect of ordnance (cannonballs, bullets, shells) that will take precedence over archaeological requirements.

However, discoveries of ordnance may be of archaeological interest, and they will be reported.

14.1.3 Other Metals
Items made of thin, tinned or painted metal sheet are unlikely to be of archaeological interest. Aluminium objects may indicate aircraft wreckage from World War Two, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences will be reported. Copper and copper alloy (bronze, brass) objects might indicate a wreck, or they may be very old. All occurrences will be reported. Precious metal objects and coins are definitely of archaeological interest because they are relatively easy to date. All occurrences will be reported.

14.1.4 Bone
Discoveries of animal bone, teeth and tusks are of archaeological interest because they may date to periods when the seabed formed dry land, and will be reported. Such bones, teeth, tusks etc. may have signs of damage, breaking or cutting that can be directly attributed to human activity. Large quantities of animal bone may indicate a wreck (the remains of cargo or provisions) and will be reported. Human bone is definitely of archaeological interest, and may, if buried and found within territorial waters, be subject to the provisions of the Burial Act 1857. Alternatively, it may be subject to the Protection of Military Remains Act 1986. Any suspected human bone will be reported, and treated with discretion and respect.

Objects made out of bone – such as combs, harpoon points or decorative items – can be very old and are definitely of archaeological interest. All occurrences will be reported.

14.1.5 Wood
Light coloured wood, or wood that floats easily, is probably modern and is unlikely to be of archaeological interest. ‘Roundwood’ with bark – such as branches – is unlikely to be of archaeological interest, although it may provide paleo-environmental evidence. However, roundwood that has clearly been shaped or made into a point will be reported. Pieces of wood that have been shaped or
jointed may be of archaeological interest, especially if fixed with wooden pegs, bolts or nails – all occurrences will be reported.

Objects made out of dark, waterlogged wood – such as bowls, handles, shafts and so on – can be very old and are definitely of archaeological interest. All occurrences will be reported.

14.1.6 Stone
Small to medium size stones that are shaped, polished and/or pierced may be prehistoric axes. All occurrences will be reported. Objects such as axe heads or knife blades made from flint are likely to be of prehistoric date and will be reported. Large blocks of stone that have been pierced or shaped may have been used as anchors or weights for fishing nets. All occurrences will be reported. The recovery of numerous stones may indicate the ballast mound of a wreck, or a navigational cairn. All occurrences will be reported.

14.1.7 Pottery
Any fragment of pottery is potentially of interest, especially if it is a large fragment. Items which look like modern crockery can be discarded, but if the item has an unusual shape, glaze or fabric it will be reported.

14.1.8 Brick
Bricks with modern proportions and v-shaped hollows (‘frogs’) are of no archaeological interest. Unfrogged, ‘small’, ‘thin’ or otherwise unusual bricks may date back to Medieval or even Roman times and will be reported.

14.1.9 Peat, Clay and Fine-Grained Sediments
Peat is black or brown fibrous soil that formed when sea level was so low that the seabed formed marshy land, for example on the banks of a river or estuary. Peat is made up of plant remains, and also contains microscopic remains that can provide information about the environment at the time it was formed. This information helps us to understand the kind of landscape that our predecessors inhabited, and about how their landscape changed. It can also provide information about rising sea level and coastline change, which are important to understanding processes that are affecting us today. Prehistoric structures (such as wooden trackways) and artefacts are often found within or near peat, because our predecessors used the many resources that these marshy areas contained. As these areas were waterlogged, and have continued to be waterlogged because the sea has risen, ‘organic’ artefacts made of wood, leather, textile and so on often survive together with the stone and pottery which are found on ‘dry’ sites.

Fine-grained sediments such as silts and clays are often found at the same places as peat. These finegrained sediments also contain the microscopic remains that can provide information about past environments and sea level change. Any discoveries of such material would be of archaeological interest, and their occurrence will be reported.
APPENDIX 4: PROGRAMME FOR PRODUCTION OF ARCHAEOLOGICAL METHOD STATEMENTS
<table>
<thead>
<tr>
<th>Method Statement</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment and amendment to Archaeological Exclusion Zones</td>
<td>Archaeological method provided in WSI. To be implemented from commencement of marine works in March 2017 for entirety of construction.</td>
</tr>
<tr>
<td>Pre-dredge anomaly ground truthing</td>
<td>Archaeological method statement requires final dredging and dewatering plan method statement from construction contractors. Ground truthing to be undertaken prior to commencement of marine works in March 2017.</td>
</tr>
<tr>
<td>Collection of archaeological vibrocores</td>
<td>Archaeological method statement requires final dredging and dewatering plan and method statement from construction contractors. Archaeological method statement to be prepared 3 months in advance.</td>
</tr>
<tr>
<td>Intertidal fish trap survey</td>
<td>Archaeological method statement requires final dredging plan method statement from construction contractors. Survey to be undertaken prior to commencement of marine works in March 2017. Archaeological method statement to be prepared 3 months in advance.</td>
</tr>
<tr>
<td>Archaeological watching brief</td>
<td>Archaeological method provided in WSI. The requirement for the archaeological watching brief may be removed depending on final construction methods and configuration of the pre-dredge anomaly ground truthing task. To be implemented for lifting and dredging works in vicinity of known assets.</td>
</tr>
<tr>
<td>Protocol for archaeological discoveries</td>
<td>Archaeological method provided in WSI. To be implemented from commencement of marine works in March 2017 for entirety of construction.</td>
</tr>
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</table>

**Production of Method Statement**

<table>
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<tr>
<th>Implementation of activity</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
<th>2029</th>
<th>2030</th>
<th>2031</th>
<th>2032</th>
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</thead>
<tbody>
<tr>
<td>Marine WSI Archaeological Mitigation programme</td>
<td></td>
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</tbody>
</table>
Figure 2
General layout plan showing areas proposed for dredging

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PROJECT TITLE
SWANSEA BAY TIDAL LAGOON

DRAWING TITLE
Figure 2

ISSUED BY
Cotswold Archaeology T: 01285 771022

DATE
Jul 2015 DRAWN AO

SCALE
A3 1:20,000 CHECKED JB

STATUS
Final APPROVED JB

DWG. NO. 5478 Swansea Lagoon Fig 2

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements are for indicative purposes only.

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APPENDIX 5: LINES OF COMMUNICATION FOR THE PROTOCOL FOR ARCHAELOGICAL DISCOVERIES

Figure 1: Outline Find Reporting protocol

An anomaly is found / noted on the seabed

A discovery is made aboard a vessel

Contractor staff inform Site Champion

Site Champion informs Nominated Contact

Nominated Contact informs Retained Archaeologist

Nominated Contact informs TLSB Project Manager

Nominated Contact informs other contractors

Retained Archaeologist informs Cadw
Figure 2: Actions by Site Champion

- From Contractor Staff
  - Site Champion is informed of find
    - Site Champion temporarily stops potentially damaging activities in area of find
    - Site Champion arranges Temporary AEZ
    - Site Champion notes find in site records as soon as possible
    - Site Champion notes position of find in navigation software
    - Site Champion complies Preliminary Record
    - Site Champion passes on to Nominated Contact all available information, including Preliminary Record
    - Site Champion arranges for storage of find/s as per the Protocol

- To Nominated Contact
Figure 3: Actions by Nominated Contact

From Site Champion

Nominated Contact confirms details in Preliminary Record with Site Champion

Nominated Contact informs:

Retained Archaeologist
TLSB Project Manager

Nominated Contact passes on to Retained Archaeologist and TLSB Project Manager all available information about find, including Preliminary Record, photos, drawings, etc.

Nominated Contact makes finds available to Retained Archaeologist and TLSB Project Manager

To Retained Archaeologist

Nominated Contact informs other vessels in the area of find and temporary AEZ
Retained Archaeologist (RA) reviews information provided, using geophysical, geotechnical and desk-based data as applicable.

RA assesses the archaeological potential / interest of the find.

RA sends an initial response to NC acknowledges.

High Potential:
- RA notifies GGAT/Cadw of find.
- Work may not resume without approval of GGAT/Cadw.
- If High, RA confirms Extent of AEZ.
- RA informs TLSB that if work has ceased whether it may resume, and where.
- RA advises TLSB and NC about further actions that may be required.
- RA arranges for TLSB to hold finds.
- RA produces Summary Report and sends to: NC / SC / Project Staff, RoW / Coroner, NRW / GGAT / Cadw, Project Museum.

Low Potential:
- If Low, RA advises TLSB that work may resume in vicinity of find.
- RA notifies GGAT/Cadw of find.
- Further actions are the responsibility of TLSB, to be agreed with NRW or the relevant planning and GGAT/Cadw, with the assistance of the RA.
- TLSB can task RA to notify relevant authorities if specific legal provisions apply to finds.