



# **Awel y Môr Offshore Wind Farm**

## **Category 6: Environmental Statement**

**Volume 3, Chapter 8: Onshore Archaeology and Cultural Heritage**

**Date: April 2022**

**Revision: B**

**Application Reference: 6.3.8**

**Pursuant to: APFP Regulation 5(2)(a)**



REVISION	DATE	STATUS/ REASON FOR ISSUE	AUTHOR:	CHECKED BY:	APPROVED BY:
A	Aug 2021	PEIR	Wessex	RWE	RWE
B	March 2022	ES	Wessex	RWE	RWE

[www.awelymor.cymru](http://www.awelymor.cymru)

RWE Renewables UK  
Swindon Limited

Windmill Hill Business Park  
Whitehill Way  
Swindon  
Wiltshire SN5 6PB  
T +44 (0)8456 720 090  
[www.rwe.com](http://www.rwe.com)

Registered office:  
RWE Renewables UK  
Swindon Limited Windmill  
Hill Business Park Whitehill  
Way  
Swindon

# Contents

8 Onshore Archaeology and Cultural Heritage .....	12
8.1 Introduction .....	12
8.2 Statutory and policy context .....	13
8.3 Consultation and scoping .....	29
8.4 Scope and methodology.....	56
8.4.1 Study Area .....	57
8.4.2 Assessment of Direct effects.....	63
8.4.3 Indirect effects .....	71
8.5 Assessment criteria and assignment of significance.....	72
8.5.1 Methodology for prediction of effects.....	72
8.5.2 Significance evaluation methodology .....	74
8.6 Uncertainty and technical difficulties encountered.....	82
8.7 Existing environment.....	83
8.7.1 The Onshore ECC and OnSS.....	83
Summary of Archaeological and Historical Background .....	83
Route Section A- Intertidal Area and Route Section B- Intertidal to B511984	
Route Section C- B5119 to A525 .....	88
Route Section D- A525 to A547.....	89
Route Section E- A547 to A55 .....	93
Route Section F- A55 to B5381 including proposed OnSS.....	96
Route Section G- B5381 to National Grid Connection.....	98
Historic Landscape Characterisation .....	100
Historic Hedgerows.....	102
Geophysical Survey Results (Onshore Export Cable Corridor) .....	102
Archaeological Watching Brief on Geotechnical Investigations .....	105
Valued Receptor Screening .....	105
Assets where there is potential for indirect effects to occur .....	116
8.7.2 Evolution of the baseline.....	134

8.8 Key parameters for assessment .....	134
8.9 Mitigation measures .....	140
8.10 Environmental assessment: construction phase.....	143
8.10.1 Consideration of Onshore ECC and OnSS and associated construction activities.....	143
Disturbance or loss of historic and archaeological assets during construction – Foreshore assets (5001-5008) .....	143
Disturbance or loss of historic and of archaeological assets during construction - Ridge and Furrow identified from 1m LiDAR (143519, 143520, 143523, 14327, 14329) .....	144
Disturbance or loss of historic and of archaeological assets during construction – Extant Ridge and Furrow Earthwork .....	145
Disturbance or loss of historic and of archaeological assets during construction- Potential Roman Road and potential associated activity	146
Disturbance or loss of historic and of archaeological assets during construction - Potential Geoarchaeological Deposits.....	147
Disturbance or loss of historic and of archaeological assets during construction - Geophysical Anomalies .....	148
Disturbance or loss of historic and of archaeological assets- at present unknown archaeological remains .....	149
Disturbance of archaeological assets during construction- Rhuddlan Chain Home Radar Station.....	150
Direct Effects to Historic Hedgerows during construction .....	151
Indirect Effects upon Heritage Significance during construction .....	151
Bryn Cwnin Farmhouse (14990) and L-Plan range of Farm buildings (14991) .....	152
Tyddyn Isaf (80758) .....	152
Barn to NW of Faenol-Bropor Farmhouse (1378) .....	153
Bodelwyddan Castle (1383) .....	154
Bryn Celyn Lodge on Bodelwyddan Park Boundary (80738) .....	155
8.10.2 Offshore Array .....	156
Effect on settings and significance of selected onshore heritage assets	156

8.10.3 Mitigation .....	156
8.11 Environmental assessment: operational phase .....	157
8.11.1 Onshore ECC and OnSS.....	157
Disturbance of archaeological assets during operational phase .....	157
Direct Effects to Historic Hedgerows during operational phase .....	157
Indirect Effects upon Heritage Significance during Operational Phase..	158
Barn to NW of Faenol-Bropor Farmhouse (1378) .....	158
Bodelwyddan Castle (1383) .....	158
Bryn Celyn Lodge on Bodelwyddan Park Boundary (80738) .....	159
8.11.2 Offshore Array .....	159
Beaumaris Castle (Scheduled Monument and within WHS) .....	159
Conwy Castle and Town Walls (Scheduled Monument and within WHS)	
.....	162
Penrhyn Castle (Grade I).....	164
Component Part 1 Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn, Slate Landscape of Northwest Wales WHS .....	167
Gwrych Castle (Grade I) .....	170
Trywn Du (Penmon) Lighthouse (Grade II*) .....	172
Puffin Island Tower and Remains of Church and Monastic Settlement (SM)	
.....	173
Puffin Island Telegraph Station (Grade II).....	175
Pen y Dinas Hillfort (SM) .....	175
Llandudno Conservation Area .....	177
Llandudno Pier (Grade II*) .....	180
Mitigation .....	181
Bangor Pier (Grade II* LB).....	182
Menai Bridge (Grade I LB).....	183
Historic Landscapes of Wales (HLW) .....	185
Creuddyn and Conwy (HLW 23) .....	188
Dyffryn Ogwen (HLW 28) .....	191

North Arllechwedd (HLW30) .....	193
Penmon (HLW 33) .....	194
8.12 Environmental assessment: decommissioning phase .....	196
8.12.1 Onshore ECC and OnSS.....	196
Disturbance of archaeological assets during decommissioning.....	196
Direct Effects to Historic Hedgerows during decommissioning .....	197
Indirect Effects upon Heritage Significance during decommissioning of onshore infrastructure .....	197
8.12.2 Offshore Array .....	197
8.13 Environmental assessment: cumulative effects.....	198
8.13.1 Cumulative Direct Effects .....	198
8.13.2 Cumulative Indirect Effects .....	201
8.14 Inter-relationships .....	202
8.15 Transboundary effects .....	202
8.16 Summary of effects .....	202
8.17 References .....	212

## Figures

Figure 1: Designated Historic Assets located within the 1 km Study Area .....	58
Figure 2: Designated Historic Assets located within the 1 km Study Area .....	59
Figure 3: Designated Historic Assets located within the 1 km Study Area .....	60
Figure 4: Designated Historic Assets located within the 1 km Study Area .....	61
Figure 5: Designated Historic Assets located within 1 km Study Area .....	62
Figure 6: Non-designated Historic Assets located within the Study Area .....	65
Figure 7: Non-designated Historic Assets located within the Study Area .....	66
Figure 8: Non-designated Historic Assets within the Study Area .....	67
Figure 9: Non-designated Historic Assets located within the Study Area .....	68
Figure 10: Non-designated Historic Assets within the Study Area .....	69
Figure 11: Non-designated Historic Assets within the Study Area .....	70
Figure 12: Designated Heritage Assets considered for the Offshore Array ....	132
Figure 13: Registered Landscapes of Outstanding and Special Interest in Wales considered for the assessment of the Offshore Array .....	133

# Tables

Table 1: Legislation and policy context .....	15
Table 2: Summary of consultation relating to onshore archaeology and cultural heritage.....	31
Table 3: Sensitivity/importance of the receptor.....	76
Table 4: Impact magnitude definitions .....	78
Table 5: Matrix to determine effect significance.....	81
Table 6: Assets recorded on the Clwyd Powys Historic Environment Record (CPHER)within the Order Limits (Figure 6 to Figure 11) and those identified on the inter-tidal walkover (Figure 6) .....	106
Table 7: Summary of potential presence and heritage significance of archaeological remains within the Onshore ECC .....	108
Table 8: Refinement of initial indirect effects scope of assessment of potential impact from Offshore Infrastructure(assets scoped into assessment) .....	118
Table 9: Refinement of initial indirect effects scope of assessment of potential impact from Onshore Infrastructure (assets scoped in for further assessment) .....	125
Table 10: Maximum design scenario.....	136
Table 11: Mitigation measures relating to Onshore Archaeology and Cultural Heritage .....	141
Table 12: Onshore Projects considered within the onshore cultural heritage and archaeology cumulative effect assessment.....	198
Table 13: Cumulative MDS.....	200
Table 14: Summary of effects .....	204

# Glossary of terms

TERM	DEFINITION
Conservation (for heritage policy)	A process of maintaining and managing change to a historic asset in its setting in ways that best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations
Designated historic asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, or Conservation Area designated as such under the relevant legislation.
ES	Environmental Statement (the documents that collate the processes and results of the EIA).
Evidential Value	Value deriving from the potential of a place to yield evidence about past human activity
historic asset	An identifiable component of the historic environment. It may consist or be a combination of an archaeological site, a historic building or area, historic park and garden or a parcel of historic landscape. Nationally important historic assets will normally be designated.
historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed.
Historic Environment Record	A historic environment record is the store for systematically organized information about the historic environment in a given area and can be

TERM	DEFINITION
	access by anyone. It is maintained and updated for public benefit.
Onshore Export Cable Corridor (Onshore ECC)	The proposed cable route which represents a corridor, typically 40 m to 60 m wide, within which the cable trenching, haul road and stockpiling areas associated with cable construction, will be located.
Onshore Substation (OnSS)	Where the power supplied from the wind farm is adjusted (including voltage, power quality and power factor as required) to meet the UK System-Operator Transmission-Owner Code (STC) for supply to the National Grid substation.
PEIR	Preliminary Environmental Information Report. The PEIR was written in the style of a draft Environmental Statement (ES) and formed the basis of statutory consultation.
Register of Historic Parks and Gardens	A register of historic parks and gardens of special historic interest in Wales, set up by Cadw in 1994
Register of Landscapes of Historic Interest in Wales	A means of identifying and providing information on the most important and best-surviving historic landscapes in Wales. The register includes 36 'Outstanding' and 22 'Special' historic landscapes.
Setting	The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Setting is not itself a historic asset, though land within a setting may contain other historic assets

TERM	DEFINITION
Significance (for heritage policy)	The sum of the cultural and natural heritage values of a place, often set out in a statement of significance.

## Abbreviations and acronyms

TERM	DEFINITION
aOD	Above Ordnance Datum
ClfA	Chartered Institute for Archaeologists
DBA	Desk-Based Assessment
DCO	Development Consent Order
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
HDD	Horizontal Directional Drilling
HER	Historic Environment Record
HLW	Historic Landscapes of Wales
MDS	Maximum Design Scenario
NPS EN-1	Overarching National Policy Statement for Energy (EN-1)
NPS EN-3	National Policy Statement for Renewable Energy (EN-3)
NPS EN-5	National Policy Statement for Electricity Networks Infrastructure (EN-5)
OL	Order Limits
OS	Ordnance Survey
OWFs	Offshore Wind Farms

TERM	DEFINITION
PEIR	Preliminary Environmental Information Report
PPW	Planning Policy Wales
RCAHM	Royal Commission on the Ancient and Historical Monuments in Wales
RHPG	Registered Historic Park and Garden
SSSI	Site of Special Scientific Interest
TAN 24	Technical Advice Note 24
TCC	Temporary Construction Compound
WHS	World Heritage Site
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

## Units

UNIT	DEFINITION
Km	Kilometers
m	Meters

# 8 Onshore Archaeology and Cultural Heritage

## 8.1 Introduction

- 1 This chapter assesses the likely significant effects of the Awel y Môr Offshore Wind Farm (AyM) with respect to onshore archaeology and cultural heritage. This chapter should be read in conjunction with:
  - ▲ Volume 2, Chapter 1: Offshore Project Description (application ref: 6.2.1)
  - ▲ Volume 3, Chapter 1: Onshore Project Description (application ref: 6.3.1)
  - ▲ Volume 5, Annex 8.1: Archaeological Desk-Based Assessment (application ref: 6.5.8.1)
  - ▲ Volume 5, Annex 8.2: Scoping Exercise for Indirect Effects Assessment (application ref: 6.5.8.2)
  - ▲ Volume 5, Annex 8.3: Detailed Gradiometer Survey Report (application ref: 6.5.8.3)
  - ▲ Volume 5, Annex 8.4: Archaeological Watching Brief Report (application ref: 6.5.8.4)
  - ▲ Volume 5, Annex 8.5: Outline WSI for Archaeological Investigation (application ref: 6.5.8.5)
- 2 Archaeology and Cultural Heritage is synonymous with the historic environment in the Overarching National Policy Statement (NPS) for Energy (DECC 2011), (NPS EN-1). This is defined at paragraph 5.8.2 as: '*All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.*'

- 3 Following a summary of relevant policy and legislation, this chapter describes the baseline data gathering, methodology and the overall baseline conditions. An assessment of the likely significant effects of the development is then presented. Proposals for further investigation to support assessments of effect or design of mitigation proposals have also been set out. The chapter concludes with a summary of residual effects and an evaluation of their significance.
- 4 Some of the issues discussed in this chapter will cross-refer with discussion in other chapters. While the assessment presented here relates to the terrestrial historic environment as defined by statute, policy and regulatory definition, it may be useful to make reference to other chapters, most notably Volume 3, Chapter 2: Landscape and Visual Impact Assessment (application ref: 6.3.2), Volume 2, Chapter 10: Seascapes, Landscape and Visual Impact Assessment (application ref: 6.2.10) and Volume 2, Chapter 11: Offshore Archaeology and Cultural Heritage (application ref: 6.2.11). Specific cross-references are included within the text where appropriate.

## 8.2 Statutory and policy context

- 5 It is necessary to consider the national and local planning policy and context in order to set an appropriate scope for the assessment reported in this Environmental Statement (ES) chapter and to be able to understand the acceptability of the scheme in policy terms. The importance of the historic environment is recognised in legislation and historic assets that are deemed to be of particular importance are given legal protection. Relevant policy and statutory considerations are set out in Table 1.
- 6 The assessment of the potential impacts of the onshore elements of AyM upon archaeology and cultural heritage has been made with reference to the UK Government's NPSs. NPSs set out policies or circumstances that the UK Government considers should be taken into account in decisions on Nationally Significant Infrastructure Projects (NSIPs). Those relevant to AyM are:
  - ▲ Overarching NPS for Energy (EN-1) (DECC 2011);
  - ▲ NPS for Renewable Energy Infrastructure (EN-3) (DECC 2011b); and

- ▲ NPS for Electricity Networks Infrastructure (EN-5) (DECC 2011c).
- 7 In addition to the current NPS, draft NPSs were consulted upon in November 2021. The draft NPSs have been reviewed to determine the emerging expectations and changes from previous iterations of the NPSs. This includes the Draft Overarching NPS EN-1 (DECC, 2021a, paragraphs 5.9.1-5.9.35), Draft NPS EN-3 (DECC, 2021b, paragraphs 2.32.1-2.32.2) and Draft NPS EN-5 (DECC, 2021c, paragraphs 2.11.13-2.11.14).
- 8 NPS EN-1 sets out that a heritage asset (or historic asset as defined by Technical Advice Note 24 (TAN24)) is an element of the historic environment which has sufficient archaeological, historic or artistic/architectural interest to be considered within the planning process (DECC 2011). The sum of the heritage interests of a heritage asset (historic asset) is referred to as its significance. This concept is entirely distinct from the assessment of level of significance of effects in Environmental Impact Assessment (EIA) terms. Consequently, where necessary to avoid confusion, the term 'heritage significance' is used when referring to the sum of the interests in/value of a heritage asset. For clarity, the level of significance of effect being assessed is the degree to which the interest in/value of a heritage asset (the sum of which is expressed as "heritage significance") and the ability to understand and appreciate those interests is affected by the proposed development.

Table 1: Legislation and policy context.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
The Infrastructure Planning (Decisions) Regulations 2010	<p>Require decision-makers to have regard for the desirability of preserving:</p> <ul style="list-style-type: none"> <li>▲ Listed buildings, any features which contribute to their special interest and their settings;</li> <li>▲ Scheduled monuments and their settings; and</li> <li>▲ The character and appearance of conservation areas.</li> </ul>	The information required for decision-makers to discharge this duty is provided in sections 8.10-8.12.
Ancient Monuments and Archaeological Areas Act 1979	Provides for sites assessed to be of national importance to be included in a Schedule of Monuments. These sites are accorded statutory protection and Scheduled Monument Consent is required before any works are carried out	Reference has been made to the schedule of monuments as set out in National Historic Assets of Wales (Search Cadw records   Cadw (gov.wales) in developing the scope of assessment
Planning (Listed Buildings and Conservation Areas) Act 1990	Provides for a list of buildings of special architectural or historical interest. The buildings included within this list are classified as Grades I, II* and II, and are accorded statutory protection. More highly graded buildings (Grade I and II*)	Reference has been made to the schedule of monuments as set out by Cadw in developing the scope of assessments.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	<p>are differentiated from Grade II buildings in NPS EN-1 (5.8.14-15). Areas of special architectural or historic interest can be designated as conservation areas. Requires decision-makers to have special regard to the desirability of preserving (a) building or its setting or any features of special architectural or historic interest which it possesses, and to preserving or enhancing the character and appearance of conservation areas</p>	<p>Note that for the Development Consent Order (DCO) application the requirements of the Infrastructure Planning (Decisions) Regulations (2010) and NPSs takes precedence, where provisions differ.</p>
The Hedgerow Regulations 1997	<p>Set out criteria for identifying important hedgerows and required consent for their removal. Selection criteria include heritage-based considerations. Removal of an important hedgerow is deemed as permitted where a DCO which would require removal of a hedgerow has been granted</p>	<p>The potential presence of Important Hedgerows under the Hedgerows Regulations 1997 is considered in Volume 5, Annex 8.1 Archaeological Desk-Based Assessment (application ref: 6.5.8.1) and considered in sections 8.10-8.12.</p>
The Protection of Military Remains Act 1986	<p>The Protection of Military Remains Act 1986 sets out specific protections for aircraft which have crashed while in military service or vessels which</p>	<p>No known areas where military remains (as defined by the Act) have been identified in the onshore area.</p>

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	have sunk or been stranded while in military service. It sets out a general prohibition on any disturbance or removal of such remains without a licence granted by the Secretary of State (SoS)	
Historic Environment (Wales) Act 2016	Provides for the protection and sustainable management of the historic environment, giving more effective protection to listed buildings, establishing Historic Environment Records and establishing an advisory body for the Welsh Historic Environment	Effects to the historic environment and provisions for management are set out in sections 8.10-8.16.
NPS EN-1	The NPS discuss the generic impacts on the historic environment associated with the construction, operation and decommissioning of energy infrastructure. The NPS sets out the need to consider the impacts on both designated and non-designated heritage assets (historic assets) (NPS EN-1 paragraphs 5.9.1-5.9.9)	Effects on designated and non-designated historic assets have been considered at sections 8.10-8.12.
NPS EN-1	Where non-designated heritage assets (historic assets) are of equivalent significance to	At present, there are no non-designated historic assets of

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	designated heritage assets, they are subject to the policy considerations that apply to designated heritage assets (historic assets) (NPS EN-1 paragraph: 5.8.5)	equivalent significance to a designated historic asset identified or assessed as part of the scope of this ES.
NPS EN-1	Non designated heritage assets of lesser significance should be considered within any decision making (NPS EN-1 paragraph: 5.8.6)	Effects on non-designated heritage assets have been considered at sections 8.10-8.12 as appropriate
NPS EN-1	Field survey may be required to inform any assessment of significance (NPS EN-1 paragraph: 5.8.9)	Initial walkovers and receptor visits as well as geophysical survey of the Onshore Export Cable Corridor (ECC) have been undertaken to inform this assessment. A watching brief was undertaken on geotechnical works (undertaken to inform scheme design). Targeted trial trenching was attempted between December 2021 and February 2022 in the area of the proposed Onshore Substation (OnSS) and along other areas of the route. However due to poor weather and

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
		ground conditions the works could not be carried out and it was agreed with CPAT that this could be undertaken as part of the post-consent works.
NPS EN-1	Any application should contain sufficient information to allow heritage significance to be understood (NPS EN-1: paragraph 5.8.10).	<p>The heritage significance of historic assets is set out in sections 8.10-8.12 and has been informed by desk-based studies, geophysical surveys and targeted fieldwork.</p> <p>Effects such as noise, vibration and light have been considered as part of the indirect effects section 8.10-8.12 as appropriate.</p>
NPS EN-1	The nature of the significance of the heritage assets and the value that they hold for this and future generations should be taken into account in considering the impact of a proposed development on any heritage assets (NPS EN-1 paragraph: 5.8.12)	The assessment presented in sections 8.10-8.12 has regard to the significance of heritage assets.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
NPS EN-1	<p>Development which would give rise to substantial harm to designated heritage assets should be exceptional, or for heritage assets of the highest significance (Grade I and II* listed buildings, scheduled monuments, designated battlefields, World Heritage Sites, and Grades I and II* designated registered parks and gardens), should be wholly exceptional. Harm to designated heritage assets of less than substantial magnitude should be weighed against the benefits of the proposal (NPS EN-1 paragraph: 5.8.14-5.8.15).</p>	<p>No cases have been identified where substantial harm to the significance of a designated heritage asset would arise.</p>
NPS EN-1	<p>Development giving rise to substantial harm to a designated heritage asset should only be permitted where necessary to deliver significant public benefits which outweigh the harm occasioned (NPS EN-1 paragraph: 5.8.15).</p>	<p>No cases have been identified where substantial harm to the significance of a designated heritage asset would arise.</p>
NPS EN-1	<p>Not all elements of a conservation area or World Heritage Site necessarily contribute positively to significance and the contribution of parts of such</p>	<p>The contribution of different elements of area designations has been considered within the assessment set</p>

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	designations which may be affected should be considered (NPS EN-1 paragraph: 5.8.16)	out at section 8.11.2 with regard to the " <i>Castles and Town Walls of King Edward in Gwynedd</i> " World Heritage Site
NPS EN-1	Provisions for the recording of at-risk heritage assets to mitigate against loss of evidential interest are set out at NPS EN-1 paragraphs 5.8.19-5.8.22).	Mitigation proposals have had regard to the provisions of NPS EN-1 and Draft NPS EN-1.
Draft NPS EN-1	The draft NPS discusses the generic impacts on the historic environment associated with the construction, operation and decommissioning of energy infrastructure. The draft NPS sets out the need to consider the impacts on both designated and non-designated heritage assets (historic assets) (Draft NPS EN-1 paragraphs 5.9.1-5.9.9).	Effects on designated and non-designated historic assets have been considered at sections 8.10-8.12.
Draft NPS EN-1	Where non-designated heritage assets (historic assets) are of equivalent significance to designated heritage assets, they are subject to	At present, there are no non-designated historic assets of equivalent significance to a

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	the policy considerations that apply to designated heritage assets (historic assets) (Draft NPS EN-1 paragraph: 5.9.7).	designated historic asset identified or assessed as part of the scope of this ES.
Draft NPS EN-1	Non designated heritage assets of lesser significance should be considered within any decision making (Draft NPS EN-1 paragraph: 5.9.8).	Effects on non-designated heritage assets have been considered at sections 8.10-8.12 as appropriate.
Draft NPS EN-1	Field survey may be required to inform any assessment of significance (Draft NPS EN-1 paragraph: 5.9.12).	Initial walkovers and receptor visits as well as geophysical survey of the Onshore Export Cable Corridor (ECC) have been undertaken to inform this assessment. A watching brief was undertaken on geotechnical works (undertaken to inform scheme design). Targeted trial trenching was attempted between December 2021 and February 2022 in the area of the proposed Onshore Substation (OnSS) and along other areas of the route. However due to poor weather and

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
		ground conditions the works could not be carried out and it was agreed with Clwyd Powys Archaeological Trust (CPAT) that this could be undertaken as part of the post-consent works.
Draft NPS EN-1	<p>Any application should contain sufficient information to allow heritage significance to be understood (Draft NPS EN-1: paragraph 5.9.13)</p> <p>It goes on to add that '<i>Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected.</i>' (paragraph 5.9.13).</p>	<p>The heritage significance of historic assets is set out in sections 8.10-8.12 and has been informed by desk-based studies, geophysical surveys and targeted fieldwork.</p> <p>Effects such as noise, vibration and light have been considered as part of the indirect effects section 8.10-8.12 as appropriate.</p>
Draft NPS EN-1	<p>The nature of the significance of the heritage assets and the value that they hold for this and future generations should be taken into account in considering the impact of a proposed development on any heritage assets (Draft NPS EN-1 paragraph 5.9.19).</p>	<p>The assessment presented in sections 8.10-8.12 has regard to the significance of heritage assets.</p>

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
Draft NPS EN-1	<p>Development which would give rise to substantial harm to designated heritage assets should be exceptional, or for heritage assets of the highest significance (Grade I and II* listed buildings, scheduled monuments, designated battlefields, World Heritage Sites, and Grades I and II* designated registered parks and gardens), should be wholly exceptional. Harm to designated heritage assets of less than substantial magnitude should be weighed against the benefits of the proposal (Draft NPS EN-1 paragraph: 5.9.22-5.9.23).</p>	<p>No cases have been identified where substantial harm to the significance of a designated heritage asset would arise.</p>
Draft NPS EN-1	<p>Development giving rise to substantial harm to a designated heritage asset should only be permitted where necessary to deliver significant public benefits which outweigh the harm occasioned. The Draft NPS EN-1 goes on to say:</p> <p><i>'Unless it can be demonstrated that the substantial harm to or loss of significance is necessary to achieve substantial public benefits'</i></p>	<p>No cases have been identified where substantial harm to the significance of a designated heritage asset would arise.</p>

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	<p><i>that outweigh that harm or loss or all of the following apply:</i></p> <ul style="list-style-type: none"> <li>▲ <i>The nature of the asset prevents all reasonable uses of the Site</i></li> <li>▲ <i>No viable uses of the heritage asset can be found in the medium term through appropriate marketing that will enable its conservation</i></li> <li>▲ <i>Conservation by grant funding or some form of not for profit, charitable, or public ownership is not demonstrably possible</i></li> <li>▲ <i>The harm or loss is outweighed by the benefit of bringing the site back into use.'</i> (paragraph 5.9.24).</li> </ul>	
Draft NPS EN-1	<p>Not all elements of a conservation area or World Heritage Site necessarily contribute positively to significance and the contribution of parts of such designations which may be affected should be considered (Draft NPS EN-1 paragraph: 5.9.27).</p>	<p>The contribution of different elements of area designations has been considered within the assessment set out at section 8.11.2, with regard to the "Castles and Town Walls of King Edward in Gwynedd" World Heritage Site</p>

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
Draft NPS EN-1	Provisions for the recording of at-risk heritage assets to mitigate against loss of evidential interest are set out at paragraphs 5.9.30- 5.9.31 of Draft NPS-EN-1.	Mitigation proposals have had regard to the provisions of Draft NPS EN-1.
NPS EN-3	NPS EN-3 contains no specific policy on onshore archaeology and cultural heritage, referring back to the generic policies in NPS EN-1 Section 5.8, and specifically refers back to NPS EN-1 for the consideration of elements of the marine historic environment which are, at present located onshore (NPS EN-3 2.6.143)	The approach taken and assessment presented in this chapter follows the provisions within NPS EN-1 and Draft NPS EN-1.
NPS EN-5	Archaeology is considered in NPS EN-5 when weighing up the use of overhead lines and underground cables. The consideration of effects to below ground archaeological remains is balanced against the visual effects of using overhead lines	The approach taken and assessment presented in this chapter follows the provisions within NPS EN-1 and Draft NPS-EN-1
Planning Policy Wales (PPW)	The planning system looks to protect, conserve and enhance the significance of historic assets	The approach taken and assessment presented in this chapter is broadly

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
Edition 11 (2021), Chapter 6 Distinctive and Natural Places	<p>including consideration of setting which may extend beyond its curtilage. Any change that impacts on an historic asset or its setting should be managed in a sensitive and sustainable way (paragraph 6.1.7). PPW does not set out any specific policies for the testing of NSIPs, however Chapter 6 relates to the historic environment and is broadly consistent with the policies of NPS EN-1 and Draft NPS EN-1.</p>	consistent with PPW, but where the requirements deviate from NPS EN-1, provisions within the NPS and Draft NPS have been followed.
Future Wales – The National Plan 2040 (2019, updated February 2021)	<p>Cultural heritage is a key contributor to Wales, not least in terms of the value it brings in attracting tourists and in creating an attractive place to live, work and enjoy. Policies protecting heritage interests are included. With regard to nationally significant renewable energy developments, the effects on statutorily protected built heritage are identified as one of the key criteria in determining whether such development is normally allowed (see criterion 6, policy 18); no unacceptable adverse impacts are allowed. Protection of Heritage generally,</p>	This assessment has considered potential effects on the heritage significance of heritage assets, including those of the highest designations (the Castles and Towns of King Edward I in Gwynedd World Heritage Site) in section 8.10 to 8.12.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	<p>and the Castles and Towns of King Edward I in Gwynedd World Heritage Site are specifically named in connection with supporting regional growth strategies in the North of the country in Policy 25. Future Wales acknowledges that offshore infrastructure falls outside its remit, but onshore infrastructure will fall within the planning process it covers.</p>	
<p>Denbighshire County Council Local Development Plan 2013- Policy VOE 10 Renewable Energy Technologies</p>	<p>Development proposals must demonstrate no unacceptable impact upon cultural heritage interests. In areas that are visually sensitive (including in relation to the World Heritage Sites) development will not be permitted unless it can be demonstrated that there is no negative impact or that there is an overriding public need for the development.</p>	<p>Effects upon heritage interests as a result of the proposals are addressed in section 8.10- 8.12.</p>

- 9 PPW is supported by technical guidance contained within Technical Advice Note 24: The Historic Environment (2017). This provides guidance on how the planning system considers the Historic Environment in development plan preparation and decision making on applications.
- 10 Relevant best practice standards and guidance are published in the Chartered Institute for Archaeologists (ClfA) standards and guidance. For the purposes of this assessment, the relevant standards and guidance comprise:
- ▲ Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (2020); and
  - ▲ Standard and guidance for historic environment desk-based assessment (2020)
- 11 Guidance prepared by Cadw Conservation Principles for the sustainable management of the historic environment in Wales (2011) is also relevant to this assessment. Cadw are producing a series of best-practice guidance publications that complement the legislative and policy framework; documents relevant to this assessment comprise:
- ▲ Heritage Impact Assessment in Wales (Cadw 2017);
  - ▲ Managing Change in World Heritage Sites in Wales (Cadw 2017);
  - ▲ Managing Historic Character in Wales (Cadw 2017);
  - ▲ Managing Scheduled Monuments in Wales (Cadw 2018);
  - ▲ Managing the Marine Historic Environment of Wales (Cadw 2017); and
  - ▲ Setting of Historic Assets in Wales (Cadw 2017).

### 8.3 Consultation and scoping

- 12 To date, consultation with regards to the scope of the archaeology and cultural heritage assessment has been undertaken via the Scoping Report (Innogy, 2020) and via the AyM Evidence Plan process (application ref: 8.2).

- 13 A Scoping Opinion for AyM was sought from the Planning Inspectorate (PINS) in June 2020. The Scoping Opinion, which includes responses from Cadw, Clwyd -Powys Archaeological trust (CPAT), Gwynedd Archaeological Planning Service and Anglesey County Council, identifies areas of the assessment methodology for further consideration (July 2020).
- 14 AyM statutory consultation, under Section 42 of the Planning Act 2008, ran from 31 August to 11 October 2021, a period of six weeks. A Preliminary Environmental Information Report (PEIR) was published as part of formal consultation which provided preliminary information on archaeology and cultural heritage within Volume 3, Chapter 8: archaeology and cultural heritage.
- 15 Further statutory consultation was undertaken in February 2022 on areas where the Order Limits (OL) extend beyond those included in the PEIR that were consulted on in Autumn 2021.
- 16 Table 2 provides a summary of the Scoping Response provided by PINS received in July 2020 and the Section 42 responses received in October 2021.

Table 2: Summary of consultation relating to onshore archaeology and cultural heritage.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
July 2020 PINS Scoping Response	Indirect visual impact on historic assets without maritime associations- agreement that these can be scoped out	Scoped out of assessment.
July 2020 PINS Scoping Response	Indirect visual impact on historic assets with no visibility of development- agreement that these can be scoped out	Scoped out of assessment.
July 2020 PINS Scoping Response	Indirect visual impact on non-designated historic assets- agrees that this can be scoped out	Scoped out of assessment.
July 2020 PINS Scoping Response	Visual impacts from the turbine array on Grade II Listed buildings or Registered	A scoping exercise has been undertaken for this assessment including Grade II and Registered Parks and Gardens. Where likely significant effects have been

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	Parks and Gardens- sufficient evidence has not been provided to scope these matters out	predicted an assessment has been undertaken. Review of Cadw datasets indicates the majority of these types of assets have no maritime associations (and so scoped out), or have urban or other settings which are not likely to be so altered that there will be a likely loss of heritage significance, and so are not included. Justification is provided for historic assets and asset types which have been scoped out of the assessment in Volume 5, Annex 8.2: Scoping Exercise for Indirect Effects Assessment (application ref: (6.5.8.2)). Key assets have been taken forward where specifically requested or on the basis of professional judgement.
July 2020 PINS Scoping Response	Visual impacts from the turbine array on historic landscapes- specific landscapes have been identified which will need to be included within the assessment.	Cadw have not requested specific Assessment of the Significance of Impact of Development upon Historic Landscapes (ASIDOHL) in respect of any Historic Landscape Area. However, consideration of historic landscape character is provided in this Chapter of the ES with regard to onshore infrastructure.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
July 2020 PINS Scoping Response	It is not clear whether the inner study area will be sufficient to capture the visual impacts on historic features from project infrastructure, particularly the Substation.	The inner study area used to inform the ES has been extended from a 500m radius from the onshore infrastructure as was proposed at EIA scoping stage, to a 1 km radius for effects arising from onshore infrastructure. This is considered sufficient to allow an informed assessment of likely significant visual effects from the onshore substation (OnSS). A scoping exercise has been undertaken and where an asset has been scoped out justification has been provided in Volume 5, Annex 8.2 (application ref: 6.5.8.2).
July 2020 PINS Scoping Response	Consultation bodies have identified a number of relevant designated historic assets which could be directly or indirectly affected	These have been considered as part of the assessment in sections 8.10-8.12.
July 2020 PINS Scoping Response	Scope of archaeological assessment for direct impacts on archaeological remains. The approach should be	Proportionate and robust assessment of effects to archaeological remains is provided in section 8.10-8.12. The method adopted and approach used has been agreed in consultation with relevant consultees as part

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	agreed with consultation bodies whilst being proportionate and robust.	of the Evidence Plan process. An Expert Technical Group was held on 27/01/21 to review the archaeological study areas, and proposed approaches to information gathering and baseline, with specific documentation setting out the approach being prepared for the consultees (Onshore Survey Proposal Discussion Document), issued in April 2021.
July 2020 PINS Scoping Response	Justification is required for the distance of 500m of the OnSS or those with maritime attribute to be considered in relation to indirect impacts.	The study area used for this ES has been extended from the 500m proposed at EIA scoping stage to the 1 km area presented in this ES chapter for effects arising from the Onshore infrastructure.
Gwynedd Archaeological Planning Service Scoping Response	Suggestion of additional viewpoints which are relevant to both SLVIA and archaeological setting assessment.	Additional viewpoints have been included for Cefn Coch stone circle (Volume 6, Annex 10.5: SLVIA Visualisations - Figure 64 (ViewPoint 37 - Cefn Coch Stone Circle) (application ref: 6.6.10.5.37)), Bodafon Anglesey (Volume 6, Annex 10.5 SLVIA Visualisations- Figure 69 (ViewPoint 42- Bodafon Anglesey) (application ref: 6.6.10.5.42) and Moelfre (Volume 6, Annex 10.5

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		SLVIA Visualisations- Figure 31 (ViewPoint 4- Moelfre Headland at sculpture) (application ref: 6.6.10.5.4).
Gwynedd Archaeological Planning Service Scoping Response	The initial review stage of visual impacts on Registered Historic Landscapes should include Penmon, North Arllechwedd and Dyffryn Ogwen.	Consideration has been given to these area designations, but no formal ASIDOHL assessment was requested or considered necessary.
CLWYD-POWYS Archaeological Trust Scoping Response	Grade I Gwrych Catle and Grade II* Registered Park and Garden should be included	Gwrych castle and associated registered park is included for assessment in this ES Chapter. A representative illustration of potential visibility from the Terrace with the Array is presented as ViewPoint 50 (Volume 6, Annex 10.5 SLVIA Visualisations- Figure 74 (ViewPoint 50- Gwrych Castle) (application ref: 6.6.10.5.50).
CLWYD-POWYS Archaeological Trust Scoping Response	An inter-tidal assessment for impacts to palaeo-environmental deposits on the beach will be required.	Walkover Survey has been undertaken as part of this assessment, with geophysical surveys along the Onshore ECC and in the area for the OnSS. Monitoring of geotechnical works (undertaken to inform scheme

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	which could include walkover survey, geophysics or borehole/test pit transects on the beach	<p>design) was also undertaken. The results of these works have been considered to inform the assessments set out in this ES in line with the agreed approach to site investigation discussed within the evidence plan.</p> <p>Targeted trial trenching was attempted between December 2021 and February 2022, however due to poor weather and ground conditions, it was not possible to carry out these works. It was agreed with CPAT that these works could be undertaken as part of the post-consent archaeological works.</p>
CLWYD-POWYS Archaeological Trust Scoping Response	Geophysics would normally cover the whole cable route length and width	<p>Geophysical survey has been undertaken over the length and width of the 40 to 60 m Preferred Cable Route that was presented in the PEIR, where access and suitable ground conditions were available. The results form part of the baseline for the assessment within the ES and are presented within Annex 8.3 (application ref: 6.5.8.3).</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
CLWYD-POWYS Archaeological Trust Scoping Response	Additional palaeo-environmental potential inland should be described and mapped as part of the assessment	Proposals for additional palaeo-environmental work are proposed in the coastal area and around the River Clwyd to be undertaken in advance of construction, post consent. These proposals are presented as part of Volume 5, Annex 8.5: Outline Written Scheme of Investigation (WSI) for Archaeological Investigation (application ref: 6.5.8.5).
CLWYD-POWYS Archaeological Trust Scoping Response	Loss of landscape features such as stone field boundaries and established hedgerows should be included within the walkover survey with these features mapped and described.	The walkover survey identified historic hedgerows which could be lost as part of the proposals. These have been mapped and described as part of the Archaeological Desk-Based Assessment (application ref: 6.5.8.1). No stone field boundaries that would be lost through the proposals were identified during the walkover survey.
Anglesey County Council Scoping Response	Designated heritage assets on Anglesey that could be affected Beaumaris Castle and Trywyn Du Lighthouse and Pilots Cottages.	Beaumaris is included in the assessment presented in section 8.11.2 (as part of the World Heritage Site) with a ViewPoint (Volume 6, Annex 10.5: SLVIA Visualisations- Figure 71 (ViewPoint 44- Beaumaris) (application ref: 6.6.10.5.44), in accordance with the agreements made

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	Additionally on Puffin Island, consideration should be given to remains of monastic settlement and telegraph station.	<p>during the EIA Evidence Plan consultation (see this table for further reference).</p> <p>Trywyn Du is considered in the assessment below and a representative ViewPoint (Volume 6, Annex 10.5: SLVIA Visualisations- Figures 34 and 76 (Viewpoint 7- Penmon Point and 53- Trywyn Du) (application ref: 6.6.10.5.7 and 6.6.10.5.53). Consideration has also been given to the heritage assets on Puffin Island (the Schedule monastic remains, and the listed Telegraph station building).</p>
Cadw Scoping Response	Request for additional viewpoints from Beaumaris Castle, Conwy Castle, Bodafon Mountain, Anglesey, the uplands above Llanfairfechan and Penmaenmawr, Bangor Pier, Menai Suspension Bridge, Gwrych Castle, Gwrych Castle Registered Park and	<p>Consideration has been given to all of the individual assets listed and assessments are presented below.</p> <p>Consideration has been given to potential for effects on the upland sites above Llanfairfechan and Penmaenmawr Relevant visualisations are included as Viewpoints 44, 45, 11, 37, 9, 49 and 50 respectively (Figures 71, 72, 38, 64, 36, 73 and 74, Annex 10.4 (Figures) and Annex 10.5 (photomontages)). These assets (or asset groups) were considered in the Scoping exercise presented in Volume 5, Annex 8.2 (application ref: 6.5.8.2), and a number of these assets have then been</p>

<b>DATE AND CONSULTATION PHASE/TYPE</b>	<b>CONSULTATION AND KEY ISSUES RAISED</b>	<b>SECTION WHERE COMMENT ADDRESSED</b>
	Garden, Pen y Dinas Camp and Puffin Island	taken forward to detailed assessment, as set out in section 8.10 and following.
Cadw Scoping Response	Register of Historic Parks and Gardens should be included in data sources	The statutory protection of the Register of Historic Parks and Gardens came into force on 1 <sup>st</sup> February 2022, under the amendments provided in section 18 of the Historic Environment (Wales) Act 2016. For purposes of this assessment, consideration has been given specifically to the Registered Park and Garden associated with Bodelwyddan Castle. The registered Parks at Gwrych Castle and Penrhyn Castle have been considered in relation to the assessment of those assets.
Cadw Scoping Response	Registered historic landscapes of Penmon, North Arllechwedd and Dyffryn Ogwen should be considered for assessment of significance through change to setting	Consideration has been given to these area designations, but no formal ASIDOHL assessment was requested or considered necessary.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
Cadw Scoping Response	<p>An inter-tidal assessment of potential impacts to palaeoenvironmental deposits on the beach will be required. The Palaeoenvironment along the Preferred Cable Route will also need to be assessed by an expert.</p>	<p>An inter-tidal walkover was undertaken in December 2021 at low tide to identify historic assets that were present upon the foreshore. This information has been incorporated into the baseline assessments and into this chapter. The Palaeo-environmental potential of the remainder of the route was assessed by a geoarchaeological specialist as part of the desk-based assessment provided in Volume 5, Annex 8.1 (application ref: 6.5.8.1).</p>
Cadw Scoping Response	<p>Geophysical survey should cover the length and width of the Preferred Cable Route including areas for compounds, access and Substation.</p>	<p>Geophysical survey has been undertaken (where access was permitted and conditions suitable) over the length and width of the 40-60m preferred cable corridor as presented at PEIR, proposed OnSS and compounds, where access and suitable ground conditions were available.</p>
Cadw Scoping Response	<p>The assessment should identify landscape features such as stone field</p>	<p>The walkover survey identified historic hedgerows to be lost as part of the proposals, these have been mapped and described as part of the Archaeological Desk-Based Assessment provided in Volume 5, Annex 8.1</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	boundaries and established hedgerows.	(application ref: 6.5.8.1). No stone field boundaries that would be lost through the proposals were identified during the walkover survey.
Gwynedd Archaeological Planning Service Section 42 Response	Bangor Pier and Menai Bridge should be scoped into the assessment due to their maritime associations and coastal setting	These are now included in the assessment presented in this chapter in section 8.11.2.
Gwynedd Archaeological Planning Service Section 42 Response	Where assets have been taken forward for assessment, the approach is in places, limited in scope such that not all relevant factors have been considered or afforded appropriate weight. The current assessment focusses on static, functional and intentional views with little to	It is considered that relevant aspects of setting as it contributes to significance have been presented in section 8.11.2.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	no consideration of aesthetic cultural or communal values or aspects such as a sense of arrival/approach and views towards/across assets	
Gwynedd Archaeological Planning Service Section 42 Response	There is no mention of the potential impact upon the settings of Registered Historic Landscapes. It was requested that at least initial assessment was made of Dyffryn Ogwen, Penmon and North Arllechwedd Registered Landscapes of Outstanding Historic Interest	It is noted that the Registered Historic Landscapes of Wales (hereafter referred to as HLWs) is an advisory and non-statutory designation. It is further noted that these are effectively artificially created areas (in the sense of the limits of the boundaries drawn). Whilst the guidance assumes that areas outside of the boundaries may have equal value (but simply not yet recognized) there is no sense in which these Landscapes have a specific "setting" per se. Their heritage value is in the areas and assets (these having "settings" largely related to the character of the HLW area within which they reside) within their boundaries, which give them the character and significance which the designation seeks to promote and preserve. It is further noted that simple intervisibility with a given development from within or

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		across an HLW is not necessarily harmful, even if within the "setting". Nevertheless, some consideration is now given to the three HLWs identified in the consultee response (along with the Penmon HLW) in the assessment presented in this chapter (provided in Section 8.11.2).
Gwynedd Archaeological Planning Service Section 42 Response	It is apparent that there would be an impact on the way in which these designated landscapes would be perceived and experienced, this can also be said of Creuddyn and Conwy Registered Landscapes of Outstanding Historic Interest. Multiple viewpoints illustrate that views towards the Great Orme would be affected	Following the response above, simple intervisibility is not in and of itself harm. Simple presence in views is not necessarily harm; the effect must relate to a change in setting that affects the heritage significance of an asset. This assessment is concerned with the heritage interest in these historic landscapes, not necessarily their scenic quality or amenity value (as this is the province of the Seascapes and Landscape Visual Assessment, which should be read in combination with this chapter). Nevertheless, some consideration to the identified HLW (Creuddyn and Conwy, no. 23) is presented in this chapter.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
Gwynedd Archaeological Planning Service Section 42 Response	<p>The assessment should include identification of the contribution of the marine setting to the significance of these designated landscapes and discursive appraisal of the impact of the proposed development upon this.</p>	<p>See comments above. The marine dimension is referred to where this is an important aspect of the historic development of the landscapes assessed. This judgment is in part based on the text in the relevant sections of the Register of Landscape of Outstanding Historic Interest in Wales, Part 2.1 and the text descriptions for the sub-areas presented in the Historic Landscape characterization hosted by Gwynedd Archaeological Trust ( [REDACTED] )</p>
CLWYD-POWYS Archaeological Trust Section 42 Response	<p>Walkover survey should provide complete coverage of the Cable Route Corridor to have a complete and accurate evidence base to work from. Where access is still not possible the locations should be identified and mapped and reasons given</p>	<p>A small proportion of the ECC route was unavailable for access at the time of the walkover survey. In conjunction with the data collection for the Geophysical Survey, approximately 95.4% of the (accessible) route has been covered and this is considered to provide a robust evidence base for assessment. Details of coverage can be found in both the desk-based assessment (Volume 5, Annex 8.1: Archaeological Desk-Based Assessment, Figures 16 and 17, (application ref 6.5.8.1)) and Detailed Gradiometer</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		Survey Report (Volume 5, Annex 8.3: Detailed Gradiometer Survey Report, (application ref 6.5.8.3)).
CLWYD-POWYS Archaeological Trust Section 42 Response	Features in the inter-tidal area should be accurately described and mapped	A walkover survey of the inter-tidal area was undertaken in December 2021. Features within the inter-tidal area were photographed, described and mapped. The results are presented within Volume 5, Annex 8.1: Archaeological Desk-Based Assessment (application ref: 6.5.8.1) and incorporated into this chapter.
CLWYD-POWYS Archaeological Trust Section 42 Response	There is a high potential for significant direct impacts in the inter-tidal area during the construction and the nature and extent of the archaeology is poorly understood.	The recent inter-tidal walkover has mapped visible features on the surface of the area. Potential direct impacts to features noted on the inter-tidal survey have been assessed within this chapter. The potential effects to as yet unknown, but predicted sub-surface remains have also been assessed.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
CLWYD-POWYS Archaeological Trust Section 42 Response	<p>It would be preferable if the subsurface potential of the inter-tidal area could be evaluated now by geoarchaeological specialist using a transect of boreholes and/or sample pits to recover a core profile of deposits and samples for dating and content appraisal</p>	<p>The Outline Written Scheme of Investigation (WSI) (Volume 5, Annex 8.5: Outline WSI for mitigation (application ref: 6.5.8.5)) sets out proposals for geoarchaeological borehole survey within the inter-tidal area to be undertaken post consent. A north south transect is proposed within the inter-tidal area extending south inland. The methodology is presented within the WSI.</p>
CLWYD-POWYS Archaeological Trust Section 42 Response	<p>It is of critical importance that we obtain as near to 100% coverage the agricultural, pasture and arable fields for the geophysical survey. Where access is still not possible areas should be mapped and reasons given.</p>	<p>A small proportion of the ECC route was unavailable for access at the time of the walkover survey. In conjunction with the data collection for the Geophysical Survey, approximately 95.4% of the (accessible) route has been covered and this is considered to provide a robust evidence base for assessment. Details of coverage can be found in both the desk-based assessment (Volume 5, Annex 8.1: Archaeological Desk-Based Assessment, Figures 16 and</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		17, (application ref 6.5.8.1)) and Detailed Gradiometer Survey Report (Volume 5, Annex 8.3: Detailed Gradiometer Survey Report, (application ref 6.5.8.3)).
CLWYD-POWYS Archaeological Trust Section 42 Response	We are concerned that the geophysical survey will not be followed up with appropriate pre-consent ground truthing of the results by investigative trenching. The trenching should target all significant anomalies with a predicted archaeological origin and some of those where the origin is uncertain.	Targeted archaeological trial trenching was attempted between December 2021 and February 2022. However due to poor weather and ground conditions the trial trenching could not be carried out. It was agreed with CPAT that this trial trenching exercise could be incorporated into the post-consent works and as such the method statement is appended to the Outline Written Scheme of Investigation (application ref: 6.5.8.5).
CLWYD-POWYS Archaeological Trust Section 42 Response	Consideration should be given to extending the time period between the receipt of the Section 42 responses	The data collected as the baseline for this assessment is considered to be adequate and a delay to programme would be disproportionate when considered in the context of the Welsh and UK Governments targets for renewable energy.

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	and the ES to allow for the surveys to be completed	
CLWYD-POWYS Archaeological Trust Section 42 Response	We would agree that there are no significant indirect visual impacts to non-designated archaeology within the cable construction corridor	We thank CPAT for this confirmation and note that indirect visual impacts to non-designated archaeology within the Onshore ECC have been scoped out of detailed assessment.
CLWYD-POWYS Archaeological Trust Section 42 Response	Outline WSI's for further mitigation must be included in the ES and DCO commitments	An outline WSI is provided for archaeological assessment and mitigation measures is provided in Volume 5, Annex 8.5: Outline WSI for Archaeological Investigation (application ref: 6.5.8.5).
Anglesey County Council Section 42 Response	The council is of the view that the assessment of visual effects on these heritage receptors (Beaumaris Castle, Trwyn Du (Penmon) Lighthouse, Remains of monastic settlement	This assessment is considered to be robust and compliant with the relevant guidance (TAN24 and CADW's guidance on the assessment of Settings (The Setting of Historic Assets in Wales, CADW, May 2017)), as set out in the methodology presented in this chapter. This assessment considers the potential for an effect on the heritage significance of the various assets, this

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	including tower and walls, and former telegraph station) appear to have been under assessed and would refer to the direct comments prepared by Cadw.	significance deriving from the various interests and values they hold. Whilst the impact may be largely one related to the visual presence of the proposed AyM WTGs, simple intervisibility of the AyM WTGs, is not automatically harmful to that significance and the ability to appreciate it. Rather there must be a specific change in setting causing a specific effect which reduces or harms the heritage significance of an asset. It is therefore considered that the assessment of potential effects on the heritage significance of the named assets are proportionate and that effects are not under-reported. See also the response to the CADW response presented below.
Anglesey County Council Section 42 Response	Isle of Anglesey County Council requests that further engagement takes place with both the council and Cadw and the design of the proposals are revisited to	Note that changes to the Maximum Design Scenario (MDS) have been made (in part due to consultation responses with regard to wider Landscape concerns), and the current assessment has been based on this (as set out in Volume 1, Chapter 4) (Site Selection and Alternatives) (application ref: 6.1.4). Further engagement has also been undertaken through

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	reduce the impact upon the above receptors.	reference to a significantly reduced offshore array area; the maximum design having reduced from a maximum of 107 WTGs at the scoping phase to 50 WTGs for the purposes of application. Further records of the consultation undertaken under the auspices of the EIA Evidence Plan is presented in the EIA Evidence Plan (application ref: 8.2).
Conwy County Borough Council Section 42 Response	There are concerns that the assessment has not taken into account the contribution to significance of Llandudno Conservation Area made by artistic/aesthetic and communal/cultural values.	This assessment has fully taken into account the conservation area and the interests and values which contribute to its heritage significance. Whilst there is some cross-over, recognizing the historic development of Llandudno as a leisure destination, it is not the purpose of the heritage assessment to consider modern recreational amenity value.
Conwy County Borough Council Section 42 Response	At the Great Orme new turbines would be conspicuous but in the context of the vastness of the	The Great Orme is itself the setting for many of the assets upon it. Much of the heritage significance is invested in former mining activity dating back well into the prehistoric period and having no or limited surface

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	<p>ocean, wouldn't be unduly detrimental to the appreciation of the numerous archaeological sites that occupy it. However, several of the viewpoints towards the Orme detract from its appearance as a prominent headland, which was an important factor in its selection for some of the monuments which occupy it</p>	<p>expression. The headland is indeed a prominent landscape/seascape feature, but this is not the same as saying it is the reason for location of much of the activity that took place upon it. If those activities do not rely on a maritime expression, or rely on any form of long distance visibility (to or from) for understanding their heritage significance then this aspect of setting is not considered. It is further noted that assets without a maritime association did not require assessment, in accordance with the scoping opinion prepared by PINS.</p>
Conwy County Borough Council Section 42 Response	<p>The council considers that the assessment of effects presented as minor and not significant are a conservative assessment of the magnitude and significance of the impacts</p>	<p>This assessment is considered to be robust and compliant with the relevant guidance, as set out in the methodology presented in this chapter. This assessment considers the potential for an effect on the heritage significance of the various assets, this significance deriving from the various interests and values they hold. Whilst the impact may be largely one related to the visual presence of the proposed AyM WTGs, simple</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		intervisibility of the AyM WTGs, is not automatically harmful to that significance and the ability to appreciate it. Rather there must be a specific change in setting causing a specific effect which reduces or harms the heritage significance of an asset.
Cadw Section 42 response	The walkover survey, inter-tidal walkover and geophysical survey are incomplete. These will need to be completed so that the impact of the proposed development upon the historic environment can be understood.	The inter-tidal walkover survey was completed in December 2021. The geophysical survey was completed and undertaken across almost all of the route. A small proportion of the ECC route was unavailable for access at the time of the walkover survey. In conjunction with the data collection for the Geophysical Survey, approximately 95.4% of the (accessible) route has been covered and this is considered to provide a robust evidence base for assessment. Details of coverage can be found in both the desk-based assessment (Volume 5, Annex 8.1: Archaeological Desk-Based Assessment, Figures 16 and 17, (application ref 6.5.8.1)) and Detailed Gradiometer Survey Report (Volume 5, Annex 8.3: Detailed Gradiometer Survey Report, (application ref 6.5.8.3)).

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
Cadw Section 42 response	<p>The proposed development will have an effect upon Beaumaris and Conwy Castles and Penrhyn Castle. The proposed windfarm will be seen in identified significant views from all of these designated historic assets. Whilst these significant views are acknowledged in the respective assessments there is no explanation about the reasons why these views have been identified as significant and no full analysis of the impact of the windfarm in these views has been made. This failure appears to be due to the assessor considering that as the windfarm is some</p>	<p>The assessment has been informed by Section 1.25 of the TAN as specifically referenced in 8.4.3 of this chapter. Cadw's guidance in "Setting of Historic Assets in Wales, 2017" confirms that significance is the key issue, and the importance of "setting" is what that contributes to the heritage significance of a given asset. The guidance also states that "setting" is not in and of itself an asset. The assessment presented in this chapter is consistent with the approach recommended by the relevant guidance and specifically sets out those elements of the setting which are considered to contribute to the significance of an asset.</p> <p>Whilst the key impact is likely to derive from visibility of the AyM WTGs from or in combination with these assets, this assessment proceeds from the position that it is whether the heritage significance of the assets as derived from their various interests and values, that is the effect which is being assessed, rather than the degree to which the WTGs may or may not be present in a given view. As part of the assessment, the extent of</p>

DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	<p>distance from the castles, their setting does not extend that far. This is incorrect as explained in Welsh Government TAN 24 Section 1.25. Therefore, we consider that the full impact of the proposed development on the settings of these very highly significant historic assets has not been fully assessed leading to the effect being understated in the EIA</p>	<p>visibility has been considered in relation to whether a given view direction (and distance) is contributor to heritage significance, in relation to the specific interests and value of an asset. Nevertheless, simple intervisibility (at any distance) does not automatically mean that there is an adverse effect on the heritage significance of an asset. Setting, as it contributes to heritage significance and the ability to appreciate that heritage significance does not always extend as far as can be seen. The assessment considered whether there is specific harm to the heritage significance of the assets in question and what the setting of the asset is in its particular circumstances and which parts of that setting contribute to heritage significance (or the ability to appreciate it).</p> <p>Views selected for Viewpoints were based on Scoping Responses and agreed in subsequent consultation (as part of the EIA Evidence Plan process (Application ref. 8.2). Reference to "significant" view, where made, refers to views highlighted in the relevant designations (in the maps presented with the WHS Management plans (see</p>

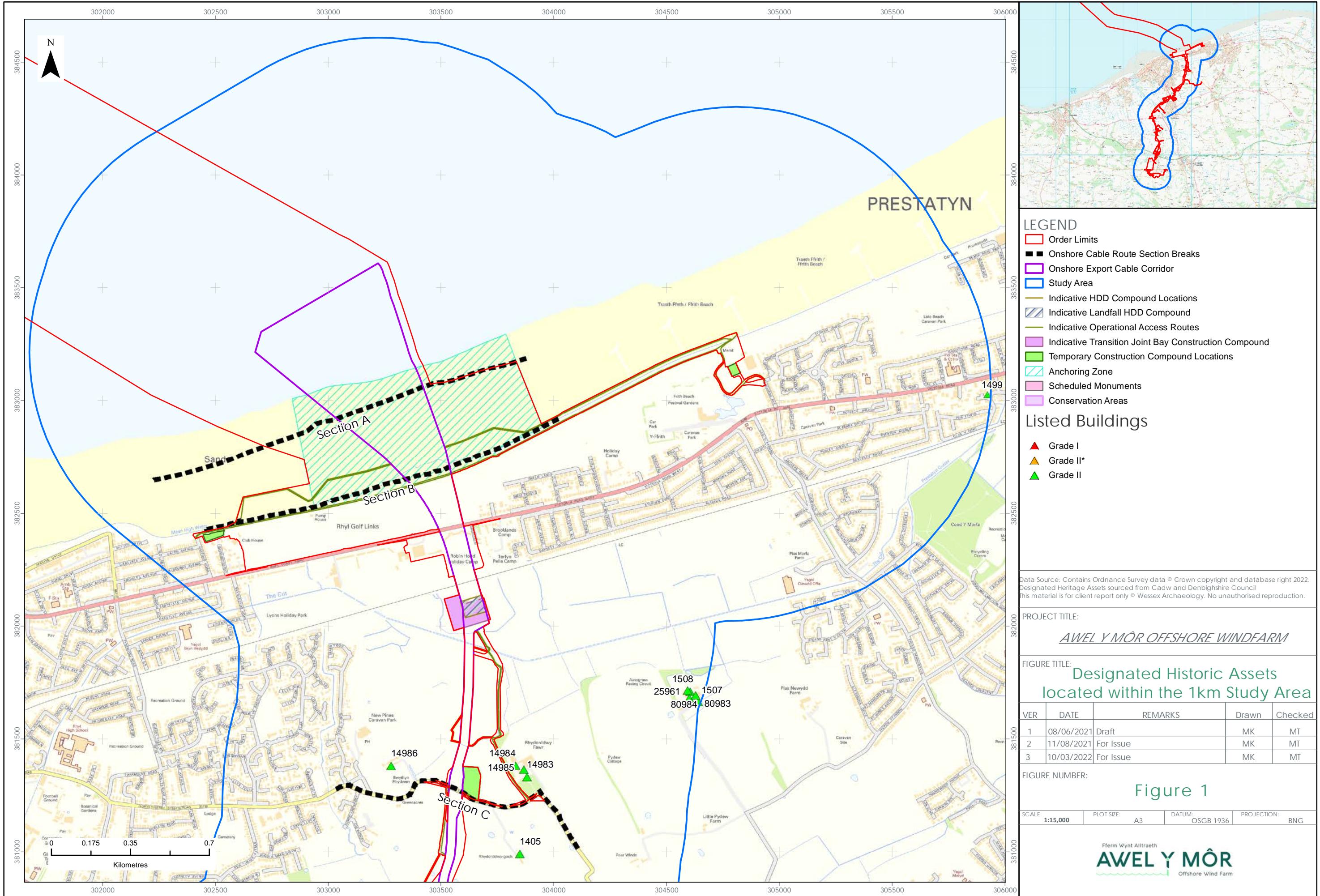
DATE AND CONSULTATION PHASE/TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		<p><u>World Heritage Site Management Plan</u> (<a href="http://anglesey.gov.uk">anglesey.gov.uk</a>), or to the agreed Viewpoints, or where the assessor considered a view important in judging a contribution made by setting to significance. The degree to which the WTGs are visible and whether this affects setting and the contribution made by setting to the significance of the assets is set out in the assessment in sections 8.10-8.12. The assessments presented are considered to be appropriate, proportionate and in accordance with the guidance and policy as noted above, and in the methodology presented in this chapter.</p>

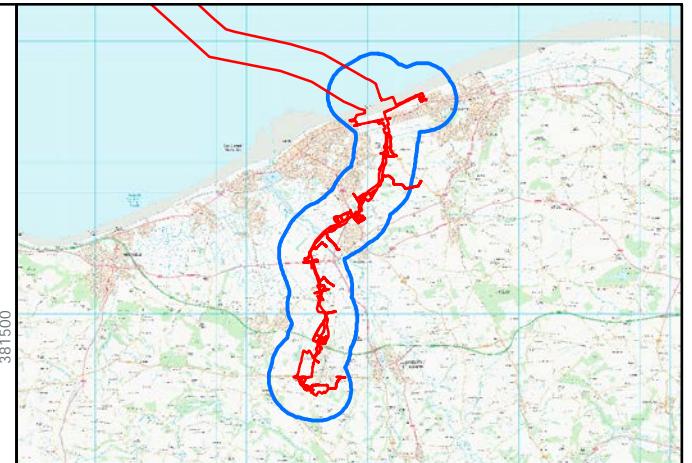
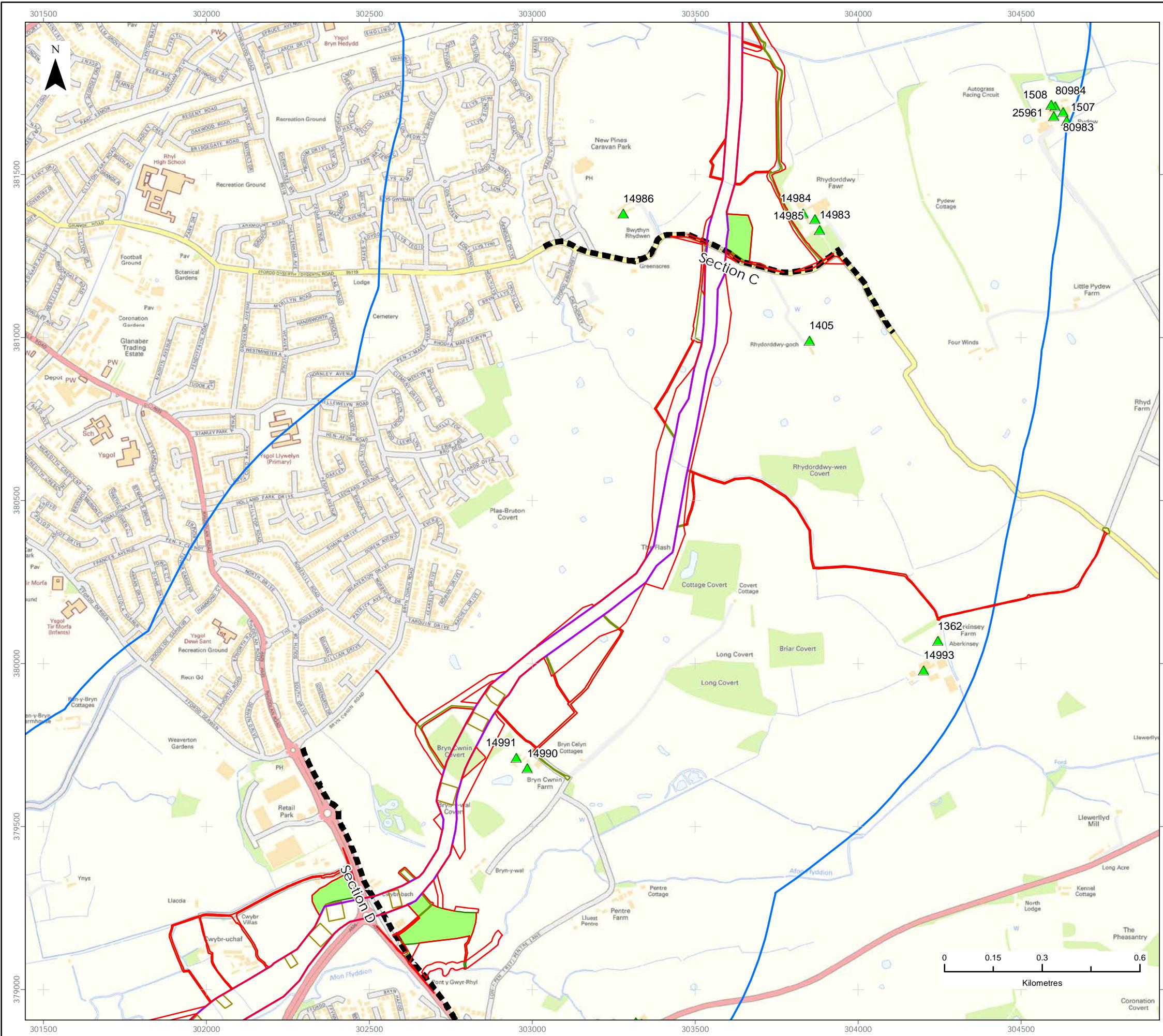
## 8.4 Scope and methodology

- 17 For the purposes of determining the DCO application, the Infrastructure Planning (Decisions) Regulations 2010 require that decision-makers have regard for the desirability of preserving:
  - ▲ Listed buildings, any features which contribute to their special interest and their settings;
  - ▲ Scheduled monuments and their settings; and
  - ▲ The character and appearance of conservation areas.
- 18 This assessment provides sufficient information for the decision maker to make an informed determination in line with the Infrastructure Planning (Decisions) Regulations 2010. This assessment also follows the requirements of the NPS, and is informed by the PPW and TAN24 where this provides further detail (such as providing definition of setting and heritage interests etc.). Where there is an overlap, the guidance and requirements in the regulations and NPS are followed.
- 19 For the purposes of the Infrastructure Planning (Decisions) Regulations 2010, if the assessment determines that where the contribution that setting makes to the significance of a historic asset is not changed and the asset does not lose significance as a result, both the setting and the asset are considered to be preserved (at least in respect of their heritage interests).
- 20 The assessment proceeds from the basis that the significance of an asset is what is of concern (following both the NPSs and PPW/TAN24), and follows Cadw guidance in considering that setting is important in respect of what it contributes to an asset's significance, and the way in which that significance is able to be understood and appreciated. Significance here is the sum of any asset's heritage interests and values.

### 8.4.1 Study Area

- 21 A distance-based approach was undertaken to define a study area for the assessment of indirect effects on the significance of historic assets with respect to the proposed onshore infrastructure, whereby a 1 km study area has been used. The study area proposed during EIA Scoping for indirect effects comprised a 500 m zone either side of the Onshore ECC. The use of the 1km study area for indirect effects arising from the OnSS, is considered sufficient to allow an informed assessment of likely significant effects from the OnSS. To include effects arising from the TCC located 1.3 km to the north east of the Onshore ECC to the east of Frith Beach Festival Gardens the study area was extended to allow for direct and indirect effects arising from this to be assessed. Designated Heritage Assets within the 1 km study area are shown on Figure 1 to Figure 5. For purposes of this assessment, indirect effects are primarily (but not limited to) visual intrusion or change in setting which may affect the heritage significance of a heritage asset (or the ability to appreciate and understand that significance).
- 22 With respect to the potential effect on the significance and setting of onshore assets, a more selective approach has been used to select assets for assessment from within the study area. The final groups of assets selected for assessment includes specific assets requested for inclusion by consultees, as well as being based on professional judgement. The selection is informed by consideration of distance, elevation, function and designation status of an asset.





#### LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Onshore Export Cable Corridor
- Study Area
- Indicative HDD Compound Locations
- Indicative Operational Access Routes
- Temporary Construction Compound Locations
- Scheduled Monuments
- Conservation Areas

#### Listed Buildings

- ▲ Grade I
- ▲ Grade II\*
- ▲ Grade II

Data Source: Contains Ordnance Survey data © Crown copyright and database right 2022.  
Designated Heritage Assets sourced from Cadw and Denbighshire Council  
This material is for client report only © Wessex Archaeology. No unauthorised reproduction.

PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE: Designated Historic Assets located within the 1km Study Area

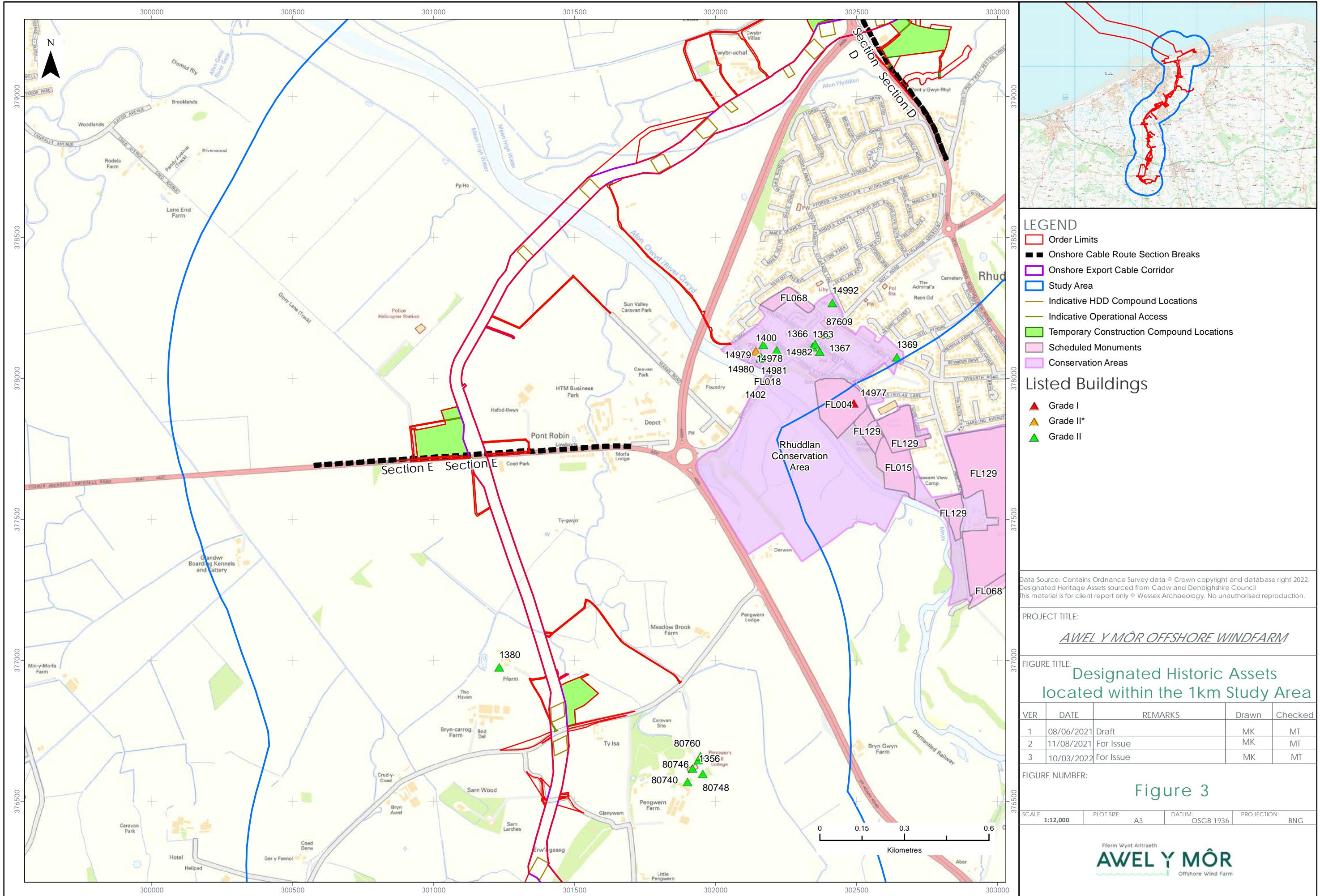
VER	DATE	REMARKS	Drawn	Checked
1	08/06/2021	Draft	MK	MT
2	11/08/2021	For Issue	MK	MT
3	10/03/2022	For Issue	MK	MT

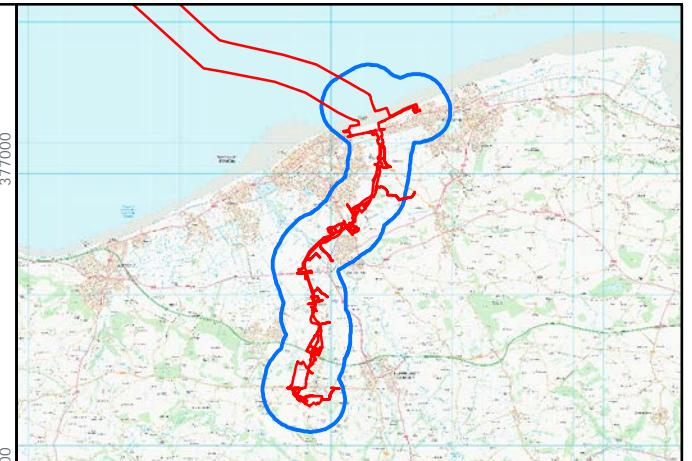
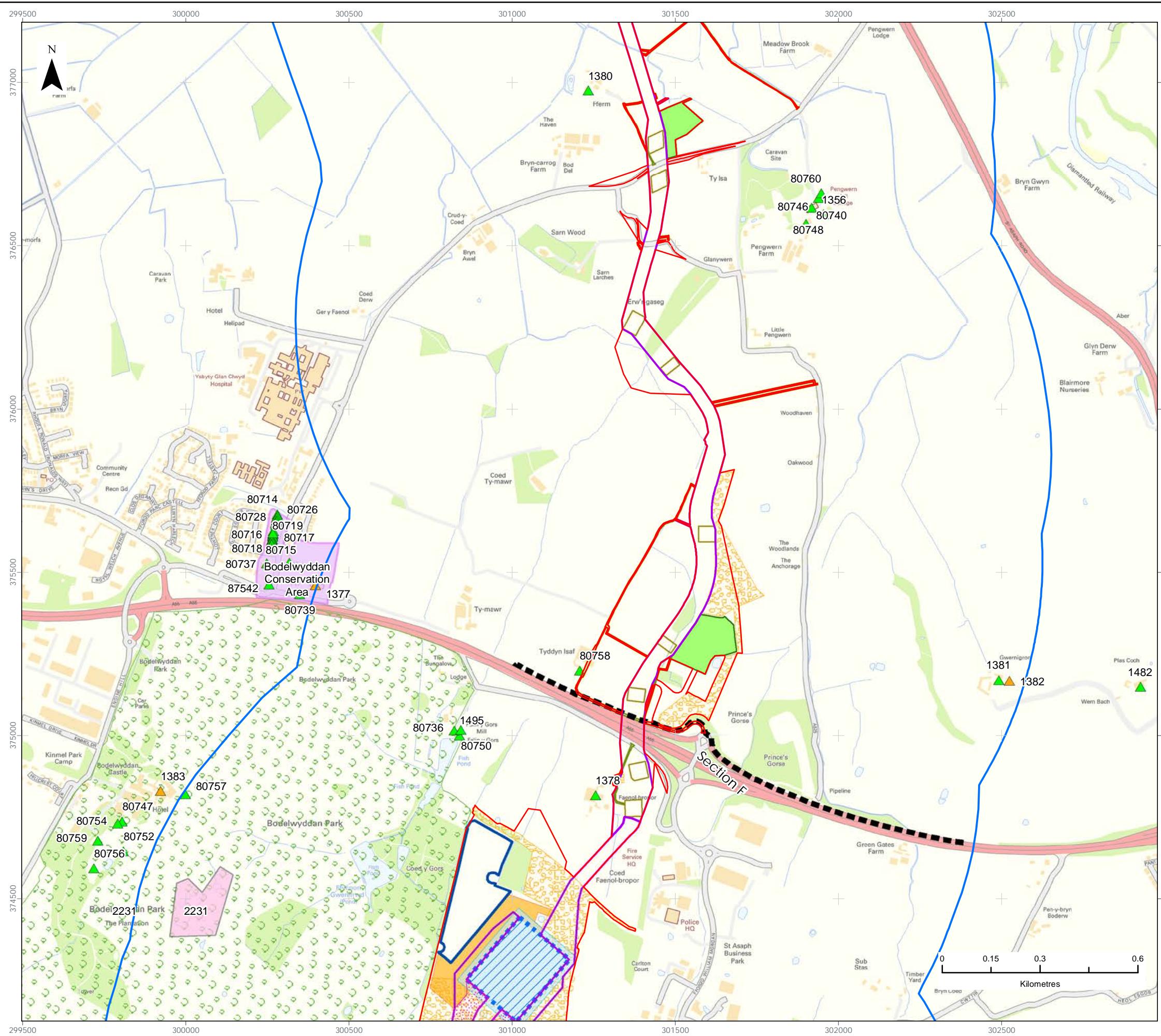
FIGURE NUMBER:

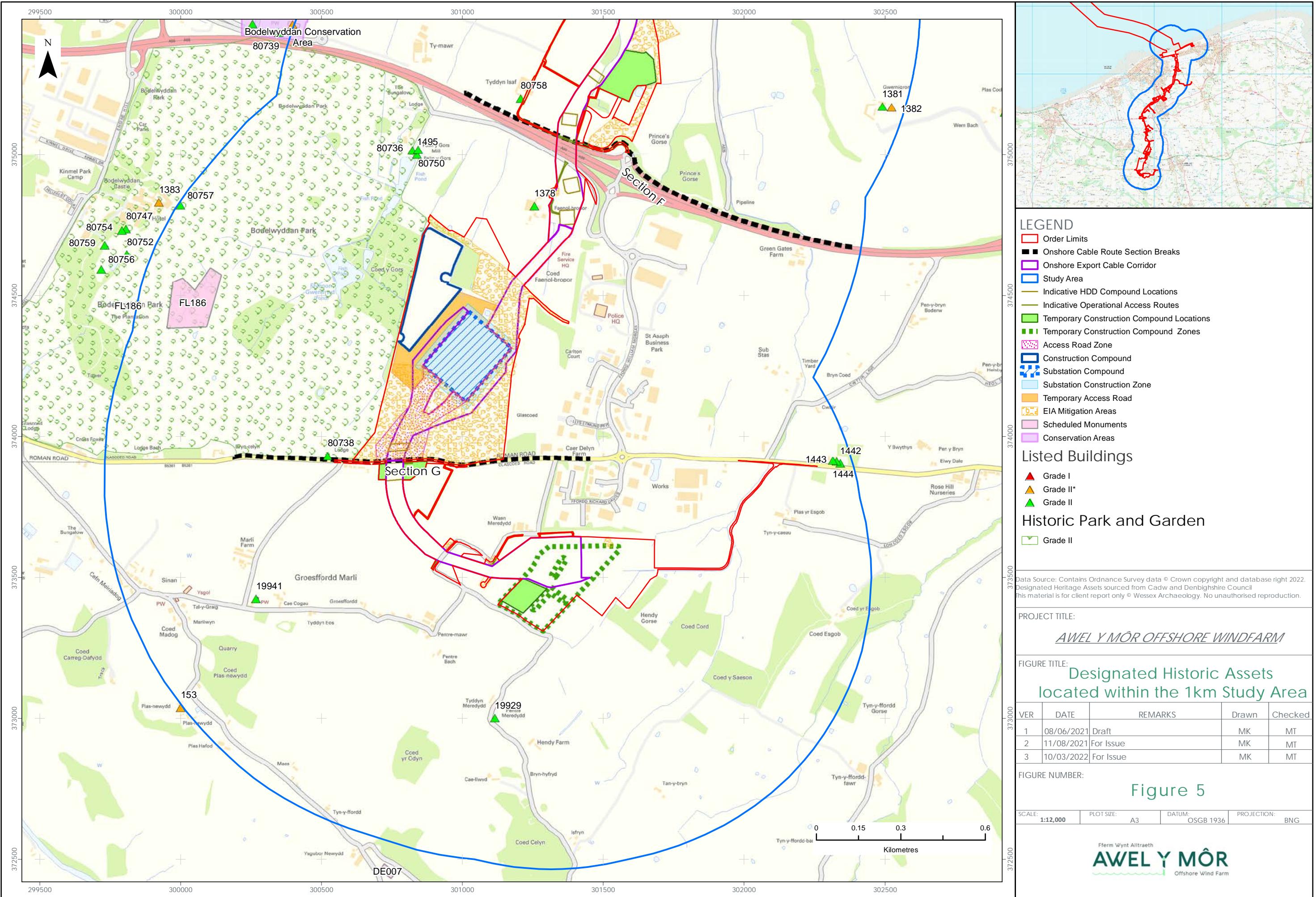
Figure 2

SCALE: 1:12,000 PLOT SIZE: A3 DATUM: OSGB 1936 PROJECTION: BNG

Ffwrn Wynt Altraeth  
**AWEL Y MÔR**  
Offshore Wind Farm



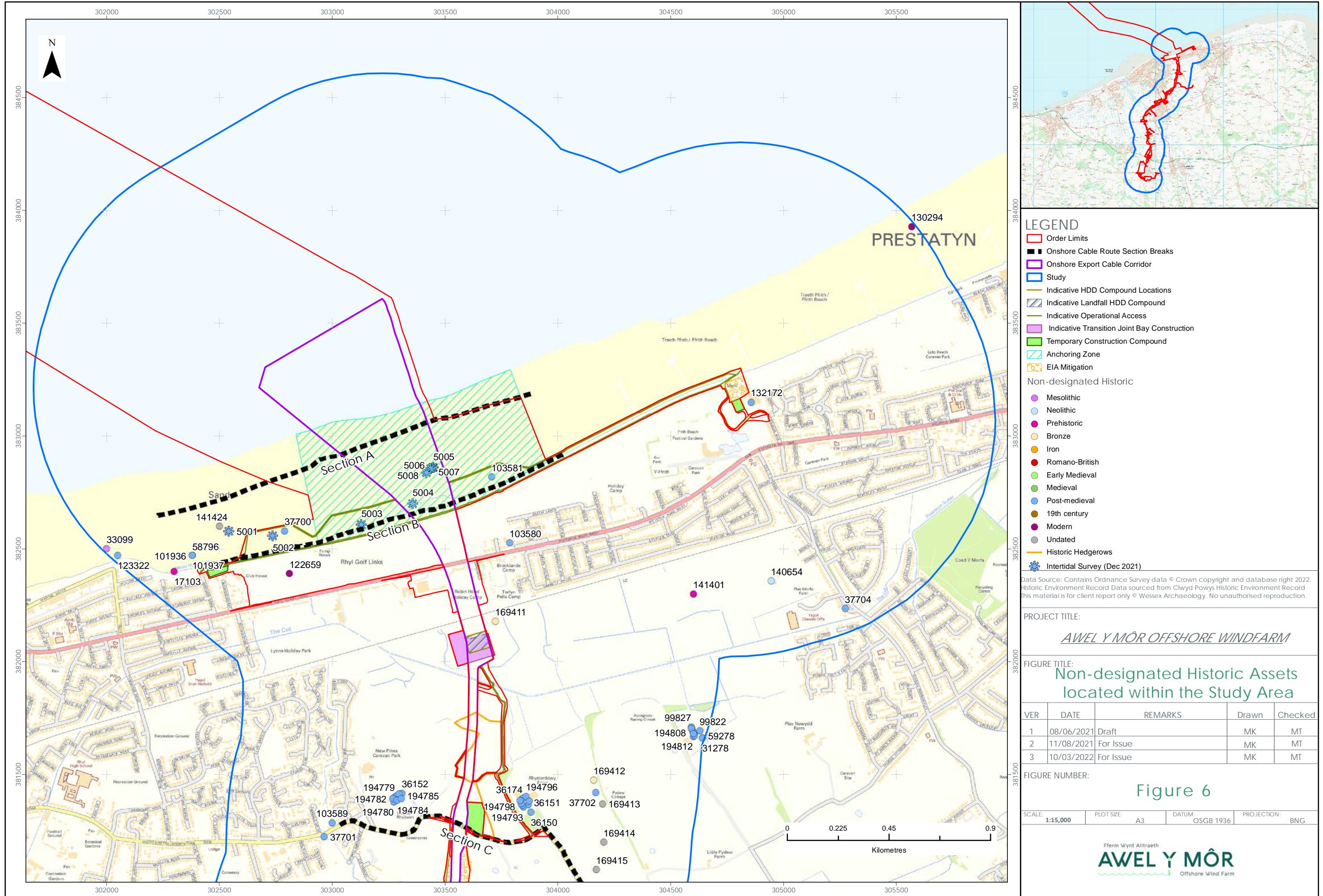


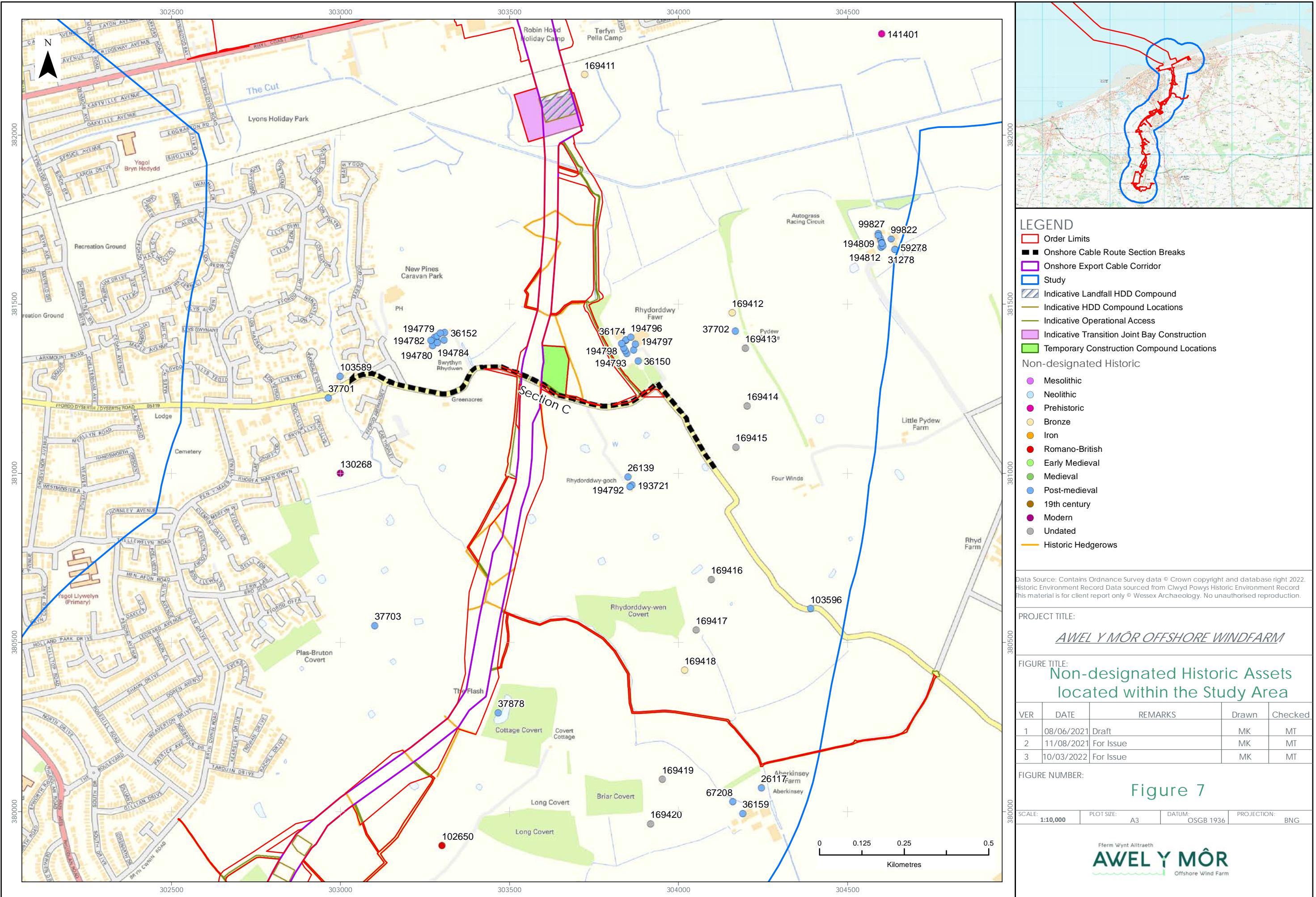


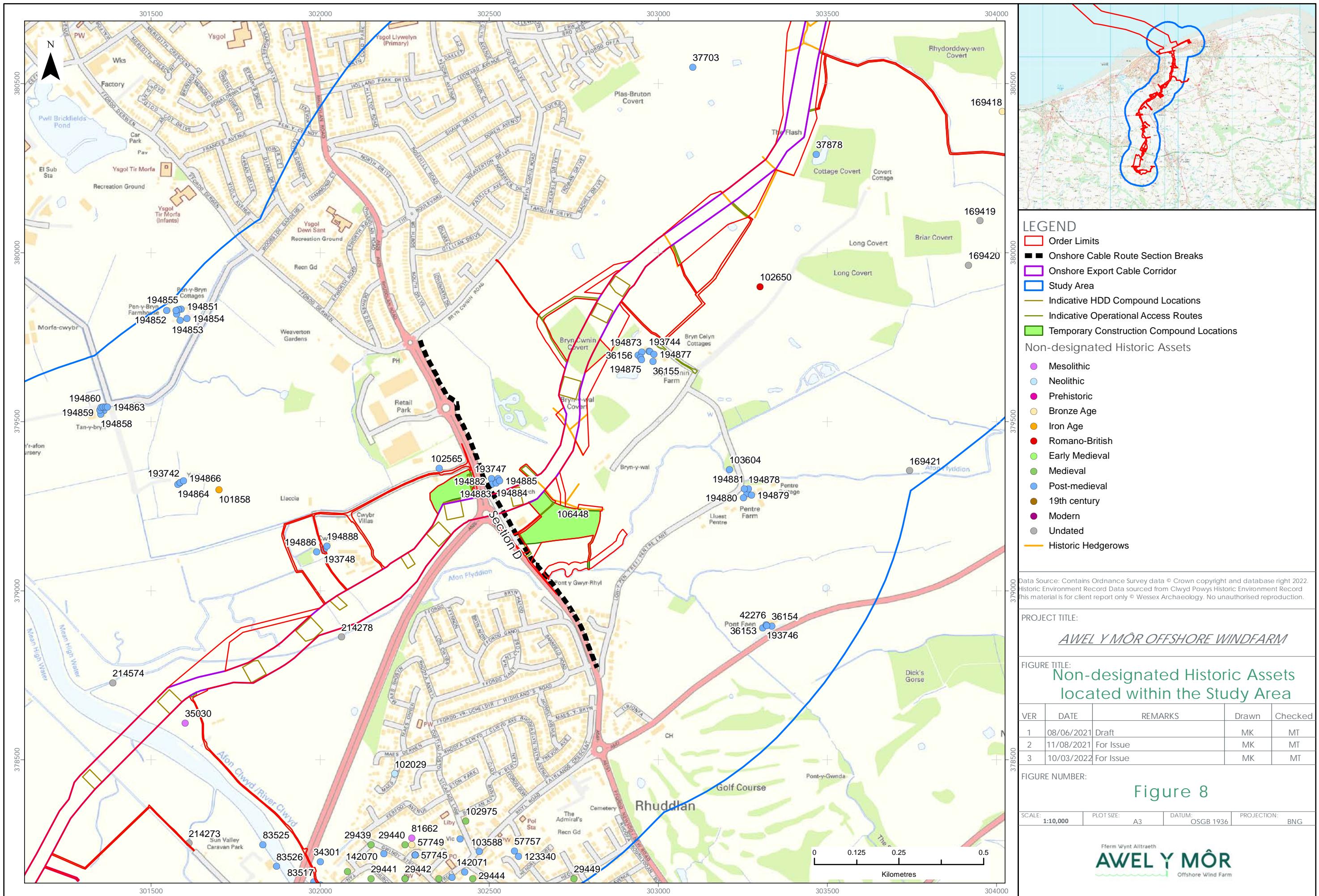
#### 8.4.2 Assessment of Direct effects

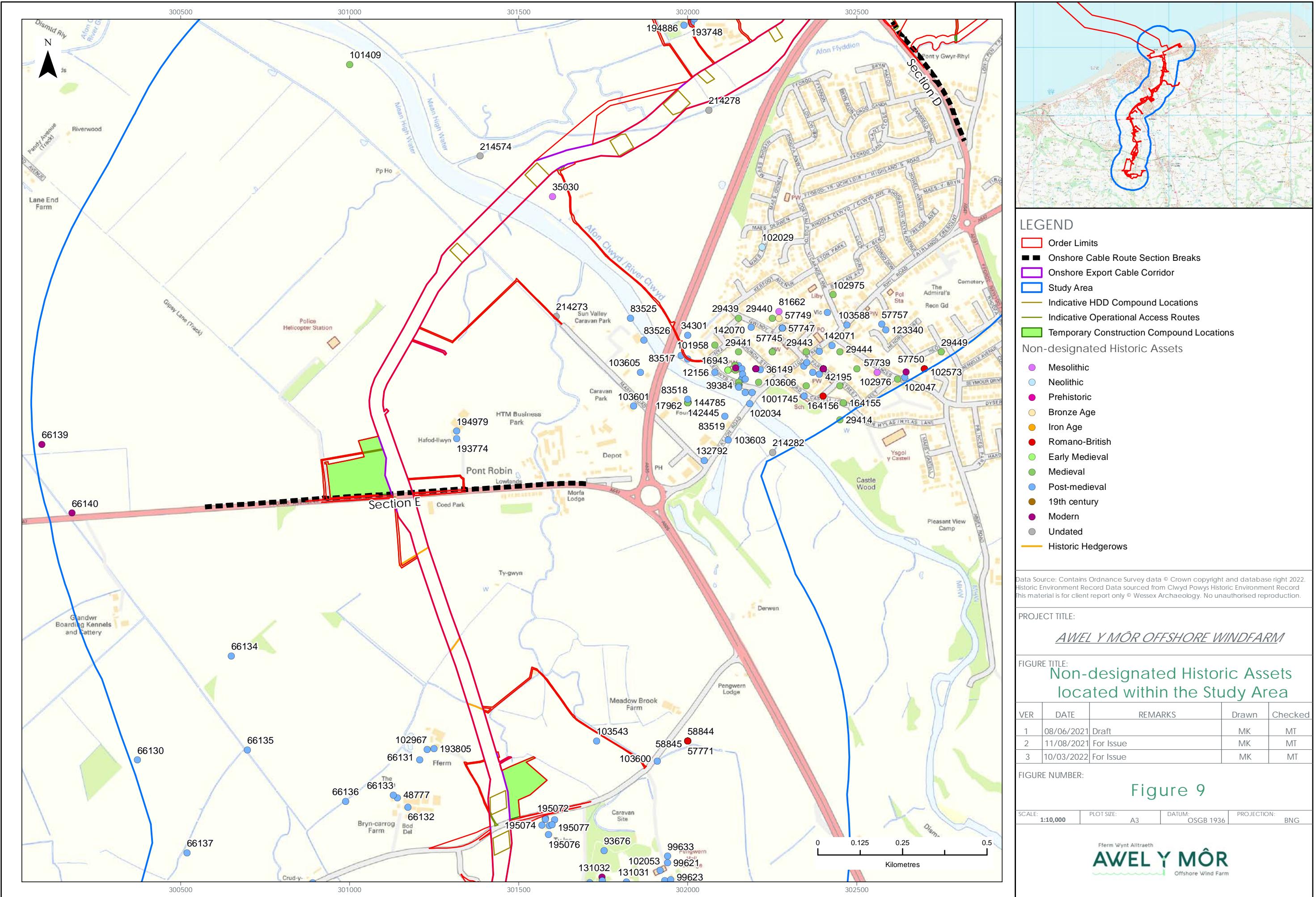
- 23 Direct effects on historic assets result from physical damage or disturbance, which gives rise to a loss of heritage significance. Consequently, it is only those assets which are within the footprint of the proposed development and associated enabling works such as intrusive surveys, site compounds and access tracks which are potentially subject to direct effects. As archaeological features are not always evident, a Desk-Based Assessment (DBA) (Volume 5, Annex 8.1; application ref 6.5.8.1) and geophysical survey (Volume 5, Annex 8.3; application ref 6.5.8.3) have been undertaken to examine this potential and the potential locations of archaeological historic assets, to ascertain the potential for historic assets to be affected by the proposed development.
- 24 As conclusions from the DBA are predictive and probabilistic and the geophysical results have not been ground-truthed, there are some cases where the potential presence of historic assets or their significance remains difficult to state with confidence. However, significance has been assigned based on a professional judgement, taking into account the previous experience and the results of archaeological work in the wider area, as recorded in the Historic Environment Record. The assessment of potential effects has taken a precautionary approach, assuming a reasonable worst case scenario (that is, any archaeological remains will have some value and, where present, this will likely be damaged or destroyed by construction related activities such as groundworks and earthmoving); design has been undertaken, and mitigation proposed as appropriate, with this in mind.

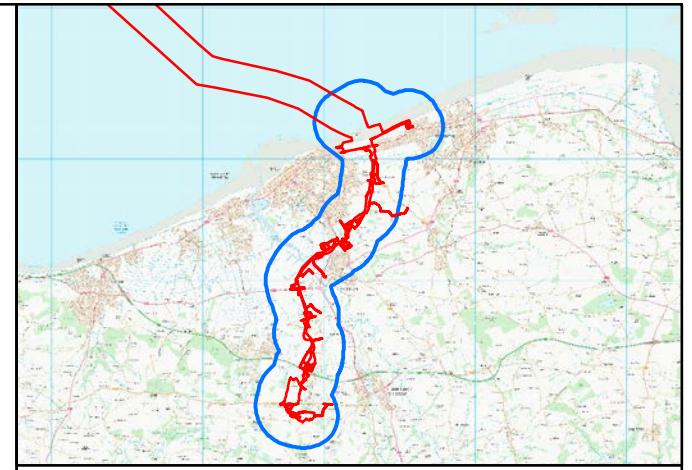
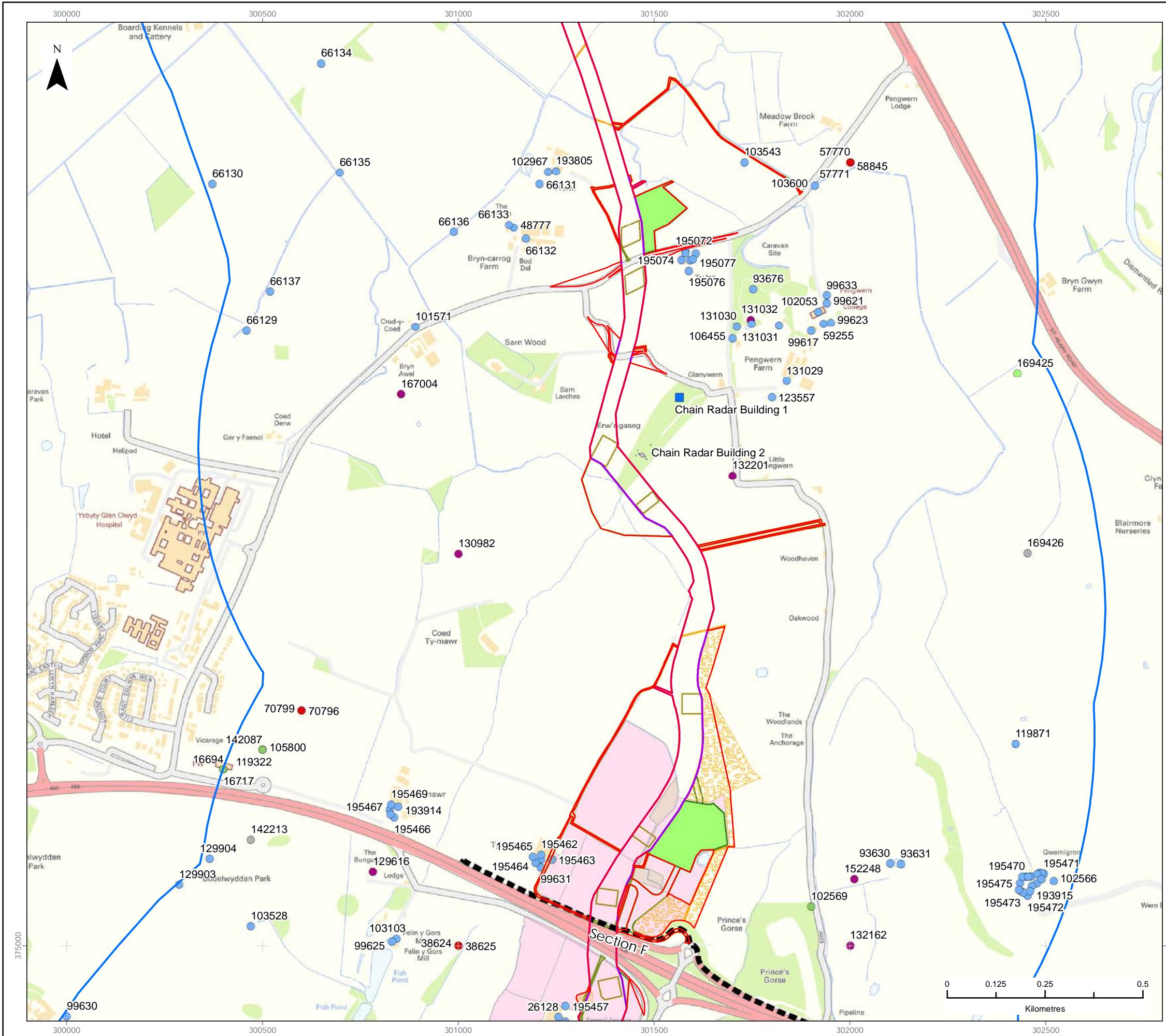
- 25 Direct effects on historic assets, as a result of the onshore elements of AyM, would only occur within the Order Limits (OL). The study area for the assessment of direct effects on the onshore historic environment is considered within the Desk-Based Assessment (Volume 5, Annex 8.1; application ref: 6.5.8.1) and extended to 1 km in all directions from the Onshore ECC (Figure 6 to Figure 11). This was to allow information on historic assets in close proximity to the Onshore ECC and OnSS to be collected to fully understand the potential for as yet unrecorded historic assets to be present within the area potentially affected by the onshore construction of AyM. This includes areas which are in the intertidal zone between Mean High Water Springs (MHWS) and Mean Low Water Springs. The archaeological potential of these areas is discussed at Volume 5, Annex 8.1 (application ref: 6.5.8.1) to provide context for the assessment, but effects on historic assets below MHWS are assessed in Volume 2, Chapter 11 Offshore Archaeology and Cultural Heritage (application ref: 6.2.11).











**LEGEND**

Order Limits	
■ ■ Onshore Cable Route Section Breaks	
■ ■ Onshore Export Cable Corridor	
■ ■ Study Area	
■ ■ Indicative HDD Compound Locations	
■ ■ Indicative Operational Access Routes	
■ ■ Temporary Construction Compound Locations	
■ ■ Off Route Accesses	
■ ■ EIA Mitigation Areas	
<b>Non-designated Historic Assets</b>	
Mesolithic	
Neolithic	
Prehistoric	
Bronze Age	
Iron Age	
Romano-British	
Early Medieval	
Medieval	
Post-medieval	
19th century	
Modern	
Undated	
Historic Hedgerows	
Ridge and furrow	
Chain Radar Building 1	
Chain Radar Building 2	

Data Source: Contains Ordnance Survey data © Crown copyright and database right 2022. Historic Environment Record Data sourced from Clwyd Powys Historic Environment Record. This material is for client report only © Wessex Archaeology. No unauthorised reproduction.

**PROJECT TITLE:**  
*AWEL Y MÔR OFFSHORE WINDFARM*

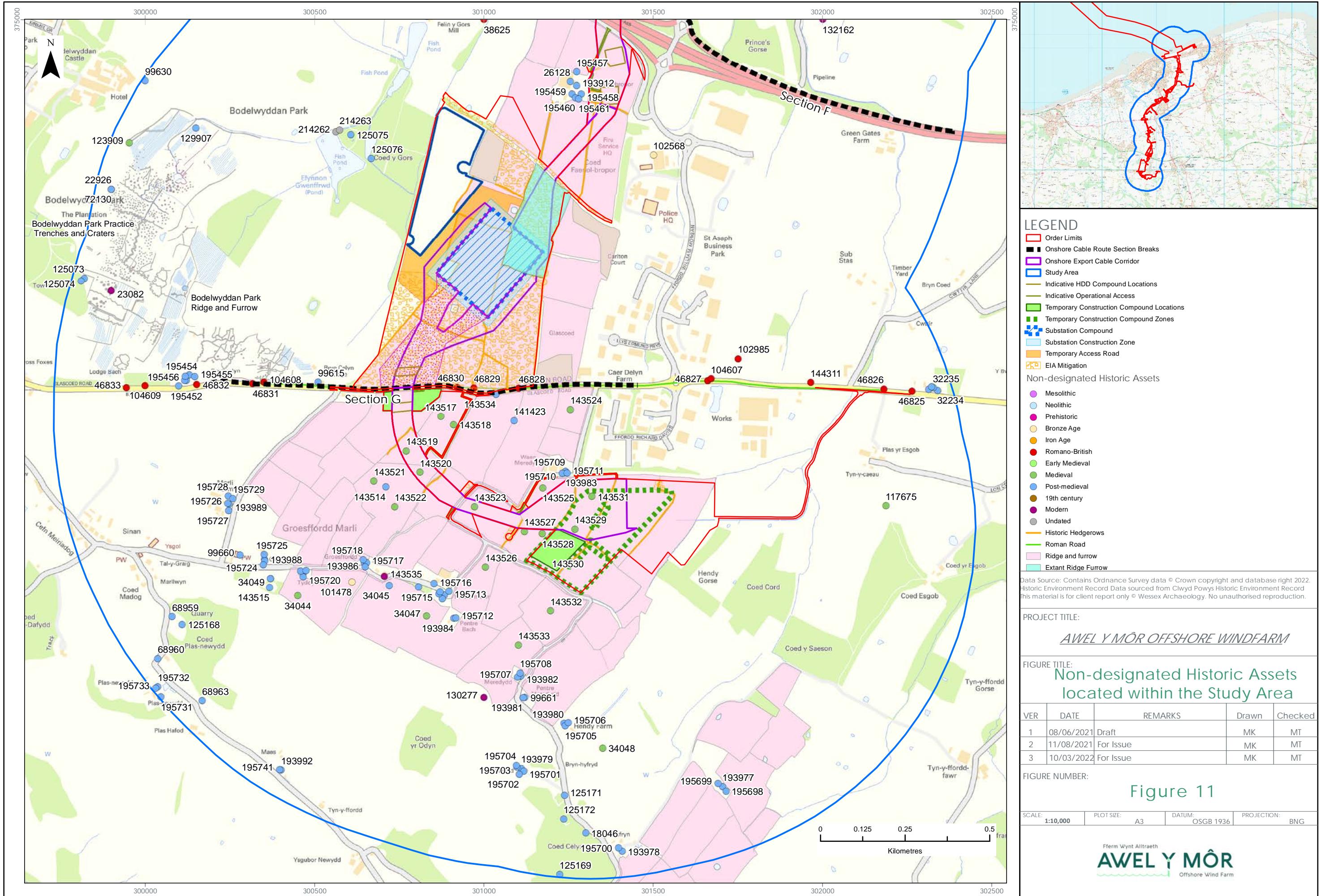
**FIGURE TITLE:**  
**Non-designated Historic Assets located within the Study Area**

VER	DATE	REMARKS	Drawn	Checked
1	08/06/2021	Draft	MK	MT
2	11/08/2021	For Issue	MK	MT
3	10/03/2022	For Issue	MK	MT

**FIGURE NUMBER:**  
**Figure 10**

SCALE: 1:10,000 PLOT SIZE: A3 DATUM: OSGB 1936 PROJECTION: BNG

Fferm Wynt Altraeth  
**AWEL Y MÔR**  
Offshore Wind Farm



### 8.4.3 Indirect effects

- 26 For the purpose of the assessment in this ES Chapter, Indirect effects are defined here as those which result in potential change to heritage significance but do not give rise to physical damage or disturbance to the asset. In this context, these effects will generally arise through change to the settings of historic assets. Setting is not explicitly defined in either statute or NPS EN1. However the Draft NPS EN-1 does make reference to setting and provides a definition (Draft NPS EN-1 2021, paragraph 5.9.3, footnote 103) and goes on to set out how setting should be taken into account. Setting is also defined in PPW TAN 24: The Historic Environment as '*the surroundings in which it is understood, experienced, and appreciated embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve.*' (TAN 24 2017, paragraph 1.25).
- 27 The Cadw guidance (Setting of Historic Assets in Wales, 2017), follows this definition and sets out guidelines for considering any effects on the significance of historic assets arising from change to setting. The guidance accords with the NPS, PPW and TAN 24 in recognising that it is effects to significance of an asset that are of concern. The guidance specifically states that '*setting itself is not a historic asset*' and that '*the importance of setting lies in what it contributes to the significance of a historic asset*' (Cadw 2017).
- 28 Assessment of settings is primarily associated with designated historic assets or non-designated historic assets of equivalent heritage significance (where such assets are identified). The scope of the assessment has been established in agreement with the statutory and key professional consultees through the Scoping Report and Evidence Plan process, and applied with reference to desk-based research, the Zone of Theoretical Visibility (ZTV) of AyM and site visits to identify those assets with settings which might be sensitive to change arising from development. This process of appraisal has been through engagement with consultees and follows Stages 1-4 of the following four-step sequential process set out in Cadw (2017) guidance:
- ▲ **Stage 1:** Identify the historic assets that might be affected by a proposed change or development.

- ▲ **Stage 2:** Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced.
  - ▲ **Stage 3:** Evaluate the potential impact of a proposed change or development on that significance.
  - ▲ **Stage 4:** If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance.
- 29 In order to better understand the potential effect, a clear statement of the asset's overall significance is required, as well as the contribution that setting makes to that heritage significance. It is the final effect on the overall heritage significance of an asset that is being assessed, not simply the degree to which the contribution made by its setting is changed.

## 8.5 Assessment criteria and assignment of significance

### 8.5.1 Methodology for prediction of effects

- 30 To understand the significance of direct effects, baseline data has been reviewed to:
- ▲ Identify known or suspected archaeological sites within the OL; and
  - ▲ Characterise the heritage resource from the study area.
- 31 Comparison of the distribution of the known and potential archaeological features with location and extent of the proposed construction works allows the potential extent and nature of any direct disturbance to be characterised.

- 32 The assessment of effects arising from change in settings follows the approach set out by Cadw (Cadw 2017). For the assessment of AyM, the potential for loss of heritage significance is most likely to occur as a result of intervisibility or direct views between the historic asset and the development, where that presence adversely affects the heritage significance of that asset. Change to views of an asset from a third viewpoint, even where there is no direct intervisibility between the development and the asset, may also be relevant as there may be non-tangible historic or other associations. However, it is important to consider that simple intervisibility between an asset and the development, or presence in views, is not in and of itself an adverse effect. There has to be specific change to (reduction in) the contribution made by that element of the "setting", so as to cause a reduction in ('harm' to) the heritage significance of the asset.
- 33 In addition to purely visual considerations (which may or may not make a contribution to the heritage significance of an asset), other effects of the development, such as noise, may also have an effect, although this is normally only relevant in relatively close proximity to the proposed development. These effects are understood in terms of the relationship of the asset with its current setting and may be positive, enhancing the heritage significance of the asset, value-neutral or harmful, depending on the nature of the change, the character of the setting and its contribution to the heritage significance of the asset.

## 8.5.2 Significance evaluation methodology

- 34 The assessment of the significance of any effect on a historic asset is largely a product of the heritage significance of an asset and the magnitude of the effect that may give rise to harm, qualified by professional judgement. An assessment of effects on a historic asset involves an understanding of the heritage significance of the asset and in the case of an indirect effect, the contribution of the setting to the heritage significance of the asset. The effect being assessed is whether the asset loses significance due to a reduction in the contribution that its setting makes to that significance, as a result of development within that setting. EN-1 (DECC 2011) paragraph 5.8.8 and Draft NPS EN1 (2021) paragraph 5.9.11, sets out that the level of detail should be proportionate to the heritage significance of the historic asset and no more than is sufficient to understand the potential impact of the proposal.
- 35 Guidance discusses the conservation of the heritage significance of historic assets, as change is an inevitable process but one that can be managed (Cadw 2017, Heritage Impact Assessment in Wales). Heritage significance is not necessarily dependent on the preservation of a feature as it can be enhanced through sensitive management. EN-1 (DECC 2011) paragraph 5.8.13 and Draft EN-1 (2021) paragraph 5.9.20 directs the Infrastructure Planning Committee (now the Secretary of State) to take account of viable uses that sustain the significance of the historic environment, consistent with the conservation of historic assets.
- 36 Rather than just characterising the potential physical effects of development, any assessment therefore needs to understand the effects on the heritage significance of historic assets and/ or significant places. The heritage significance of the asset is determined by reference to the heritage values set out in Cadw 2017, Heritage Impact Assessment in Wales. These are as follows (taken from Section 4.2 of the Cadw document):
- ▲ *Evidential Value: the extent to which the physical fabric tells how and when your historic asset was made, how it was used and how it has changed over time. There may also be buried or obscured elements associated with your historic asset which may also be an important potential source of evidence.*

- ▲ *Historical Value: your historic asset may illustrate a particular past way of life or be associated with a specific person or event: there may be physical evidence for these connections which it could be important to retain.*
  - ▲ *Aesthetic Value: the design, construction and craftsmanship of your historic asset. This can also include setting and views to and from the historic asset, which may have changed through time.*
  - ▲ *Communal Value: your historic asset may have particular significance to people for its commemorative, symbolic or spiritual value, or for the part it has played in local cultural or public life. This will be particularly important in the case of buildings in public use or sites where public access must be maintained or improved.*
- 37 For the purposes of assessing the significance of effects in EIA terms, heritage significance has also been assigned to one of the five classes, with reference to the heritage interests described above and relying on professional judgement as informed by policy and guidance. The hierarchy given in Table 3 reflects the NPS distinction between designated and non-designated historic assets. The NPS further distinguishes between designated assets of the highest heritage significance (i.e. World Heritage Sites, scheduled monuments, protected wreck sites, Grade I and II\* listed buildings, and Grade I and II\* registered parks and gardens) and other designated assets. This further distinction is relevant to planning policy, but has less influence on the establishment of the significance of an effect in EIA terms (and listed buildings are any Grade are subject to the same legal protection in any case).
- 38 Effectively, designation of an asset is a recognition of the heritage interests and value inherent within that asset, which are deemed worthy of statutory protection. These assets are therefore typically regarded as more important than non-designated historic assets, except where provided for in the Environmental Impact Assessment Regulations (The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017) and in the NPS (e.g., where non-scheduled assets are of demonstrably equivalent importance to a scheduled monument). The sensitivity of an asset to change (as opposed to simply its accorded level of importance) is discussed within the assessment text provided in section 8.10-8.12 below, as appropriate.

- 39 The significance of identified historic assets is defined in Table 3, following the definition of heritage significance set out in NPS EN-1 (DECC 2011) and Draft NPS EN-1 (2021). The phrase ‘heritage significance’ is used where appropriate to avoid confusion between the significance of a historic asset in policy terms and the significance of effect.

Table 3: Sensitivity/importance of the receptor.

HERITAGE SIGNIFICANCE	DESCRIPTION/ REASON
Very High	<p>World Heritage Sites, which are internationally important;</p> <p>Assets of acknowledged international importance;</p> <p>Assets that can contribute significantly to acknowledged international research objectives;</p> <p>Historic landscapes of international value (designated or not).</p>
High	<p>Scheduled monuments and undesignated assets of Schedulable quality and importance;</p> <p>Listed buildings;</p> <p>Archaeological assets that can contribute significantly to acknowledged national research objectives;</p> <p>Designated and non-designated historic landscapes of outstanding interest (including Grade I and II* registered historic parks and gardens, Registered Landscapes of Outstanding Historic Interest);</p> <p>Non-designated landscapes of high quality and importance, and of demonstrable national value.</p>
Medium	<p>Designated or undesignated archaeological assets that contribute to regional research objectives;</p> <p>Conservation areas;</p> <p>Designated special historic landscapes of special historic interest (including Grade II registered historic parks and gardens).</p>

HERITAGE SIGNIFICANCE	DESCRIPTION/ REASON
Low	<p>Non-designated historic assets, including locally listed buildings and other buildings that are considered to be of local interest;</p> <p>Archaeological assets of limited value, but with potential to contribute to local research objectives.</p>
Negligible	<p>Assets with very little or no surviving archaeological interest/buildings with little or no value at local or other scale;</p> <p>Landscapes with little or no significant historic interest.</p>

- 40 In consideration of sensitivity and importance, designation status (and its implicit recognition of the value of heritage interest with an asset deserving of such protection) is a starting point. However, some aspects may be more or less sensitive to the anticipated changes from the proposed development whatever their grading. The categorisation of an asset to a particular level of sensitivity or importance is based in part on designation and in part on professional judgement on the degree to which an asset is sensitive to the type of change expected. The text assessments presented in sections 8.10-8.12 take this into account.
- 41 Direct effects are qualified by the extent and nature of remains associated with an asset which would be disturbed or lost, and the effect of this loss on the heritage interests (heritage significance) of the asset. In respect of buried archaeological remains with no visible above ground remains, this would normally result in the loss of archaeological interest, but elements of architectural and historic interest can also be affected.
- 42 In this context, the effects of change in the setting of a historic asset may depend on individual aspects of that setting, and assessments must be, by their nature, specific to the individual assets being considered. Cadw guidance (Cadw 2017), advises that the setting of a historic asset is made up of:

- ▲ Its current surroundings;
  - ▲ Our present understanding and appreciation of the historic asset; and
  - ▲ What (if anything) survives of its historic surroundings.
- 43 It should also be noted that not all change necessarily detracts from the heritage significance of the asset. In the assessment of effects on the setting of historic assets, the nature of the effect, i.e. positive, negative or neutral, of development is a subjective matter. Change is usually taken to constitute a negative effect where it will introduce new and different elements to the setting of designated features, either to an imagined contemporary setting or to their existing setting. However, this change will only be assessed as generating a significant (adverse) effect where it reduces the contribution made by the setting of an asset to such a degree (magnitude) that the overall significance of the asset is diminished or otherwise harmed. The degree to which this overall significance is affected is what is being assessed and is reflected in the final assessed significance score.
- 44 Effects on receptors are assigned to one of four classes of magnitude, defined in Table 4.

**Table 4: Impact magnitude definitions.**

MAGNITUDE	DEFINITION
Very High	<p>Total loss of or major alteration to a site, building or other feature (e.g., destruction of archaeological feature, demolition of a building).</p> <p>Fundamental change in setting and/or disassociation of an asset from its setting, such as by blocking or severance of key views so as to cause a wholesale reduction in the contribution that setting makes to the significance of that asset, and hence a significant loss of the asset's overall significance.</p>
High	Major physical damage to or significant alteration to a site, building or other feature.

MAGNITUDE	DEFINITION
	Extensive change (e.g. loss of dominance, intrusion on key view or sightline) to the setting of a scheduled monument, listed building or other feature registered as nationally important, which may lead to a major reduction in the contribution of that setting to the significance of the historic asset itself, and hence a loss of overall significance for that asset.
Medium	<p>Damage or alteration to a site, building or other feature. Encroachment on an area considered to have a high archaeological potential.</p> <p>Change in setting (e.g. intrusion on designed sightlines and vistas) to monuments/buildings and other features, which may lead to a moderate reduction in the contribution of that setting to the significance of the historic asset, and hence a reduction in the asset's overall significance.</p>
Low	<p>Minor damage or alteration to a site, building or other feature. Encroachment on an area where it is considered that low archaeological potential exists.</p> <p>Minor change in setting (e.g. above historic skylines or in designed vistas) of monuments, listed buildings, sites and other features, which may lead to a small reduction in the contribution setting makes to the significance of a historic asset, with an appreciable loss in the asset's overall significance.</p>
Negligible	<p>No or minimal physical effect.</p> <p>Slight or no change in setting, or one with no or very limited change in the contribution that setting makes to the significance of the asset, and no loss of overall significance.</p>

- 45 Effects are considered to be significant or not significant in EIA terms according to the matrix in Table 5. For this assessment, a Moderate or Major effect would be considered to be significant in EIA terms, depending on the heritage significance of the asset (above) and the exercise of professional judgement.
- 46 In making the final judgement on the significance of an effect, consideration is given not only to the importance of an asset in terms of its designation, but also to the sensitivity of an asset to the type of change or impact anticipated, as well as the magnitude of that change. For example, a highly graded listed building may have a high level of importance by virtue of its designation, but may be less susceptible to change in setting (and hence potential reduction in significance) arising from development proposals. This may be due to the assets form, or that the location of its heritage interests are not such that its significance relies on a visual contribution from setting, so that its heritage interests and hence overall significance is not harmed. Conversely, if an asset's significance is entirely derived from a visual contribution from its setting, then a higher level of significance may be accorded to the effect on the assets significance from the anticipated impact, whatever the level of grading of the asset. The final conclusion of the significance of any given effect is informed by professional judgement and based on consideration of all of these factors, as set out in the relevant assessment text as appropriate.

Table 5: Matrix to determine effect significance.

		HERITAGE SIGNIFICANCE				
MAGNITUDE		VERY HIGH	HIGH	MEDIUM	LOW	NEGLIGIBLE
	VERY HIGH	Major	Major	Moderate	Minor	Negligible
	HIGH	Major	Major	Moderate	Minor	Negligible
	MEDIUM	Moderate	Moderate	Moderate	Minor	Negligible
	LOW	Minor	Minor	Minor	Negligible	Negligible
	NEGLIGIBLE	Negligible	Negligible	Negligible	Negligible	Negligible

Note: Effects of 'moderate' significance or greater are defined as significant with regards to the EIA Regulations 2017<sup>i</sup>

<sup>i</sup> The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

## 8.6 Uncertainty and technical difficulties encountered

- 47 There are two principal areas of uncertainty in this chapter of the ES. The first relates to the nature of the archaeological baseline. The desk-based studies on which this assessment has been based in part, are predictive and do not provide a definitive understanding of as-yet unrecorded archaeological historic assets that may be affected by the proposed development. The second area of uncertainty relates to the detail of the proposed development, which retains a degree of flexibility within the Rochdale Envelope approach, which allows for a range of design options that will be finalised in the detailed design phase, post-consent. For the onshore infrastructure, this relates to details surrounding the cable entry and access arrangements from Glascoed Road into the OnSS, flexibility in the Horizontal Directional Drilling (HDD; or other trenchless technique) or trenching of the ECC, type and design of the OnSS, the footprint of the Temporary Construction Compounds (TCC) and flexibility surrounding the exit pit, beach access and TCC at landfall.
- 48 The nature of the site area means that the character of as-yet unrecorded historic assets can be predicted with a reasonable degree of confidence, although the condition and distribution of such historic assets is less well-defined. The implications of this uncertainty are discussed in more detail in the assessment of direct effects (section 8.10).

49 Additionally, some of the assets considered within this assessment have been included due to location within the ZTV, as prepared for and used in the LVIA and SLVIA. It is noted that the ZTV is a bare-earth model, and does not take into account any screening afforded by vegetation and buildings which may prevent or reduce actual visibility. The ZTV assumes visibility at 2 m above ground level and is based on a 5 m data grid digital terrain model. This provides a rather coarse grain and the actual degree of visibility of the development may be different at any given location than predicted. Finally, the ZTV does not reflect the degree to which visibility can decrease with distance; the nature of what is visible at 3 km will differ considerably from what is visible at 10 km, although both are indicated by the ZTV to have the same level of visibility. Further details on the ZTV can be found in Volume 2, Chapter 10, Seascape, Landscape and Visual Impact Assessment (application ref: 6.2.10) and Volume 3, Chapter 2, Landscape and Visual Impact Assessment of this ES (application ref: 6.3.2).

## 8.7 Existing environment

### 8.7.1 The Onshore ECC and OnSS

#### Summary of Archaeological and Historical Background

50 The following sections provide a description of the Onshore ECC and OnSS by Route Section. A description of the Route Sections is provided in Volume 3, Chapter 1: Onshore Project Description (application ref: 6.3.1).

## Route Section A- Intertidal Area and Route Section B- Intertidal to B5119

- 51 The proximity of the onshore ECC to the Irish Sea would likely have made this landscape attractive for early prehistoric populations, and there is evidence of Mesolithic and Neolithic settlement at Prestatyn and Rhyl, indicating the exploitation of coastal resources (CPAT Report no. 266). Recent foreshore surveys undertaken by CPAT in April 2021 and for the purposes of this assessment in December 2021 have identified a number of historic assets on the foreshore. Those identified during December 2021 are plotted on Figure 6, listed in Appendix 2 of Volume 5, Annex 8.1: Archaeological Desk-Based Assessment (application ref: 6.5.8.1). These remains included tree stumps, logs, peat deposits and concrete sheets and pillars located on the foreshore.
- 52 Archaeological investigations on the beach at Rhyl, to the west of the AyM landfall area (CPAT Report no. 1582) have identified that the existing sea defences have been built on an embankment of medium dense to dense sandy gravel, with a variable cobbles and fines content. The beach sands typically comprised slightly gravelly fine to coarse sands with shell fragments. The underlying geological background beneath this surface consisted of:
- ▲ Tidal Flat Deposits- Organic silty clays with subordinate peat and sand layers
  - ▲ Glaciofluvial deposits
  - ▲ Glacial Till deposits
  - ▲ Weathered sandstone
- 53 Where there were lenses of peat and other organic remains identified within the geology, these have the potential to preserve important evidence relating to coastal change and human activity during the Mesolithic and later prehistoric periods. These types of archaeological remains are expected to run through this section of the onshore ECC.

- 54 The earliest evidence of human occupation along the northern coastline of Wales is at the Pontnewydd Cave site near Llandudno, dating to c. 225 ka (thousand years) Before Present (BP) (Flemming 2005). Later Palaeolithic sites along this coastline include Kendricks Cave on the Great Orme Peninsula near Llandudno, from which Late Upper Palaeolithic materials (c.10 ka BP) were found (Flemming 2005).
- 55 In the wider area, along the coast to the north east, worked flint and chert of Mesolithic date have been recovered from several locations around Prestatyn as well as shell middens of Mesolithic date indicating the consumption of mussels. Mesolithic ‘Fossil Forests’ have been identified on the Welsh coastline at Rhyl, Borth, Cardigan Bay and Conwy. The Mesolithic fossil forest was first recorded at Rhyl in 1893 and was recorded as *‘thirty trees rooted as they grew, whilst there are a number of horizontal trunks which appear to rest as they fell’* (North Wales Chronicle, 11 February 1893). The tree stumps were recorded again in 1912 when 200 tree stumps were recorded between Rhyl Pier and half way between Rhyl and Prestatyn. In 1918, 100 tree stumps were noted (CPAT 2019). During the mid-holocene the forests were present along the coast for around 2000 years, in areas which are now only exposed at low tide and peat beds have been known to outcrop on the foreshore at Rhyl at low tide. Objects dating to the prehistoric periods such as bone, shell and bronze have been found on the Welsh coastline dating to the Neolithic and Bronze Age.
- 56 The onshore cable connection for Burbo Bank Extension Offshore Wind Farm, which at landfall is located approximately 50 m to the east of the proposed AyM onshore ECC, found Bronze Age remains in the northernmost part of the route near the shore at Rhyl which comprised mainly boundary ditches and scatters or groups of pits and postholes. It was suggested that domestic structures could be in the vicinity. The gullies were identified as being agricultural in nature and may be an indication of former Bronze Age field boundaries. Many of the pits contained evidence of burning and therefore could be associated with domestic activity. The Bronze Age activity extended across a 2 km section of the Burbo Bank Extension Offshore Wind Farm cable route suggesting that the activity extended over a large area just in from the present shoreline (Oxford Archaeology 2016).

- 57 There is a distinct absence of Romano-British evidence within this landscape, which is reflected as a theme across the north-eastern region of Wales (Archaeoleg 2003).
- 58 The Domesday Survey indicates that the landscape was very sparsely settled by the medieval period, with settlements within the vicinity of the onshore ECC (Cefn Du and Rhyd Orddwy) only having populations of approximately 2 households. There is no evidence of Saxon activity close to the onshore ECC; however, these sparse settlements may have originated in earlier Saxon settlements.
- 59 Rhyl Marsh was enclosed in 1842 and the Tithe Mapping indicates that the landscape had been fully enclosed by 1845 (National Library of Wales 2021). This agricultural development is reflected in the development of the Rhyd-wen (or Rhydorddwyl-wen) and Rhydorddwyl Fawr Farmhouses, to the west and east of the onshore ECC respectively (14986 and 14983-85), which can be identified on the 1871-2 Ordnance Survey mapping.
- 60 The existing railway line that runs through Route Section A has been identified on the First Edition Ordnance Survey mapping as the London and North Western Railway (Chester and Holyhead Branch), with historic documentation indicating that the company was merged with the Chester and Holyhead Railway in 1858. It has been in continuous use since then, running through to Rhyl train station (which opened in 1848 and has 2 platforms available for passengers), to the west of the onshore ECC.

- 61 Historic mapping indicates that the rest of Route Sections A and B of the onshore ECC have been part of an extensive agricultural landscape from the mid-19th century to the present, with many of the field boundaries to the south of the railway line having remained intact since at least 1845, when the Rhyl Tithe map was drawn (not replicated). Ordnance Survey mapping in 1910 indicates Salam bungalow had been constructed at the edge of the foreshore within the onshore ECC. There also seems to have been smaller structures within the north-western boundary of the OL which likely indicate outbuildings associated with a small farmstead outside of the OL. The Rhyl Golf Club is known to have been established in 1890 and is one of the oldest surviving golf clubs in North Wales, although in its early form covered a smaller area to the west of the onshore ECC. The course was extended and reopened in 1908 by which time the links extended into the onshore ECC. Prior to this this part of the onshore ECC comprised small irregular parcels of land bound by drainage ditches.
- 62 By 1938, there had been further developments to the north of the railway line, with the Rhyl Coast Road constructed by this time, that runs east to west parallel to the railway line that is still used today, as well as shifting field boundaries and the construction of houses to the east of the onshore ECC. There is an undated point for a brewery located close to the eastern boundary of the onshore ECC that has been indicated to have been 19th century in date, but there is no historic mapping that suggests it was still extant by the First Edition Ordnance Survey mapping if it was there at all (152294; Figure 6).
- 63 1960-1963 Ordnance survey mapping shows the continuation of the Rhyl Golf Links within Route Section A of the onshore ECC, to the north of the Rhyl Coastal Road with the area to the south of the road being turned in the Robin Hood Holiday camp. These areas have continued with these uses up until the present day.

64 LiDAR data covering Route Section A covers the beach area and no potential archaeological features are identified from the LiDAR data in that area (Volume 5, Annex 8.1; Figure 11 (application ref: 6.5.8.1)). Some potentially raised areas can be seen within the onshore ECC within Route Section B immediately south of the railway line. These may measure between 30-60 m across but may be very slight raises as these could not be identified on the site visit in April 2021. These may be natural of natural origin, but should they be of archaeological origin, their coastal position could suggest that these may have been salterns related to salt making on the coast. No other potential archaeological features were identified from the LiDAR data in Route Section B.

### Route Section C- B5119 to A525

- 65 There is a lack of prehistoric evidence recorded to date within Route Section C (Figure 7 to Figure 8). The absence of evidence or records of extensive prehistoric activity within this landscape could relate to the lack of previous targeted intrusive archaeological investigations, and therefore raises the possibility that there remains a background potential for further, as yet undiscovered archaeological remains within the onshore ECC.
- 66 Bryn Cwnin Cropmark (102650; Figure 8) has been interpreted as a Romano-British enclosure located 125m south east of the OL. A visit was conducted in 1995 and the site was considered flat with no above ground expression of the cropmark. A 'C' shape cropmark can be seen in this location on the 2006 aerial images. However, it can't be identified on any of the other more recent aerial images. The LiDAR data in this area shows a sub-rectangular feature of unknown origin to the south of the Historic Environment Record (HER) point, but this is unlikely to relate to the cropmark. No other possible archaeological features could be identified from the LiDAR in Section C (Volume 5, Annex 8.1; Figure 12 (application ref: 6.5.8.1)). A roman coin was found within the OL in the southern part of Section C at Bryn Cwybr (106448).

- 67 Tithe Mapping indicates that the landscape had been fully enclosed by 1845 (National Library of Wales 2021). The development of agriculture is reflected in the development of Bryn Cwnin Farm within the southern section of Route Section C. The current farmhouse is a Grade II listed building and dates to 1820 although fragments of earlier buildings suggest that the farm had been established well before that time. An associated range of farm buildings (also Grade II listed) are thought to date to the late 18th century (14990, 14991; Figure 2). The remainder of Route Section C is characterised by small and medium square and rectangular fields with a few pockets of woodland. A number of the fields on the first edition map have small square ponds/depressions. A small number of these are labelled as gravel pits and as such it may be that small scale gravel extraction was taking place in this area. The low-lying nature of the area would have resulted in disused gravel pits filling with water to create ponds.
- 68 In the later part of the 20th century some of the smaller fields within Route Section C were amalgamated to create larger fields, although the majority of the field layout continued from the end of the 19th century.

## Route Section D- A525 to A547

- 69 There is evidence of early prehistoric activity within Route Section D, with areas of Mesolithic activity (35030 and 81662; Figure 9) identified within the landscape being situated near to the River Clwyd near Rhuddlan. The river would have provided the natural resources which would have made this landscape attractive for early prehistoric populations. During this period this area would have been 10 km inland of the former Mesolithic coastline. As a result of rising sea levels, an estuary formed at the mouth of the Clwyd between Abergele and Rhyl. Finds from the Rhuddlan area include worked flint, hazelnut shells and other charred plant remains some of which came from small pits.

- 70 Excavations that took place in the area (35030) in advance of the Rhuddlan bypass identified scatters of flint and chert flakes in a context of brown clay layer containing gravel, as well as timbers, hazelnuts and snail shells in upper grey clay associated with a nearby barrow pit. A Neolithic axe was also found to the east of the onshore ECC at Rhuddlan (102029; Figure 9). Furthermore, excavations at Gwindy Street in Rhuddlan (81662; Figure 9) found a total of 38 flints and tools which included scraper, fabricator and utilised/retouched pieces. These excavations indicate that there is potential for further as yet undiscovered early prehistoric remains to be present within the onshore ECC. In the wider area potential Neolithic occupation sites have been indicated at Prestatyn and Dyserth.
- 71 The position of Route Section D around the River Clwyd suggests that the landscape would have likely been attractive to these prehistoric populations for its accessibility to natural resources. Across the north-eastern region of Wales, there has been many later prehistoric settlement sites identified purely through cropmarks with little excavation undertaken, and therefore intrusive archaeological works may enhance our understanding of the prehistoric communities in Wales (Archaeoleg 2003).
- 72 This is supported by evidence of Bronze Age activity within the landscape, which includes excavations that identified domestic refuse tip (57749; Figure 9), as well as a further pit containing pottery (57747; Figure 9) both within the town of Rhuddlan. Furthermore, fieldnames suggest that there was a Bronze Age cairn (101478; Figure 11) located in the landscape of the southern part of the onshore ECC and excavations for the Burbo Bank Extension Offshore Wind Farm close to the coast at Rhyl also discovered Bronze Age remains. These suggest the presence of a Bronze Age community within the landscape, or at least that the area was visited by communities during the period.

- 73 An Iron Age enclosure is recorded 230 m to the north of the Onshore ECC within Route Section D, this has been identified from aerial photographs and is believed to be a possible defended enclosure (101858; CPAT 2008). Romano-British activity is also limited within the north-eastern region of Wales, with research suggesting that there is a lack of evidence of Romano-British settlement patterns and urban centres (Archaeoleg 2003). However Roman remains have been found at Rhuddlan, although the nature of the remains is unclear.
- 74 Rhuddlan was one of the principal centres of activity in the area during the medieval period. The burh of Cledemutha (the name perhaps derived from 'Clwydmouth;) is documented as having been constructed by Edward the Elder in 921AD. Excavations have revealed that Rhuddlan was enclosed by a large ditch and bank earthwork (the town ditch), may represent the late Saxon Burh. Earlier evidence dating to the Roman period may indicate that Rhuddlan was already an important early medieval centre before the construction of the late Saxon burh.
- 75 The historic maps marked the Site of the Battle of Morfa Rhuddlan which was a battle between the Welsh and the Saxons in 795, where the Welsh were defeated and their King Carradog was slain by the Saxons. The exact location of the battle is unknown although the label on the 1st edition Ordnance Survey is position over Gipsy Lane which lies within the onshore ECC.
- 76 There have been a number of targeted excavations within Rhuddlan that have been able to trace the development of the town through the medieval period. During the 11th century a much smaller area of Norman occupation was established in the north western corner of the Saxon Burh. A motte and Bailey Castle was also built in 1073AD by Robert of Rhuddlan. After Edward's defeat of an uprising at Rhuddlan in 1277AD, Edward built a large stone castle in the north western corner of the former Saxon burh and established it as a new town. Around the same period the course of the River Clwyd was straightened by a new channel to allow sea-going vessels access to Rhuddlan from the sea, establishing it as a port. Excavations at Rhuddlan have revealed the remains of a stone-built Norman church, medieval houses and other timber buildings, burgage plots, defensive ditches and pottery kilns.

- 77 It is likely that the rest of the landscape continued to be predominantly agricultural in nature during the early medieval and medieval periods, made of a regularly formed fields containing ridge and furrow. Ridge and furrow would have been a crucial part of the medieval feudal system where peasant workers were given strips of land by knights and lords of the manors, in exchange for a percentage of their produce for sustenance. In 1794 the Rhuddlan Marsh Embankment Trust was established to reclaim the marshes of Morfa Rhuddlan. Cwybr Marsh to the north of Rhuddlan was enclosed in 1815.
- 78 The historic maps show that the area around the Clwyd was formed of a part marshland and part reclaimed area on the first edition OS map. By the 2nd edition map the area around the Clwyd had been entirely enclosed as small irregular fields delineated by drainage ditches. This field layout has continued to the present day.
- 79 A former branch line of the London and North Western Railway line was aligned to the south of the Clwyd known as the Vale of Clwyd Branch line. A station was located to the west of the onshore ECC south of Rhuddlan at Marsh Lane and another station to the north west known as Foryd Station. Just beyond Foryd Station the line connected to the Chester to Holyhead branch line at Foryd Junction. The line had been established by the 1st edition ordnance survey map but by the 1970s Rhuddlan Station is shown to have been removed and the line dismantled. The route of the former railway line is now a track.
- 80 The LiDAR data covering Route Section D shows a number of natural channels close to the River Clwyd, however no features of potential archaeological origin could be identified to the north of the Clwyd. One field on the southern side of the Clwyd may show an area of ridge and furrow beyond the limits of the OL.

## Route Section E- A547 to A55

- 81 The absence of evidence of extensive prehistoric activity within Route Section E could relate to the lack of previous targeted intrusive archaeological investigations, and therefore raises the possibility that there remains a background potential for further, as yet undiscovered archaeological remains within the immediate vicinity of the onshore ECC.
- 82 Romano-British activity is also limited within the north-eastern region of Wales, with research suggesting that there is a lack of evidence of Romano-British settlement patterns and urban centres (Archaeoleg 2003). However, there has been Romano-British rural settlement identified at Rhuddlan, in close proximity to the River Clwyd, and there is a conjectural Romano-British Road, that runs east to west across the landscape to the south of St Asaph originally connecting Chester to Caernarfon. Due to the proximity to this major routeway, this would suggest that the area through which the onshore ECC is routed would have been a part of the Romano-British agricultural hinterlands, with smaller rural settlements to support the agricultural production within the landscape.
- 83 Archaeological Assessment undertaken in advance of the onshore cable connection for Burbo Bank Extension Offshore Wind Farm comprised a large number of archaeological trial trenches along its route. Approximately 1.1 km to the east of Route Section E a series of large drainage ditches were discovered to the south of Rhuddlan and close to the River Clwyd. Samples from the base of one of the ditches provided a 5th-6th century date which suggests that land reclamation may have taken place earlier than previously supposed and that the area around it may have been used for crop. The ditch had been recut several times indicating that it was in use for some time (Oxford Archaeology 2016).

- 84 The Domesday Survey (1086) indicates that the landscape was settled by the medieval period, with a number of small settlements running along the Onshore ECC, situated within the historic county of Cheshire (Cefn Du, Cwybr Bach, Cwybr, Rhuddlan and Llan Elwy). There is no evidence of Saxon activity within the landscape; however, these sparse settlements may have originated in earlier Saxon settlements.
- 85 The Agricultural Revolution and associated developments in technological innovation saw the enclosure of open fields and the construction of more farmstead buildings nationwide. Tithe Mapping indicates that the landscape had been fully enclosed by 1845 (National Library of Wales 2021). This agricultural development is reflected by the number of farmsteads constructed during this period including Tyddyn Isaf which lies adjacent to the OL and is Grade II listed (80758; Figure 4). The farmhouse dates to the mid to late 19th century and incorporates an older house into its rear wing. The tithe map created in the 1840s shows the original farmhouse when it was in a tenancy of the Bodelwyddan Estate. The land to the immediate east of Tyddyn Isaf is recorded as having previously been ridge and furrow, although this had no above ground expression during the 2021 AyM walkover survey.
- 86 Route Section E runs to the west of Pengwern Hall, which is a Grade II listed former Georgian Hall (Figure 4). Now converted into a college for adults with special needs, the building retains much of its original character. A number of the post-medieval historic assets within proximity to this part of the OL are related to the development of the Pengwern Hall, including the former coach house, former stables and features associated with the development of the gardens. The HER records that land at Pengwern may have been requisitioned by the army for use as a prisoner of war camp and latterly a camp for displaced persons (132201; Figure 10).
- 87 Other post-medieval to modern farmsteads within the vicinity of this part of the onshore ECC include Bryn-Carrog Farm, Tyisaf, Sarn, Meadow Brook Farm, and Fferm Farm. Historic maps from the late 19th and 20th centuries show the continued use of this section of the onshore ECC as agricultural land characterised by agricultural fields and small patches of woodland with some fields delineated by a ditch and wooded boundary rather than a hedgerow.

- 88 Close to the southern part of Route Section E, 420m to the east of the OL, is the site of an army camp which is known to have been in existence by late 1914. This was a large, tented camp at St Asaph and was intended as a temporary construction, although it has been suggested that some of the buildings may have been timber. The camp was known as Gwernigron Camp and a sale of materials in October 1915 suggested that the camp had been closed by this time and the soldiers transferred to Kinmel Camp. No trace of the camp is evident on the ground or is visible in aerial photographs (132162; Figure 11).
- 89 Within an area of woodland to the west of Pengwern farm are the remains of a Chain Radar Station at Erw'r-gaseg close to the OL, known as the Rhuddlan Chain Home Radar Station. The Chain Home Low was the system used by the RAF during WWII as an early warning system to detect aircraft flying as low as 500ft. The example at Rhuddlan is of the 'West Coast' type and is thought to have originally had two pairs of 325" guyed steel transmitting masts and two 240" wooden receiving towers. The Radar Station is shown on a map dating to 1941 showing two separate buildings within the wooded area at Erw'r-gaseg. The building at the northern extent of the woodland was accessible during the site visit in April 2021 and the exterior of the building is shown in Plate 8 in Volume 5, Annex 8.1 (application ref: 6.5.8.1). Vegetation was cleared surrounding the southern building in January 2022 and the exterior of the structures were photographed and mapped. Both of these structures lie outside of the OL to the north east. The buildings are labelled on the 1941 map as '7' 'T Block' and '11' 'Standby Sethouse'. Geophysical survey results indicate the sub-surface presence of related structures to the north east of the woodland, which corresponds with the map from the 1940s. The map and geophysical anomalies show the possible anchor points for stays to the transmission towers arranged in a square with projections to the north and the east. Whilst the Chain Radar Station standing structures have been excluded from the OL, the geophysical survey results and historic mapping indicate that associated remains lie within the onshore ECC.

- 90 A single field within Route Section E shows a number of regular and irregular striations, with some possible small mounds. It is possible that some or all of these features could be natural and some can be identified on the aerial images. The more irregular curving lines may be of natural origin; however it is possible that the straighter more regular lines could be of archaeological origin.

## Route Section F- A55 to B5381 including proposed OnSS

- 91 As with previous sections, the absence of evidence of extensive prehistoric activity within this landscape could relate to the lack of previous targeted intrusive archaeological investigations, and therefore raises the possibility that there remains a background potential for further, as yet undiscovered archaeological remains within the immediate vicinity of the onshore ECC. A possible standing stone is speculated on the HER records, 100 m to the east of the onshore ECC, although little information is available (102568; Figure 11).
- 92 Romano-British activity is also limited within the north-eastern region of Wales, with research suggesting that there is a lack of evidence of Romano-British settlement patterns and urban centres (Archaeoleg 2003). Roman-British finds were discovered through metal detecting within Route Section F, 260 m to the west of the onshore ECC (Figure 11; 38624).
- 93 It is thought that St Asaph may have been the site of a monastery and episcopal see as early as 560AD by St Kentigern. St Asaph is thought to have succeeded Kentigern as bishop. The earlier settlement was referred to as Llanuile (Llanelwy) in the Domesday book but around the middle of the 12th century the name was changed to St Asaph. In 1239 construction for a cathedral began but this was burned by the troops of Edward I in 1282.
- 94 The HER records that almost all of the area within the onshore ECC was previously ridge and furrow identified from aerial photographs and LiDAR although this was only visible within a single field to the south east of Faenol-Bropor Farmstead (Figure 11). It is possible that the ridge and furrow could exist as below ground features in other areas.

- 95 Faenol-Bropor is a farmstead surrounded by the OL, but the farm buildings themselves are excluded from the OL(26128; Figure 11). The Barn to the north west of the farmhouse is Grade II listed (1378; Figure 4) and dates to the late 18th century and may have originally been a stable. The farmhouse is thought to be contemporary but this is not a listed structure. The tithe map of 1840 shows that the farmstead just comprised the large barn and the farmhouse at this time. The farm was part of the estate of Lord Mostyn at this time. The agricultural fields which surround and are associated with the farmstead retain their historic character through the presence of hedgerow boundaries, grazing fields and the surviving area of ridge and furrow. This area of ridge and furrow could be identified on the Site visit and can also be seen clearly on the LiDAR image (Volume 5, Annex 8.1; Figure 15 (application ref: 6.5.8.1). No other potential archaeological features could be identified on the LiDAR image within Route Section F.
- 96 The post-medieval period saw the development of small hamlets in villages. The Agricultural Revolution and associated developments in technological innovation saw the enclosure of open fields and the construction of more farmstead buildings nationwide. Tithe Mapping indicates that the landscape had been fully enclosed by 1845 (National Library of Wales 2021).
- 97 The OnSS, TCC and OL run along the boundary of the Bodelwyddan Castle Park. Documentary evidence suggests that the estate originated in the 15th century at least, with the current layout of the estate dating to the mid-19th century refurbishment including the estate wall and formal garden. The house and pleasure grounds lie on the western side of the park and to the east and south east are fishpond, mill and related ponds. Although the grounds are now closed to the public, the castle structure continues to be used as a hotel and is Grade II\* listed (1383; Figure 4). A number of structures within the grounds of the Bodelwyddan estate are also listed including the terrace wall, garden structures and part of the estate wall.

98 The grounds also contain the scheduled monument relating to WWI practice trenches which extend beyond the scheduled area over several hectares (2231; Figure 4). These were initially excavated for practice to excavate the trenches and then subsequently used for infantry combat training. Frontline trenches are identifiable from their crenelated shape with zig zag communication lines linking back to the reserve lines. It appears that several distinct groups were created perhaps as opposing lines. Circular craters across much of the area indicate that the practice was intended to be as realistic as possible, replicating the battlefield landscape. Overlooking the training area is what is thought to be a remote command post on slightly higher ground (CPAT 2014). Geophysical Survey results did not reveal any responses indicating trenches/features of this nature within the area for the proposed OnSS. However, magnetometer survey does reveal traces of features of possible archaeological origin, some of which may be traces of ploughing and former agricultural activity. These cannot be definitively dated or characterised by non-intrusive means, but taken together with the evidence in the DBA (Volume 5, Annex 8.1), do suggest some potential for archaeological remains to survive throughout this zone.

## Route Section G- B5381 to National Grid Connection

99 The absence of evidence of extensive prehistoric activity within Route Section G could relate to the lack of previous targeted intrusive archaeological investigations, and therefore raises the possibility that there remains a background potential for further, as yet undiscovered archaeological remains within the immediate vicinity of the onshore ECC. A possible cairn was noted in 1911, 340 m to the south west of the onshore ECC, after a visit by Royal Commission of the Ancient and Historical Monuments in Wales (RCAHM), where a mound of stones was speculated to be a possible cairn (101478; Figure 11). In the wider area a Neolithic chambered tomb lies to the south of Route Section G at Cefn Meiriadog, 1 km to the south of the onshore ECC (Tyddyn Bleiddyn Burial Chamber Scheduled Monument; DE007). An Iron Age Hillfort is also located within the same area, approximately 1.2 km to the south of Route Section G, known as Bedd-y- Cawr Hillfort (DE037).

- 100 The conjectural route of Romano-British Road runs east to west along Glascoed Road along the northern part Route Section G (Figure 11). The road leads west from the legionary fortress of Deva (Chester) to the forts at Canovium (Conwy) and Segontium (Caernarvon) (46826-46830/104607/104608/102985). This would suggest that the onshore ECC would have been a part of the Romano-British agricultural hinterland, with smaller rural settlements to support the agricultural production within the landscape. It has been suggested that St Asaph could be the location of a documented Roman Fort recorded as Verae, as this lies at the crossroads of two roman roads and links to an occupation site at Prestatyn.
- 101 The HER has recorded areas of ridge and furrow covering the entirety Route Section G, which has been recorded from aerial photographs and LiDAR imagery. There was no extant ridge and furrow within Route Section G identified during the walkover survey. The LiDAR data does not clearly show ridge and furrow within this section of the onshore ECC, although some regular linear lines can be seen in some fields which may relate to more modern deep ploughing methods (Volume 5, Annex 8.1; Figure 15). It is possible that evidence for ridge and furrow could exist as below ground archaeological features.
- 102 The tithe map covering Route Section G shows a large number of irregular fields of different sizes, the larger of which are likely to have been amalgamated from the smaller earlier fields some of which can be seen on this map. In particular there are a small number of long thin strip fields adjacent to the trackway which may have had earlier origins.
- 103 Comparison between the 1st edition Ordnance Survey map of the late 19th century and the 1960s Ordnance Survey map show that little had changed in terms of the field layout between these times with almost all of the field boundaries retained into the mid 20th century. The later part of the 20th century saw some amalgamation of the fields although much of the former rural and agricultural character was retained. No potential archaeological features could be identified from the LiDAR image within Route Section G (Volume 5, Annex 8.1; Figure 15).

## Historic Landscape Characterisation

- 104 Cadw maintains a Register of Landscapes of Outstanding Historic Interest in Wales (abbreviated here to HLW). This identifies 58 areas which are considered to have outstanding or special historic interest and to be the best examples of various type of historic landscapes in Wales. The characterisation is the examination of the processes that have shaped the landscape over centuries of human activity which have made a contribution to its present character. The four Welsh archaeological trusts have undertaken detailed characterisation studies for those of the 58 areas that lie within their boundaries.
- 105 For purposes of consideration with respect to the WTGs, three areas are identified:
- ▲ HLW 23 Creuddyn and Conwy, covering Conwy and its estuary as well as the Great Orme, Little Orme, and the area of Llandudno with its hinterland);
  - ▲ HLW 30 North Arllechwedd, covering parts of the coast between Penmaenmawr, Llanfairfechan and Abergwyngregyn, including the Lavan sands in the Menai Strait, and extending inland to encompass the Valleys and heights of the northern Snowdonia range, as far south as the high points at Dros gol and Garnedd Uchaf, east of Bethesda); and
  - ▲ HLW 33 Penmon, covering the south eastern part of Anglesey, including Penmon Point, Puffin Island, and the area around Beaumaris).
- 106 Although it has been agreed with the relevant consultees that a formal assessment using the ASIDOHL methodology is not required, comments received from Statutory Consultation clarified that some treatment is required, and a limited assessment is presented in this chapter.
- 107 CPAT have studied the designated historic landscapes within Denbighshire and have examined the historic character of each.

- 108 The area for the OL does not form part of a registered historic landscape. The closest Registered Historic Landscapes to the onshore ECC is The Lower Elwy Valley (HLW 38) and the Vale of the Clwyd (HLW 1). These areas are located at a considerable distance inland to the south-east of the OL and are considered to be sufficiently distant that there is no likely potentially harmful interaction with the onshore infrastructure. Consequently, they are not considered further. As such no formal historic landscape characterisation exists for the area covered by the onshore ECC.
- 109 The historic landscape of the area within and immediately around the landfall area of the onshore ECC can be broadly characterised as the coastal area which consists of the beach, golf course and holiday park within Route Sections A and B. The southern part of Route Section B and all of Route Section C are characterised by small irregular enclosures bound by drainage ditches and hedges. Route Section D falls either side of the River Clwyd and as such sits within the river valley. On the northern side of the river this area is predominantly small irregular enclosures bound by drainage ditches, however on the southern side more regular larger square enclosures are dominant. Route Section E is comprised of larger agricultural fields (likely to be an amalgamation of smaller, earlier fields), and a single area of woodland. Route Section F is comprised of the historic farmstead at Faenol-Bropor and its associated agricultural land. This comprises fields of varying size, predominantly used for grazing and bound by hedgerows. The HER records that this area was formerly ridge and furrow although this could only be identified as extant within a single field on the walkover survey. The time depth of the historic character of the landscape is more easily perceived within this area. Similarly, Route Section G has retained a series of smaller, regular fields, when compared to other parts of the route, perhaps suggesting the retention of an earlier field layout. Some of the larger fields within the eastern part of Route Section G are likely to have been an amalgamation of smaller earlier fields as seen in the western part of Route Section G.

## Historic Hedgerows

110 The walkover survey identified a number of hedgerows which may be considered to be historically ‘important’ under the Hedgerows Regulations 1997. These were evident throughout the ECC, although were absent from the areas closest to the coast and around the River Clwyd which tended to be bound by drainage ditches rather than hedgerows. The hedgerows were commonly associated with the historic farmsteads throughout the onshore ECC, such as Bryn Cwnin, Tyddyn Isaf, Pengwern, and Faenol Bropor, and as such may have first been established in the post-medieval period or earlier. No stone wall boundaries were identified within the OL during the walkover survey, although the boundary to Bodelwyddan Castle Estate was bound by a more formal high stone wall to delineate the parkland estate. Possible historic hedgerows within the OL are shown on Figure 6 to Figure 11.

## Geophysical Survey Results (Onshore Export Cable Corridor)

111 Section A covers the intertidal area, which was not suitable for geophysical survey. A description of the Section A is provided above in paragraphs 52-60. Results from Route Section B show a number of discrete pit-like anomalies and areas of increased magnetic response, within the area proposed for the Transition Joint Bay construction compound and the HDD (or other trenchless crossing technique) compound (to the east of the A526, and north of Dyserth Road). Along the remainder of the onshore ECC within Route Section B additional discrete pit-like features and a small number of areas of increased magnetic response can be seen within the onshore ECC. In the southern part of Section B within the area for the Temporary Construction Compound (TCC), a continuation of the pit-like features and an area of increased magnetic response have been identified.

- 112 A number of features of possible archaeological origin were identified through the geophysical survey within Route Section C. A possible enclosure was suggested to the south of Dyserth Road, however it was also noted that due to the weak response this could be as a result of modern ploughing rather than of archaeological origin. It has been suggested that within Route Section C parallel linear trends could be as a result of ridge and furrow cultivation. To the north of Bryn Cwnin Farm possible penannular anomalies which could relate to either Bronze Age ring ditches or Iron Age to Roman roundhouses were identified. To the south of this possible associated linear features were also identified as well as a possible series of pits and to the south west a rectilinear feature was also identified. To the south of Bryn Cwnin Farm further linear and curvilinear anomalies were identified and further penannular and rectilinear anomalies were identified to the south east of Bryn Cwnin Farm (north of the junction of the A256 and A547). A number of pit-like features of possible archaeological origin were identified throughout Route Section C.
- 113 Geophysical survey was undertaken either side of the River Clwyd within Route Section D. This has identified a number of pit-like features, curvilinear features and linear features within the onshore ECC to the north of the River Clwyd. To the south of the River Clwyd a number of pit-like features and an area of increased magnetic response has been identified. In the southern part of Route Section D in the area for the TCC a number of pit-like features have been identified.

- 114 Two large parallel curving linear anomalies were identified in the northern part of Route Section E south of Abergale Road. These may form a boundary feature or enclosure. Further south within Route Section E, to the north east of Fferm, two parallel linear anomalies were identified and to the south west of Fferm a rectilinear anomaly, linear anomalies and a possible pit-like feature were identified. Within the southern part of the Route Section E a number of interconnected linear and curvilinear features were identified during the geophysical survey to the north of Princes Gorse, although this area has now been excluded from within the OL. To the south of this, within the OL, a small curvilinear anomaly and a series of small discrete anomalies were identified as possible archaeology. Further south along the route anomalies relating to a possible field system of unknown date were identified. At the southern end of Route Section E a possible circular anomaly and possible linear anomalies were identified. Further curvilinear, linear and penannular anomalies of possible archaeological origin were noted to the north east of this, north of Princes Gorse, although this area has now been excluded from the OL.
- 115 A number of geophysical anomalies of possible archaeological origin were noted at Faenol Bropor within the area for the proposed OnSS and associated infrastructure. Semi-circular and linear anomalies were noted east of the entrance to Faenol Bropor and further south a series of semi-circular, rectilinear possible pit alignment and linear features which could be indicative of settlement evidence. To the west of the area for the proposed OnSS eight circular anomalies were identified which could be indicative of Iron Age to Roman roundhouses due to their position close to the known Roman road in this area. Numerous other possible linear anomalies surround these features suggesting further settlement evidence. To the east is another concentration of anomalies which are also possible ring ditch anomalies surrounded by a sub-rectangular enclosure. In the very southern part of Route Section F another circular anomaly and linear anomalies were identified.
- 116 Route Section G has identified anomalies of possible linear, curvilinear pit-like features and larger circular anomalies of possible archaeological origin within the onshore ECC and the areas of the construction compounds.

## Archaeological Watching Brief on Geotechnical Investigations

117 An archaeological watching brief upon geotechnical works (undertaken to inform scheme design) was undertaken in November/December 2021. This involved the excavation of a total of nineteen boreholes and three test pits along the route focused in three main areas, close to the foreshore at Rhyl, close to Bryn Cwnin Farm and to the east of the Bodelwyddan Estate. No archaeological finds or features were observed during the watching brief, although such remains can be hard to identify within the small areas monitored. Deposits of apparent palaeo-environmental potential were encountered, with the peat deposits in BH301(south of the railway) and BH601(north of River Clwyd) signalling the potential for the presence of anaerobic preservation conditions within parts of the proposed route. A summary of the deposits encountered is provided within Volume 5, Annex 8.4 Onshore Archaeological Watching Brief (application ref: 6.5.8.4).

## Valued Receptor Screening

118 Direct effects on historic assets would occur where historic assets are materially disturbed or removed by construction activities. This can occur to upstanding remains, such as structures and earthworks, or buried remains that are not visible. Consequently, only historic assets within OL would be affected.

119 The OL contains a number of recorded archaeological features and former structures, some of which may have been disturbed or destroyed, others which survive as coherent historic assets. Walkover surveys were undertaken in April, May and December 2021 to confirm as far as possible the location and condition of identified features and to inform the production of the DBA (Volume 5, Annex 8.1 (application ref: 6.5.8.1)). Where specific observations would have a bearing on the assessment, these have been discussed in the relevant assessments in section 8.10 to 8.12. Identified historic assets within the Order Limits are listed at Table 6.

Table 6: Assets recorded on the Clwyd Powys Historic Environment Record (CPHER)within the Order Limits (Figure 6 to Figure 11) and those identified on the inter-tidal walkover (Figure 6).

SECTION	REFERENCE	DESCRIPTION
Route Section A	5001, 5002, 5003, 5005, 5006, 5007, 5008	Peat layers, tree roots, tree stumps and logs identified upon the foreshore
Route Section A	5004	Concrete sheets and pillars identified on the foreshore
Route Section A	37700-Rhyl Volunteers Rifle Range	Local Volunteer force rifle range recorded during Dee Estuary Historic Landscape Survey. Shown on OS mapping.
Route Section A	103581- Ffrith Beach golf course boundary stone	Record of boundary stone on Ordnance Survey mapping, but no visible remains when ground truthed in 1982.
Route Section A	122659- Rhyl golf course FSA reservoir	Modern Water management reservoir recorded on the Natural Resources Wales List of Large Raised Reservoirs.
Route Section D	35189- Rhuddlan quay trackway	Possible post-medieval trackway

SECTION	REFERENCE	DESCRIPTION
		found during watching brief
Route Sections E, F and G	143519, 143520, 143523, 143529, 143530, 143531- Ridge and furrow from LiDAR and Aerial Photos	Ridge and furrow recorded on HER for southern section of the Onshore ECC but no above ground expression, apart from in one field.
Route Section G	46828, 46829, 46830- Potential Roman Road (Glascoed Road)	The postulated route of a Roman Road is aligned along Glascoed Road although no archaeological investigations have confirmed this route or alignment.

- 120 The DBA (Volume 5, Annex 8.1 Desk-Based Assessment (application ref: 6.5.8.1)) considered the potential presence of archaeological remains within the OL and within a 1 km study area. Since the production of the DBA a geophysical survey and inter-tidal walkover has been undertaken, as described above. Table 7 below summarises the likely potential and significance of archaeological remains within each Section of the onshore ECC based on elements of the baseline combined.

Table 7: Summary of potential presence and heritage significance of archaeological remains within the Onshore ECC.

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
A	Peat deposits, tree stumps logs recorded during the walkover survey in December 2021. Concrete Sheets and pillars also recorded	Peat deposits recorded on the foreshore and Mesolithic Fossil Forest previously recorded at Rhyl	Medium	None
B	Potential for additional Bronze Age features recorded adjacent to this area during the Burbo Bank Extension Offshore	Potential for Peat deposits recorded at the foreshore to extend into Section B	Low to Medium	Development of the Rhyl Golf Club, Holiday Park and railway line may have affected survival of archaeological features in the northern section of Section B. Peat deposits

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
	Wind Farm excavations		Possible Low to Medium	are likely to be more deeply buried so could survive in all parts of Section B.
	Geophysical anomalies (possible pit-like features and areas of increased magnetic response)			Archaeological remains representing ditches, boundaries and other agricultural enclosures etc, are considered to be of local and low value. Remains or evidence representing settlement or other occupation (industrial activities, defensive structures, ritual or funeral activities) are likely to be of medium value and regional importance depending on form/type/condition etc.). The assessments

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
				<p>following use this schema, in accordance with the levels of heritage significance set out in Table 3</p> <p>The presence, nature and significance of the anomalies identified in the geophysical survey is currently unconfirmed.</p>
C	Geophysical anomalies (possible pit-like, curvilinear, linear, penannular and rectilinear anomalies and areas of increased magnetic response)	None	Possible Low to Medium	<p>The presence, nature and significance of the anomalies identified in the geophysical survey is currently unconfirmed, but may represent evidence of specific settlement or other activity types, which may be of local or regional importance</p>

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
				(depending on the activities represented).
D	Evidence for Mesolithic period close to the River Clwyd	Potential Peat deposits close to the River Clwyd	Low to Medium	The significance is assigned on the basis of the potential for peat deposits to preserve palaeo-environmentally important evidence and organic remains.
	Geophysical anomalies (possible pit-like, curvilinear, linear and areas of increased magnetic response)		Possible Low to Medium	The presence, nature and significance of the anomalies identified in the geophysical survey is currently unconfirmed, but may represent evidence of specific settlement or other activity types, which may be of local or regional importance

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
				(depending on the activities represented).
E	Geophysical anomaly relating to remains of Rhuddlan Chain Home Radar Station transmission tower	None	Possible Low to Medium	The presence, nature and significance of the anomalies identified in the geophysical survey is currently unconfirmed. Anomalies to the west of the woodland are likely to indicate anchor points for the towers associated with the radar station and other evidence for the use of the radar station, and may be of regional importance (depending on activities represented).
	Geophysical anomalies		Possible Low to Medium	The presence, nature and significance of the

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
	(possible pit-like, curvilinear, rectilinear, linear and areas of increased magnetic response)			anomalies identified in the geophysical survey is currently unconfirmed, but may represent evidence of specific settlement or other activity types, which may be of local or regional importance (depending on the activities represented).
F	Ridge and furrow. Potential Roman activity associated with the Roman Road	None	Low	One field extant ridge and furrow, the rest identified by HER from aerial photographs and LiDAR.
	Geophysical anomalies (possible pit-like, circular anomalies)		Possible Low to Medium	The presence, nature and significance of the anomalies identified in the geophysical survey is

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
	(suggestive of settlement evidence) curvilinear, linear and areas of increased magnetic response)			currently unconfirmed, but may represent evidence of specific settlement or other activity types, which may be of local or regional importance (depending on the activities represented).
G	Potential for roadside activity associated with the Roman Road. Ridge and furrow	None	Low	One field extant ridge and furrow, the rest identified by HER from aerial photographs and LiDAR.
	Geophysical anomalies (possible pit-like, curvilinear, linear and areas of increased		Possible Low to Medium	The presence, nature and significance of the anomalies identified in the geophysical survey is currently unconfirmed, but may represent evidence

ROUTE SECTION	POTENTIAL: NEAR SURFACE REMAINS	POTENTIAL: GEO-ARCHAEOLOGICAL DEPOSITS	SIGNIFICANCE	COMMENTS
	magnetic response)			of specific settlement or other activity types, which may be of local or regional importance (depending on the activities represented).

## Assets where there is potential for indirect effects to occur

- 121 Indirect effects would occur as a result of change to setting of designated historic assets which so reduce the contribution to the heritage significance of those assets made by setting that the overall heritage significance (or the ability to appreciate that heritage significance) of those assets is diminished or otherwise harmed. In this case, change would arise primarily during the operational phase as a result of long-term or permanent changes to the setting of the asset resulting from the construction of AyM.
- 122 The magnitude of effect depends on the extent to which change to setting affects the historic, architectural or archaeological interests of the historic asset (its heritage significance): how the change affects the way in which the interests that make up that significance are understood or appreciated as a feature that is valued for its heritage interests. Consideration has been given to onshore and offshore elements of AyM. Perceptibility of AyM would not necessarily give rise to an adverse effect, but assessment needs to consider, for example, how the visibility of AyM in views to sea that contribute to an asset's historical significance, or where WTGs or other elements of AyM are juxtaposed with historic assets in views that allow architectural interests to be appreciated, would affect the significance of the asset.
- 123 Receptor specific discussion of these issues is included at section 8.11, but there are also important contextual factors that are common to many assets. These include:
- ▲ The presence of other existing WTGs already within the setting of historic assets (such as Gwynt y Môr, Rhyl Flats and North Hoyle offshore windfarms);
  - ▲ The variable visibility experienced under typical weather conditions.

- 124 The presence of other WTGs in the setting of historic assets could be taken as reducing the sensitivity to change, as the proposed AyM offshore wind farm would not necessarily be incongruous additions to an existing context. Interaction of different wind energy developments at different scales and proximities to historic assets means that these issues need to be considered on an asset-specific basis, as it is possible that in some cases, the presence of existing WTGs would make historic assets more sensitive to change. These issues are discussed on a receptor-specific basis in section 8.11.
- 125 Visibility in views out to sea is variable and frequently very limited as a result of mist and fog, and the low-lying haze over the sea. All assessments have been undertaken considering the absolute worst-case (i.e. maximum visibility of WTGs under ideal weather conditions). The distances of many historic assets from the proposed WTGs are such that weather conditions have a substantial bearing on the likely visual prominence of the AyM offshore wind farm, which will decrease with separation from the proposed development. These issues are discussed on a receptor specific basis in section 8.11.
- 126 The assessment of indirect effects has been divided into two parts, effects arising from onshore infrastructure, and effects arising from offshore infrastructure (both to onshore assets). Initial settings surveys were carried out during the week commencing 26<sup>th</sup> April 2021 and 10<sup>th</sup> May 2021 with a follow up survey carried out in January 2022. These surveys aimed to provide further information on the scope of the assessment and refine or add to it as necessary.
- 127 A full scoping exercise has been undertaken and is presented in Volume 5, Annex 8.2 (application ref: 6.5.8.2). This is summarised in Table 8 and Table 9 (for effects from offshore and onshore infrastructure respectively) which present those assets which have been scoped in for further assessment within this chapter. The scoping exercise corresponds to Stage 1 of the process for assessment of settings as set out in the Cadw guidance but has necessarily involved some aspects of Stages 2 and 3 (definition of setting and initial impact assessment) in order to better validate the exercise and justify the inclusion or exclusion of assets for more detailed assessment. All designated historic assets considered within the assessment are shown on Figure 1 to Figure 5.

Table 8: Refinement of initial indirect effects scope of assessment of potential impact from Offshore Infrastructure(assets scoped into assessment)

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
21615	Penmon Point Lighthouse (Trwyn Du Lighthouse) Grade II* Listed Building	18 km	Architectural and Historic Value	In	Included given its clear maritime associations and potential to be seen together with the AyM WTGs. A viewpoint (from the Anglesey shore) is provided at Viewpoint 7, Figure 34 (Volume 6, Annex 10.5)
5528 AN064	Puffin Island Scheduled Monastic Remains and Church Tower	17 km	Architectural, Evidential and Historic value	In	Included given its island location, with the potential for the AyM WTGs to be seen from this asset. A representative Viewpoint is provided as Figure 76 Volume 6, Annex 10.5.
5529	Puffin Island (Scheduled and Grade I listed) Monastic remains and Grade II Listed	17 km	Evidential Value, Historic Value	In	As above. A representative Viewpoint is provided as Figure 76 Volume 6, Annex 10.5.

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
	Telegraph Station)				
5574 AN001	Beaumaris Castle, Scheduled Monument and World Heritage Site	25 km	Architectural Value, Historic Value and Evidential Value	In	The castle is part of the Castles and Town Walls of King Edward in Gwynedd World Heritage Site. A Viewpoint from the eastern side of the Inner Curtain wall is provided at VP44, Figure 71 Volume 6 Annex 10.5.
3987	Bangor Pier Grade II* Listed Building	29 km	Architectural and Historic Value	In	Although originally scoped out (see Designated Heritage Asset Scoping Exercise presented in Annex 8.2), this asset has been included for assessment following consultee feedback from Gwynedd Archaeological Planning Service through Statutory Consultation. A representative visualisation is presented as Viewpoint 9 Figure 36. Volume 6 Annex 10.5.

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
18572	Menai Bridge Grade I Listed Building	32 km	Architectural and Historic Value	In	Although originally scoped out (see Designated Heritage Asset Scoping Exercise presented in Annex 8.2) this asset has been included for assessment following consultee feedback to Statutory Consultation. A representative visualisation is provided as Viewpoint 49, Figure 73, Volume 6 Annex 10.5.
None	The Slate Landscape of North West Wales (World Heritage Site)	27 km	Historic Value and Evidential Value	In	This WHS is extensive in size comprising four components illustrating various aspects of quarrying, landscape, urban. The assessment will concentrate on the northern component of the WHS. This covers the Penrhyn Quarry, associated transport infrastructure such as the Port Penrhyn harbour, as well as the Penrhyn Castle and parkland. Penrhyn Castle is also assessed separately.

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
3659	Penrhyn Castle (Grade I Listed Building, Park, and within World Heritage Site)	29 km	Architectural Value, Historic Value and Evidential Value	In	The Castle has potential views out to sea (to the north) in which the AyM WTGs may be visible. There is an associative relationship with Port Penrhyn and sea transport related to the slate industry, the proceeds to which funding the construction of the castle and surrounding estate. A viewpoint (VP 17) from the Castle terrace is provided at Figure 44, Volume 6, Annex 10.5.
CN004	Conwy Castle and Town Walls World Heritage Site	17 km	Architectural Value, Historic Value and Evidential Value	In	The castle and adjacent town walls are part of the Castles and Town Wales of King Edward in Gwynedd World Heritage Site, and are Scheduled. A viewpoint (VP45) is provided as Figure 72 (Volume 6, Annex 10.5).
CN039	Pen y Dinas Camp	11 km	Evidential Value	In	This monument has an elevated position above Llandudno, and AyM WTGs may be visible from it. A representative viewpoint

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
	Scheduled Monument				(VP 52) is provided as Figure 75, Volume 6, Annex 10.5.
None	Llandudno Town Centre and Seafront Conservation Area and Listed Buildings	12 km	Architectural and Historic Value	In	The town has a clear association with the sea, as its position on the bay underpins its development as a historic leisure resort. The AyM WTGs will be visible (along with other WTGs) from the bay-side of the Conservation Area. Viewpoints are provided as VP 18 (from the Paddling Pool) and 59 (from the Lifeboat slip way and memorial), on Figures 45 and Figure 82 (Volume 6, Annex 6.10.3))
	Llandudno Pier (Grade II* Listed Building)	12 km	Architectural and Historic Value	In	As above. A viewpoint (VP 59) is provided (from the former lifeboat slipway) as Figure 82, Volume 6, Annex 6.10.5
231	Gwrych Castle Grade I Listed Building	18 km	Architectural and Historic Value	In	The Castle occupies an elevated position facing north, with extensive views available along the coast at out to sea. The AyM

RECORD NUMBER	NAME	DISTANCE (KM APPROX.)	SIGNIFICANT FOR	SCOPED IN/OUT	REMARKS
					WYGs will constitute a new addition in these views. A viewpoint (VP 50) is provided as Figure 74, Volume 6 Annex 10.5

128 Historic landscapes of Wales (HLW) 23 (Creuddyn and Conwy), 28 (Dyffryn Ogwen), 30 (North Arllechwedd) and 33 (Penmon) have been included for assessment or at specific consultee request (in the cases of HLWs 23, 28 and 30) or based on further consideration of consultees responses (in the case of 33 Penmon). All have coastal aspects to a greater or lesser degree, and potential for the AyM WTGs to be visible from or across parts of the designated areas.

Table 9: Refinement of initial indirect effects scope of assessment of potential impact from Onshore Infrastructure (assets scoped in for further assessment)

HISTORIC ASSET	PRELIMINARY SITE VISIT OBSERVATIONS	CONSIDERED FURTHER IN ASSESSMENT
14990-Bryn Cwnin Farmhouse (Grade II)  14991- L-Plan Range of Farm buildings at Bryn Cwnin Farm (Grade II)	The Grade II Listed Buildings are set within a rural environment comprising of small county lanes, local footpaths, grazing for livestock and agricultural fields. The Farm buildings and farmhouse have a relationship to their surroundings which contributes to their significance.	Yes, the Onshore ECC lies 130m to the north west, with part of the OL extending 50m to the north of the farm. Potential effects to the heritage significance of these assets are considered further below.
80758- Tyddyn Isaf (Grade II)	The surroundings of Tyddyn Isaf have changed over time as it is now situated close to the A55 and access from a roundabout introduced as part of its construction. From within the boundary of the farmstead the A55 is well screened and cannot be perceived. The character of the farmstead has been retained with the surroundings of the farmstead comprising grazing fields for livestock.	Yes, the route for the Onshore ECC is aligned through the farmland associated with Tyddyn Isaf, which forms part of the setting of the asset. In addition, part of the OL runs alongside the farmstead. The effects of the change to setting upon the heritage significance of the asset is considered further below.

HISTORIC ASSET	PRELIMINARY SITE VISIT OBSERVATIONS	CONSIDERED FURTHER IN ASSESSMENT
1378- Barn to NW of Faenol-Bropor Farmhouse (Grade II)	The Farmstead at Faenol-Bropor has retained its historic character comprising of a farmhouse, barn and other outbuildings, which define its immediate setting. Stone walling was evident on the entrance to Faenol-Bropor although many of the field boundaries were bound by hedgerows. Ridge and furrow earthworks were identified within a single field in the associated farmland at Faenol-Bropor.	Yes; although the significance of the barn at Faenol-Bropor derives principally from its architectural and historic interest, its surrounding farmstead retains some of its historic rural character which contribute to the setting within which the asset can be appreciated. The construction of the OnSS and the Onshore ECC within the Faenol-Bropor are proposed within the setting and the effects of the change within setting upon the significance of the asset is considered further below.
1383-Bodelwyddan Castle (Grade II*) 80757- Terrace Wall of main front of Bodelwyddan Castle (Grade II)	The Bodelwyddan Estate contains a number of heritage assets, including the castle itself and additional buildings/structures within the designed landscape which surrounds it. The estate is bound by a high stone wall and at its eastern extent is wooded in places resulting in a relatively closed setting for the grounds. The castle does sit upon a	Yes, due to the sensitivity of the castle (Grade II*) and the number of associated assets this asset has been scoped in for further assessment. The OnSS and Onshore ECC will lie to the east of the Bodelwyddan Estate outside of the estate boundary.

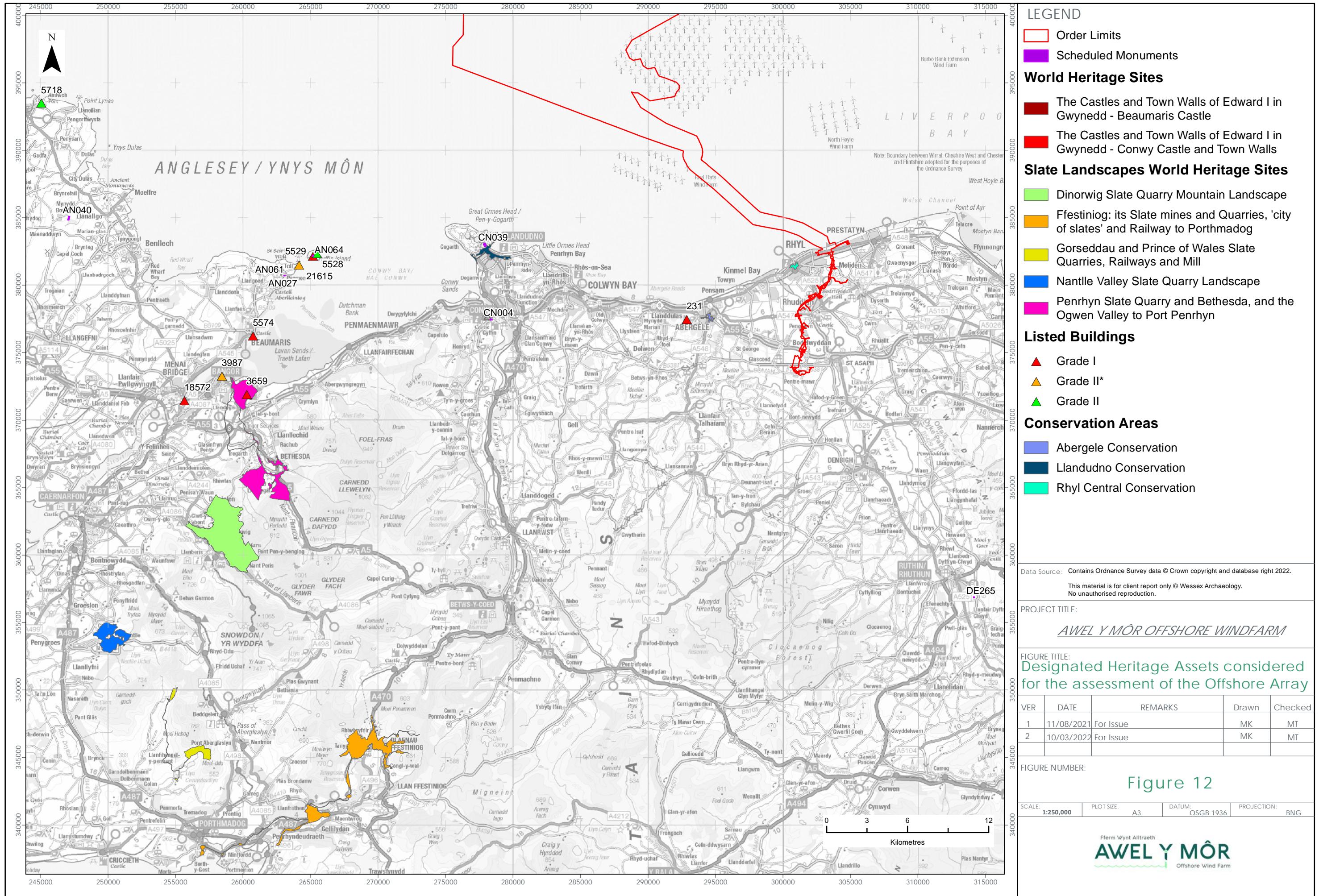
HISTORIC ASSET	PRELIMINARY SITE VISIT OBSERVATIONS	CONSIDERED FURTHER IN ASSESSMENT
80747- Garden Shelter in Bodelwyddan Castle Garden (Grade II)	high point within the landscape which affords views to its surroundings and from the terraces to the rear of the building (to the east).	
80754- Play House in Bodelwyddan Castle Garden (Grade II)		
80759- Wall of Bodelwyddan Castle Garden with Bothy at W and Gateway at E (Grade II)		
80752- Obelisk in Bodelwyddan Castle Garden (Grade II)		
80756- Sundial in Bodelwyddan Castle Walled Garden (Grade II)		
80736- Bodelwyddan Park Wall with entrances and cottages (Grade II)		

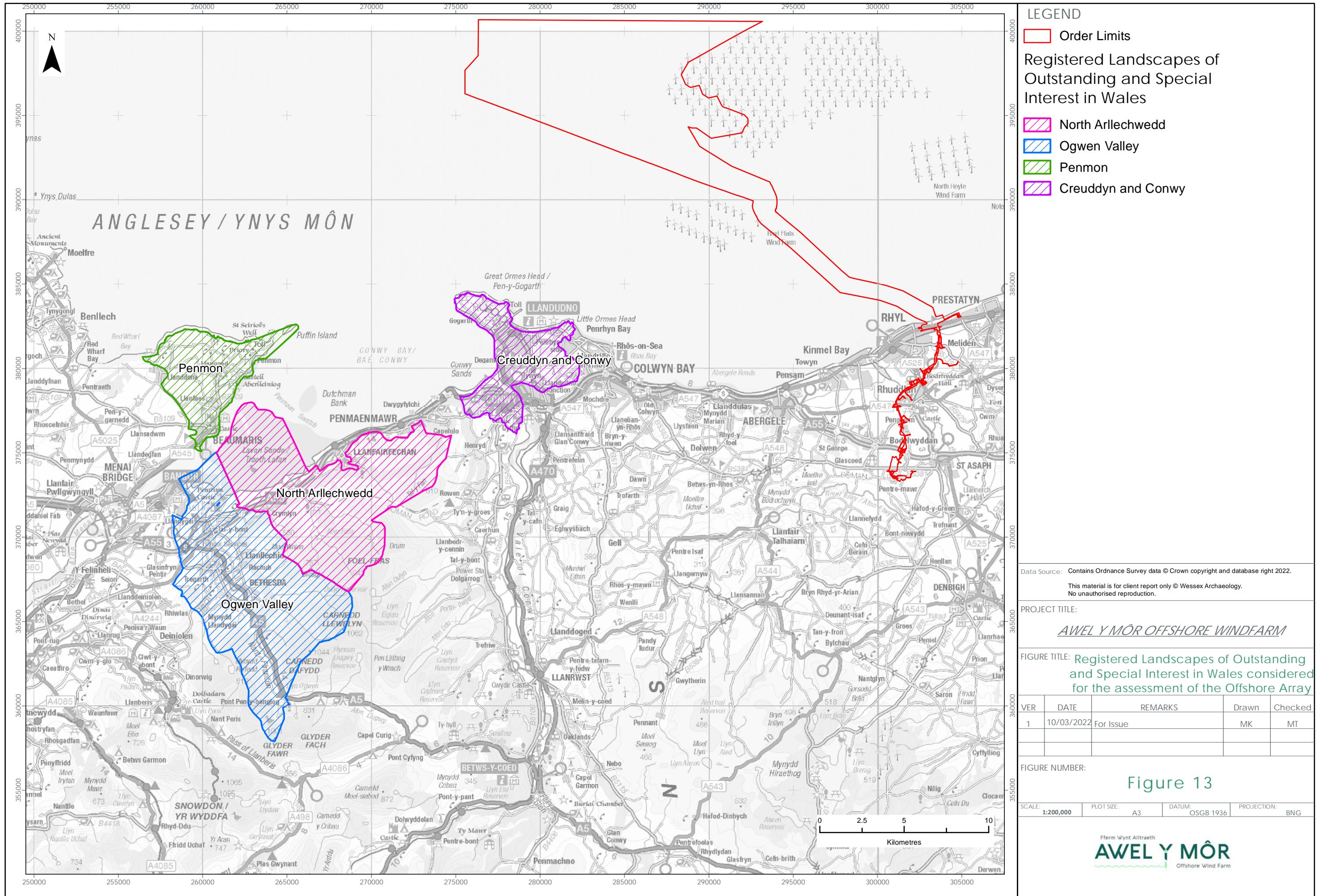
HISTORIC ASSET	PRELIMINARY SITE VISIT OBSERVATIONS	CONSIDERED FURTHER IN ASSESSMENT
80750- Gors Mill Cottage (Grade II)  1495-Felin-y-gors (Grade II)		
FL186- First World War Practice Trenches at Bodelwyddan Park (Scheduled Monument)	The practice trenches lie within the grounds of the Bodelwyddan Estate. Although the monument record suggests that they could be part of a larger cluster of anti-invasion defences, although none were discernible on the site visit.	No, the setting of the monument relates to the requisition and use of the Bodelwyddan estate during WWI, as such its setting is considered to be confined within the boundaries of the estate. Geophysical surveys within the OnSS area did not reveal any evidence that related remains of trench systems etc, may extend outside of the registered parkland. As such the Onshore ECC and OnSS area do not form part of the setting of the asset or contribute to its significance.
80738- Bryn Celyn Lodge on Bodelwyddan Park Boundary (Grade II)	Bryn Celyn Lodge lies adjacent to the OL and close to the area for the OnSS.	Yes, the function of the entrance lodge was to have a relationship with both the internal and external areas of the Bodelwyddan estate including

HISTORIC ASSET	PRELIMINARY SITE VISIT OBSERVATIONS	CONSIDERED FURTHER IN ASSESSMENT
		Glascoed Road which the Onshore ECC will cross.

- 129 The full scoping exercise for indirect effects is presented in Volume 5, Annex 8.2: Designated Heritage Asset Scoping Exercise (application ref: 6.5.8.2). The following assets have been scoped in for further assessment of indirect effects arising from offshore infrastructure:
- ▲ Beaumaris Castle (World Heritage Site (WHS) and Scheduled Monument (SM))
  - ▲ Conwy Castle (WHS and SM)
  - ▲ Penmon Point and Puffin Island (Monastery (SM), Telegraph Station (Grade II Listed Building (LB)) and Lighthouse)
  - ▲ Gwrych Castle and Registered Park and Gardens (Grade I LB)
  - ▲ Penrhyn Castle (Grade I LB)
  - ▲ Slate Mining Landscape of North West Wales, Component Part 1 (WHS)
  - ▲ Llandudno Conservation Area
  - ▲ Llandudno Pier (Grade II\* LB)
  - ▲ Pen Y Dinas Hill fort (SM)
  - ▲ Bangor Pier (Grade II\* LB)
  - ▲ Menai Bridge (Grade I LB)
  - ▲ HLWs 23, 28, 30 and 33
- 130 The following assets have been scoped in for further assessment of the onshore infrastructure:
- ▲ Bryn Cwnin Farmhouse (14990) and farm buildings (14991) (Grade II LB)
  - ▲ Tyddyn Isaf (80758) (Grade II LB)
  - ▲ Barn NW of Faenol-Bropor Farmhouse (1378) (Grade II LB)
  - ▲ Bodelwyddan Castle (1383) (Grade II\* LB) and parkland and associated assets: (Grade II LB)
    - 80757- Terrace Wall of main front of Bodelwyddan Castle (Grade II)
    - 80747- Garden Shelter in Bodelwyddan Castle Garden (Grade II)
    - 80754- Play House in Bodelwyddan Castle Garden (Grade II)
    - 80759- Wall of Bodelwyddan Castle Garden with Bothy at W and Gateway at E (Grade II)
    - 80752- Obelisk in Bodelwyddan Castle Garden (Grade II)

- 80756- Sundial in Bodelwyddan Castle Walled Garden (Grade II)
  - 80736- Bodelwyddan Park Wall with entrances and cottages (Grade II)
  - 80750- Gors Mill Cottage (Grade II)
  - 1495-Felin-y-gors (Grade II)
- ▲ Bryn Celyn Lodge on Bodelwyddan Park Boundary (80738) (Grade II LB)
- 131 The further assessment will incorporate Step 2 (see Section 8.10 to 8.12) (Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced) of the staged approach to proportionate decision making set out by Cadw (2017), together with preliminary Step 3 assessment of the potential impact of the proposed development on significance.





### 8.7.2 Evolution of the baseline

- 132 The baseline has been established following statutory consultation with relevant statutory bodies, and has been updated following the Section 42 responses. Although the OL has been refined over time, the study areas agreed cover all of the changes in the OL since scoping and the information base is considered to be adequate in this respect.
- 133 No planning, guidance or legislative changes have occurred since the submission of the Scoping Report, nor have any changes in designation status of any assets taken place. The candidate Slate Mining Landscape of North West Wales World Heritage Site has now been inscribed by UNESCO WHS status during the application process, and has been assessed in accordance with its formal, confirmed status.

## 8.8 Key parameters for assessment

- 134 There are a large number and wide variety of historic assets the significance of which may be affected by AyM. Design proposals will be subject to refinement within the detailed design phase, post-consent. Consequently, the effects identified and assessed in section 8.10 to 8.12 below represent a worst-case scenario for each individual asset. It is not likely, and in some cases not possible, for the worst-case to occur to all historic assets in any case.
- 135 The requirement to identify worst-case scenarios for direct effects in any case within the specified design parameters effectively requires the assumption to be made that any historic asset within the OL could be affected to the maximum extent possible by the proposed development. Design options, presented through the Rochdale Envelope approach, means that it would not be possible for the worst-case to be realised in every situation, and potentially all worst-case effects could be avoided or reduced from those identified at this stage.

- 136 In terms of change in the contribution that setting makes to the significance of historic assets, factors to be considered are the magnitude of change as influenced by height, proximity and extent of the WTGs layout or other infrastructure as well as composition. Relatively minor changes to design could, in some cases, make substantial differences to the assessed magnitude of change (i.e. in the degree to which that setting is changed so that there is a loss in the contribution that setting makes to the significance of an asset, with potential for a loss in the overall significance of that asset). Conversely, large changes in setting can be acceptable where there is no or minimal loss in the contribution of that setting to the significance of the asset, and no consequent reduction in that asset's overall significance, nor in the way that is understood and appreciated.
- 137 Where worst-case effects are identified in the assessment presented in sections 8.10-8.12, an explanation is provided of the mechanism by which such effects would arise to allow subsequent assessment to be benchmarked against initial assessments.
- 138 The maximum design scenarios identified in Table 10 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in the project description chapters (Volume 2, Chapter 1 (application ref: 6.2.1.) and Volume 3, Chapter 1 (application ref: 6.3.1)). For purposes of this assessment, it is assumed that all options for the onshore infrastructure (ECC, OnSS, TCC, HDD (or other trenchless technique)) will be used to present a worst case scenario. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope to that assessed here, be taken forward in the final design.

Table 10: Maximum design scenario.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
<b>CONSTRUCTION</b>		
Disturbance or loss of historic and archaeological assets	<p>Site preparation works including installation of temporary access roads, working areas and TCCs</p> <p>Landfall activities including the Anchor Zone, Horizontal Directional Drilling (HDD), (or other trenchless technique) works, intertidal trenching and landfall exit pit, construction of Transition Joint Bays (TJB), installation of offshore export cables, installation of and jointing to onshore export cables. Landfall activities expected to take around 7 months.</p> <p>Onshore ECC over 12 km to take place over 18 month period. The Onshore ECC will be approximately 40 to 60 m wide. Cabling trench will involve 2 trenches approximately 5 m wide and up to 2 m deep using open cut trenching.</p> <p>HDD or other trenchless crossing techniques to be used at crossing points. Drilling compounds or launch and receptor pits to be set up at suitable locations adjacent to each obstacle within the cable corridor</p> <p>Joint pits required approximately every 500m of cable, resulting in a maximum of 48 joint pits. These will</p>	<p>Onshore intrusive construction works can be assumed to disturb or remove any above ground or near-surface archaeological remains within the construction area. More deeply buried deposits (i.e. deposits of geoarchaeological or Palaeo-environmental significance) may be affected by deeper intrusions. Where options have remained for HDD compound locations, it has been assumed for the purposes of this assessment that all locations will be used to represent a worst case scenario. It is assumed that all HDD launch and receptor</p>

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	<p>be up to 13m long, 5m wide and 1.5m deep.</p> <p>OnSS construction to include OnSS Access Zone, Cable Corridor Zone, OnSS footprint and OnSS Construction Area. Construction works are anticipated to take place over 27 months.</p>	<p>compounds will involve disturbance to the ground surface within the entirety of the compound areas. The same applies to TCC and OnSS location.</p>
Visibility of WTGs and onshore infrastructure construction works (so as to cause loss of contribution of setting to significance of an asset)	<p>Construction of WTG 34 jacket foundations – peak number of vessels 30.</p> <p>Construction of 34 WTGs - 332m above MHWS to tip, 300m rotor diameter, arranged in N-S grid formation – peak number of vessels 15</p> <p>Construction of 1 Met Mast to level with WTG hub height, monopile foundation. Located at south-west of the other infrastructure zone.</p> <p>Construction of 2 OSPs, topside 80m x 50m x 62m tall (above MHWS-excluding telecoms masts) on jacket foundations. Located in likely closest locations in southern part of AyM Array Area, long side facing south – peak number of other installation vessels 22</p> <p>Laying of 160 km of inter array cable – peak number of vessels 22.</p>	<p>Effects would initially be very limited but would gradually increase to approach those of the operational windfarm towards the end of the construction period as WTGs were constructed.</p>

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	<p>Onshore:</p> <p>Landfall work: 7 month construction period</p> <p>Onshore Cable: 18 month construction period</p> <p>OnSS: 27 month construction period</p> <p>Total Duration: 42 months</p>	<p>Effects would be greater than operational due to increased visibility of construction plant, vehicle movements and noise, but would reduce towards operational levels gradually over the course of the works.</p>
<b>OPERATION</b>		
Visibility of operational offshore and onshore infrastructure (so as to cause loss of contribution of setting to significance of an asset)	<p>34 WTGs - 332m above MHWS to tip, 300m rotor diameter, with jacket foundations arranged in N-S grid formation</p> <p>1 Met Mast to level with WTG hub height, monopile foundation.</p> <p>Located at south-west of the other infrastructure zone.</p> <p>OSPs, topside 80m x 50m x 62m tall (above MHWS- excluding telecoms masts) on jacket foundations.</p> <p>Located in likely closest locations in southern part of AyM Array Area, long side facing south</p> <ul style="list-style-type: none"> <li>- peak number of other installation vessels 22</li> </ul> <p>Laying of 160 km of inter array cable</p> <ul style="list-style-type: none"> <li>- peak number of vessels 22.</li> </ul>	<p>Larger WTGs would have an increased ZTV and prominence in close and mid-range views, smaller WTGs would present a greater density of array (and greater horizontal extent) in some views but would have a discernibly smaller ZTV, therefore the larger WTG MDS has been adopted for the purposes of assessment.</p>

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	<p>Maximum 22 vessels in the Array Area at any one time (addition of all maximum numbers unlikely to occur together).</p> <p>Maximum annual return trips by vessels 1232.</p> <p>Maximum annual helicopter return trips -100</p>	
	<p>Onshore: 15m tall building across the OnSS zone has been assumed for the Maximum Design Scenario, plus an additional 0.8m in height to account for the potential differences in finished ground level relative to the OnSS GIS option within the OnSS AIS Platform.</p>	<p>Effects would be greater due to increased potential visibility of the OnSS. Note that effects would diminish through time as proposed landscaping around the OnSS establishes and matures.</p>
DECOMMISSIONING		
Removal of visible infrastructure	<p>Offshore: It is anticipated that the proposed WTGs will be removed at the end of the operation period.</p> <p>Onshore: It is anticipated that the OnSS building will be demolished, and all external switchgear/infrastructure removed, including the export cable (although this may be subject to review).</p>	<p>Removal of visible elements of infrastructure would effectively reverse change to setting.</p> <p>Vehicle movements and demolition activity are anticipated to be limited in comparison to construction phase.</p>

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
<b>CUMULATIVE EFFECTS</b>		
Visual and perceptual change to the settings of historic assets also affected by AyM (so as to cause a loss in the contribution that setting makes to the significance of an asset)	It is anticipated that the identified developments will be built out to their maximum permissible extent.	Other developments which might be discernible from historic assets have the potential to contribute to an adverse cumulative effect when experienced with AyM.

## 8.9 Mitigation measures

- 139 Mitigation measures that were identified and adopted as part of the evolution of AyM design (embedded into the project design) and that are relevant to Onshore Archaeology and Cultural Heritage are listed in Table 11. General mitigation measures, which would apply to all parts of the project, are set out first. Thereafter mitigation measures that would apply specifically to Onshore Archaeology and Cultural Heritage issues associated with the array, landfall, onshore ECC and OnSS, are described separately. The assessed design to some extent is the result of inherent mitigation, as it takes into account key areas of suspected archaeological sensitivity and seeks to minimise or avoid impact. Similarly, the western part of the Agreement for Lease (AfL) area has been excluded from use as part of the array area, with a view to minimizing visual impact, particularly in views from the south (decreasing horizontal extent) and increasing the distance from the eastern shore of Anglesey. Design evolution is set out in Volume 1, Chapter 4, Site Selection (application ref: 6.1.4) of this ES.

140 Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to onshore archaeology and cultural heritage are listed in Table 11. The mitigation includes embedded measures such as design changes and applied mitigation which is subject to further study or approval of details; these include avoidance measures that will be informed by pre-construction surveys, and necessary additional consents where relevant. The composite of embedded and applied mitigation measures apply to all parts of the AyM development works, including pre-construction, construction, O&M and decommissioning

**Table 11: Mitigation measures relating to Onshore Archaeology and Cultural Heritage**

PARAMETER	MITIGATION MEASURES
<b>CONSTRUCTION</b>	
Onshore ECC	<p>An agreed programme of archaeological investigation work will be put into place to ensure that any historic assets or deposits of geoarchaeological/Palaeo-environmental interest could be identified and recorded. This would be secured as a requirement of the DCO through the provision of a Written Scheme of Investigation (WSI) to be prepared in consultation with the Development Control Archaeologist advising Denbighshire County Council (to be approved by Denbighshire County Council) (An outline WSI is provided in Volume 5, Annex 8.5: Outline WSI for Archaeological Investigation (application ref: 6.5.8.5)).</p> <p>Archaeological investigation and recording would provide a partial mitigation of the loss of archaeological interest and would be less preferable to conservation of a historic asset in situ (DECC 2011).</p> <p>Archaeological investigation and recording are therefore a partial mitigation that would reduce the magnitude of adverse change to a degree dependent on the interests</p>

PARAMETER	MITIGATION MEASURES
	that comprise the significance of an individual historic asset.
OnSS	An agreed programme of archaeological work will be identified, and will be put into place to ensure that any historic assets or deposits of geoarchaeological/palaeo-environmental interest would be identified and recorded. This will be secured as a requirement of the DCO: detail will be set out in a Written Scheme of Investigation which will be agreed with the Development Control Archaeologist advising Denbighshire County Council and approved by Denbighshire County Council prior to the works taking place.
OPERATION	
Onshore ECC	Reinstatement of cabling works, including landscaping such as hedgerow reinstatement.
OnSS	Retention and restoration of existing screening planting where practicable. This would be part of a scheme of landscape mitigation secured as a requirement of the DCO. Details of landscape mitigation are set out in Volume 3 Chapter 2 Landscape and Visual Impact Assessment (application ref: 6.3.2) of this ES.
DECOMMISSIONING	
Onshore ECC	It is assumed that no additional ground disturbance will occur during decommissioning, with no consequent effect on potential archaeological remains. No specific mitigation is therefore proposed. Should new areas of land take be required, then the mitigation measures proposed for construction would be applied.
OnSS	As above.

## 8.10 Environmental assessment: construction phase

### 8.10.1 Consideration of Onshore ECC and OnSS and associated construction activities

141 This section considers the potential adverse effects of the onshore ECC and OnSS that are likely to occur to the heritage assets set out in Table 7 and Table 9 during the construction phase. This also includes an assessment of other activities which will take place during the construction phase which could have a direct effect upon archaeological assets such as the use of the anchor zone, temporary construction compounds and temporary construction access routes.

#### Disturbance or loss of historic and archaeological assets during construction – Foreshore assets (5001-5008)

142 The Foreshore Walkover Survey undertaken in December 2021 identified a number of assets predominantly comprising peat deposits, tree stumps and logs upon the foreshore as well as some large concrete sheets and pillars. Some of these assets are shown as lying within the Onshore ECC; there remains flexibility with regard to the location of HDD (or other trenchless technique) exit pits, which will be between MHWS and 1000m seaward. As such there is potential that these assets could be affected by the exit pit, although avoidance of known assets on the foreshore would be taken into account, where practicable. Presently unknown assets on the foreshore also have the potential to be affected by the HDD exit pit should it be located on the foreshore. Upon the foreshore within the OL, is the anchor zone where barge anchors will be located upon the foreshore. This will involve up to 8 anchors measuring 5m x 5.5m x 3m. These would be installed and removed by an excavator at low tide. Operational access routes are also proposed for the foreshore area. These activities have the potential to affect known and potential assets located within the inter-tidal area.

- 143 The heritage assets located upon the foreshore are considered to be of low to medium heritage significance and the activities outlined above have the potential to damage or destroy these assets, affecting their evidential value. This would be an effect of **high adverse** magnitude of impact upon a receptor of **low to medium** heritage significance. This would result in a **major to moderate adverse** effect prior to mitigation, which is significant in EIA terms.
- 144 Mitigation for this effect is provided in the form of the implementation of an appropriate programme of archaeological work, leading to 'preservation by record', the detail of which will be agreed via a WSI and secured as a requirement as part of the DCO. An outline WSI is provided in Volume 5, Annex 8.5: Outline WSI for Archaeological Investigation (application ref: 6.5.8.5). Following mitigation, the residual effect is assessed as **minor adverse** which is not significant in EIA terms.

#### Disturbance or loss of historic and of archaeological assets during construction - Ridge and Furrow identified from 1m LiDAR (143519, 143520, 143523, 14327, 14329)

- 145 Ridge and furrow was identified from LiDAR survey within the southern section of the Onshore ECC, as recorded by the HER. The ridge and furrow in these areas could not be identified during the walkover survey although remains may exist below ground. The ridge and furrow is expected to be of medieval or post-medieval date and should such remains exist, would be considered to be of low heritage significance on the basis that these are well-understood remains of agricultural function and considered to be of local importance. The construction of the Onshore ECC would not affect the entirety of the areas identified for ridge and furrow although the magnitude of impact is considered to be **high adverse** upon a receptor of **low** heritage significance. This would result in a **minor adverse** effect prior to mitigation, which is not significant in EIA terms.
- 146 The effect can be mitigated via a programme of archaeological recording leading to preservation by record. After mitigation, the residual effect will be **minor adverse** which is not significant in EIA terms.

## Disturbance or loss of historic and archaeological assets during construction – Extant Ridge and Furrow Earthwork

- 147 During the walkover survey extant earthworks of ridge and furrow were identified to the south east of Faenol-Bropor across a single field within the area for the Onshore ECC, the OnSS construction zone and the OnSS itself. Construction activities to implement these elements of the development will result in a high adverse magnitude of impact. The ridge and furrow earthworks are considered to be of **low** heritage significance, representing locally important traces of former agricultural practices of a well-understood nature, and as such effects of **high adverse** magnitude will result in a **minor adverse** effect prior to mitigation, which is not significant in EIA terms.
- 148 Mitigation in the form of archaeological recording is proposed and the residual effect after the implementation of mitigation will be **minor adverse**, which is not significant in EIA terms.

## Disturbance or loss of historic and of archaeological assets during construction- Potential Roman Road and potential associated activity

- 149 The postulated route of a roman road is recorded along Glascoed Road, although to date no archaeological investigation in the area has confirmed the presence or alignment of the roman road. Glascoed Road could be crossed using HDD (or other trenchless technique) and as such a HDD compound would be positioned either side of the road with an additional TCC situated on the southern side of the road. Direct effects could arise from the implementation of the compounds, the initial directional drilling and the onshore ECC to the north and south of these activities. Alternatively, similar direct effects could arise should open trenching be selected for the crossing of Glascoed Road. The Roman Road or associated roman activity is likely to be of **low to medium** heritage significance, depending on the nature of any activities represented. If simple field boundaries and ditches were to be located, these would be considered of local importance and low in value, as a well-understood feature type. If settlement activity (houses, buildings etc.) were found, this may be of regional importance and medium value depending on the degree of preservation as well as function, period etc. The construction activities will be of **high adverse** magnitude of impact. This will result in a **moderate to minor adverse** effect prior to mitigation. Should a moderate effect occur this would be considered significant in EIA terms; a minor effect would not be significant in EIA terms.
- 150 The effect will be mitigated by undertaking an appropriate programme of archaeological recording, leading to preservation by record. After the implementation of this mitigation the residual effect is assessed as **minor adverse**, which is not significant in EIA terms.

## Disturbance or loss of historic and archaeological assets during construction - Potential Geoarchaeological Deposits

- 151 Parts of the Onshore ECC hold potential for geoarchaeological deposits to be discovered particularly in Route Sections A and B (coastal area) and Route Section D (River Clwyd). Construction activities associated with the Onshore ECC will comprise the cut and cover excavation for the cable, HDD (or other trenchless technique) sites for the crossing of the River Clwyd and proposed transition joint bays, other HDD (or other trenchless technique) sites, and construction compounds in Route Sections A and B. At present the exact depth and presence of these deposits is unknown, however as a worst-case scenario, these construction activities will have a **high adverse** magnitude of impact. At present the significance of the geoarchaeological deposits is currently unknown although based upon existing information these deposits could be of **medium** heritage significance. This is based on the potential for survival of organic remains (preserved within peats) and evidence of palaeo-environmental interest (with evidential value related to past climate and local environmental changes) which may be of regional importance and medium value. This would result in a **moderate adverse** effect prior to mitigation, which is significant in EIA terms.
- 152 A programme of archaeological investigation is proposed by way of mitigation. The aim will be to record and characterise the relevant deposits, and to provide samples of suitable material for assessment and analysis. After the implementation of proposed archaeological work, the residual effect is assessed to be **minor adverse**, which is not significant in EIA terms.

## Disturbance or loss of historic and of archaeological assets during construction - Geophysical Anomalies

- 153 Within Route Sections B-G of the route geophysical survey has identified a number of possible archaeological anomalies, comprising penannular anomalies, pit-like, ditch-like, rectilinear and curvilinear anomalies. These have not yet been ground truthed by any intrusive investigation and as such the presence, nature, date and significance of these anomalies is unconfirmed. Based on the form, size and distribution of these anomalies, some of these anomalies, particularly in the southern part of the route close to the OnSS (Route Section F) and close to Bryn Cwnin Farm (Route Section C) could represent settlement activity which could be of regional importance and depending upon preservation and condition could be of medium heritage significance. Others may represent evidence for past agricultural practices and activities likely to be of local importance and low value. If anomalies are shown to represent other types of activity (industrial, ritual etc.) these may be of regional importance (depending on the activities and preservation/condition) and medium heritage significance.
- 154 The construction of the Onshore ECC, construction compounds, HDD compounds, temporary access routes, OnSS and OnSS TCC will potentially result in an impact of **high adverse** magnitude upon potential archaeological assets of **low to medium** significance. This will result in a **minor to moderate adverse** effect prior to mitigation. Should a moderate effect occur, this would be considered to be significant in EIA terms; a minor effect would not be significant in EIA terms.
- 155 Mitigation is proposed in the form of an appropriate programme of archaeological work, leading to preservation by record. After implementation of this programme, the residual effect is assessed as **minor adverse**, which is not significant in EIA terms.

## Disturbance or loss of historic and of archaeological assets- at present unknown archaeological remains

- 156 The Onshore ECC has the potential for as yet undiscovered archaeological remains which are currently of unknown date and significance. In particular there is potential for Mesolithic and Bronze Age remains to exist within the OL but also archaeological remains for other periods could also be found. As the form, nature, date and significance of such remains is currently unknown, the significance of effect also remains unknown. However, based on the evidence gathered for the baseline, and using professional judgement based on past experience of similar remains, some inferences can be made. Mesolithic activity is generally ephemeral and rare; any evidence relating to activity of this period is likely to be regionally important. The same is likely to be the case for remains shown to be of Bronze Age date, where these represent settlement, ritual or other activity. Remains of these periods, if present, would be at least of regional importance and consequently of **medium** heritage significance.
- 157 Construction activities are likely to cause damage or destruction of such remains, removing their evidential value. This is an impact of **high adverse** magnitude of impact upon assets with **low to medium** heritage significance. The effect of this is assessed as **minor to moderate adverse** (in the case of remains shown to be of regional importance and medium value) in significance. An effect considered to be of **moderate adverse** level is considered significant for purposes of the EIA regulations, prior to mitigation.
- 158 Mitigation in the form of archaeological work leading to preservation by record is proposed. After the implementation of an agreed scheme of work, the residual effect is considered to be **minor adverse**, which is not significant in EIA terms.

## Disturbance of archaeological assets during construction- Rhuddlan Chain Home Radar Station

- 159 Buildings relating to the Rhuddlan Chain Home Radar Station are known to exist within a section of woodland at Erw'r-gaseg to the south west of Pengwern College. Most of this wooded area has been excluded from the OL aside from a small strip at the southern area which is included for the Onshore ECC which will be crossed using HDD (or other trenchless technique). Site walkover identified standing structures to the north of the OL within the woodland however none were identified within the wooded area within the OL. The presence of subterranean elements (such as bunkers with basement levels, escape tunnels etc.) associated with the Chain Home Radar Station within the wooded area within the OL is currently unconfirmed. Structures such as this are known to have deep subterranean elements, as such direct effects as a result of HDD activity (or other trenchless techniques) could occur should such remains be present within this area. The Radar Station is considered to be of **medium** heritage significance, and construction impacts could be of **medium adverse** magnitude, resulting in a **moderate adverse** effect (which is considered significant for EIA purposes) prior to mitigation.
- 160 Geophysical survey to the west of the woodland (corroborated with historic mapping from 1941) has identified a series of anomalies that could relate to the anchor points for the towers associated with the Radar Station. Direct effects to these anomalies would comprise the excavation for the Onshore ECC. The Radar Station is considered to be of **medium** heritage significance, and construction impacts could be of **high** magnitude, resulting in a **moderate adverse** effect (which is considered significant for EIA purposes) prior to mitigation.
- 161 Mitigation is proposed in the form of a programme of archaeological work leading to preservation by record. The residual effect after the implementation of this work will be reduced to **minor adverse**, which is not significant in EIA terms.

## Direct Effects to Historic Hedgerows during construction

- 162 A number of hedgerows which may be considered to be historically 'important' under the Hedgerows Regulations 1997 have been identified within the Onshore ECC. It is anticipated that to facilitate the implementation of the cable sections of the hedgerows will need to be removed. Historic hedgerows are considered to be of **low** heritage significance (representing boundary features of typically local importance) and the effect of the removal of limited parts of the hedgerows would be of **medium adverse** magnitude of impact. As such the significance of the effect will be a **minor adverse** effect prior to mitigation, which is not significant in EIA terms.
- 163 Mitigation is proposed in the form of compensatory planting, and replacement as appropriate. The details are set out in Volume 3 Chapter 5 Onshore Biodiversity and Nature Conservation (application ref: 6.3.5) of this ES and the outline Landscape and Ecology Mitigation Plan (OLEMP) (application ref: 8.4). If required, archaeological monitoring will also be undertaken upon removal of affected hedgerow sections to ensure that associated features (banks, ditches etc.) are recorded. Implementation of this programme will lead to minimal loss of the current historic character of the area, with any loss of associated archaeological remains mitigated by preservation by record. The residual effect is assessed as **negligible**, which is not significant in EIA terms.

## Indirect Effects upon Heritage Significance during construction

- 164 Indirect effects during the construction phase could arise from activities such as construction traffic, flashing lights on moving vehicles, noise and dust created by construction activities.

## Bryn Cwnin Farmhouse (14990) and L-Plan range of Farm buildings (14991)

- 165 Bryn Cwnin Farmhouse and associated farm buildings are both Grade II Listed and are considered to be of high heritage significance. The setting of Bryn Cwnin Farmhouse and associated buildings are defined by their rural location, associated agricultural land and patches of woodland. The buildings can be best appreciated and experienced from within their immediate surroundings, however the agrarian setting of the buildings does contribute to their significance.
- 166 The Onshore ECC is located 130m to the west of the buildings with part of the OL extending 50m to the north. The construction of the Onshore ECC including effects arising from construction traffic, noise and dust will have a short term, localised effect to the appreciation of the setting of the historic assets that will be fully reversible following the completion of the Onshore ECC. This will result in an impact of **negligible** magnitude to a historic asset of **high** significance resulting in a temporary effect during the construction phase which is **negligible** and not significant in EIA terms.
- 167 No mitigation is proposed or considered necessary.

## Tyddyn Isaf (80758)

- 168 Tyddyn Isaf is Grade II listed and is considered to be of high heritage significance. Tyddyn Isaf lies to the immediate north of the A55 and as such its formerly rural surroundings have been changed by the introduction of the dual carriageway within its setting. However, to the north of the farmhouse its setting has been retained and the agrarian character of this part of its setting contributes to its significance. The significance of the asset can be best appreciated from within its immediate surroundings. The construction activities associated with the Onshore ECC including effects arising from construction traffic, noise and dust is expected to have a short-term localised impact of **negligible** magnitude to the **high** heritage significance of the asset. This will result in a temporary effect during the construction phase which is a **negligible** effect and not considered to be significant in EIA terms.

- 169 No additional mitigation is proposed or considered necessary.

### Barn to NW of Faenol-Bropor Farmhouse (1378)

- 170 Barn to NW of Faenol-Bropor Farmhouse is Grade II listed and is considered to be of high heritage significance. The barn consists of a well-preserved and large threshing barn, of 18<sup>th</sup> century date, associated with the Mostyn estate. The Barn is part of a historic farmstead and both the barn and farmhouse are thought to be contemporary 18<sup>th</sup> century structures. The immediate setting of the barn is comprised of its surroundings spaces and structures within the farmstead and it has a wider setting related to the agricultural land belonging to the farm. Although the barn is relatively near to the A55 to the north this is not perceptible once at the farmstead. The farmstead retains a large part of its historic legibility through a number of hedgerows, extant ridge and furrow in one area and the historic buildings at the farmstead which contribute to its significance. The significance in the barn lies primarily in its architectural interest, inherent in its brick fabric and design and which is best appreciated in close proximity to the structure, as well as its historic interests from association with the Mostyn Estate. It also has evidential value in its structure and design for past agricultural practices, and the range of activities to be found at a farm of this period.
- 171 The Onshore ECC is proposed through the farmstead, with the OnSS located approximately 450m to the south within the farmland associated with the barn. The construction of the Onshore ECC will involve HDD (or other trenchless technique) to cross the A55, within the fields in the north eastern corner of the farmstead, approximately 100m from the barn, as well as cut and cover excavation of the Onshore ECC as it extends further south to the OnSS. The construction effects associated with the Onshore ECC including effects arising from construction traffic, noise and dust will be temporary and limited to the construction phase. This is anticipated to be an impact of **low adverse** magnitude (in that the ability to appreciate the architectural interest and historic association of the barn within a farmstead setting) on an asset of **high** significance resulting in a temporary **minor adverse** effect, which is not considered to be a significant effect in EIA terms.

- 172 The construction of the OnSS will involve a large part of the farmland to the south of the farmstead to be used as the construction compound, and the construction zone which will also require a temporary construction access road. The presence of construction vehicles, noise and dust from the construction will occur within the setting of the barn, although on a temporary basis over a 24 month period. The construction of the OnSS within the setting of the barn is expected to be an effect of **low adverse** magnitude (for the reasons stated in the preceding paragraph) to an asset of **high** significance resulting in a temporary **minor adverse** effect, which is not considered to be a significant effect in EIA terms.
- 173 No mitigation is proposed or considered necessary.

### Bodelwyddan Castle (1383)

- 174 Bodelwyddan Castle is Grade II\* listed and is of high heritage significance. It is situated on a high point in the landscape but is set within its own estate bound by a high estate wall. A number of Grade II listed structures lie within the grounds and a scheduled monument relating to WWI practice trenches is situated in the south east of the grounds. The estate is included on the non-statutory Register of Historic Parks and Gardens as Grade II.
- 175 The primary setting of the asset comprises its grounds and parkland (itself a Registered Historic Park and Garden (RHPG) of special historic interest) although the situation of the castle on a high point and the position of the terrace to the east of the building suggest that it has some designed views looking east, across the parkland and land to its east.
- 176 The construction of the Onshore ECC will take place within the wider setting of Bodelwyddan and be a temporary effect and could arise from activities involving construction traffic, noise and dust. It is considered that the construction activities for the HDD (or other trenchless technique) under the A55 and the cut and cover for the Onshore ECC will be not be noticeable and so the potential impact is considered to be of **negligible** magnitude (actually no impact) to the **high** heritage significance of Bodelwyddan Castle resulting in a temporary effect which is a **negligible** effect, which is not significant in EIA terms.

- 177 The construction for the OnSS will involve the construction of an access road, a construction compound and the construction of the OnSS itself. The MDS for the OnSS allows for a 15m high structure, with an additional 1.5m to allow for variations in formation levels within the site. A visualisation is presented as VP6 (see Volume 6, Annex 2.3, Figure 2.23 (application ref: 6.5.2.3)) The presence of mature planting on the eastern edge of the RHPG will serve to screen the OnSS in views from the west, and planned mitigation in the form of landscaping around the OnSS will further reduce the visual change, with the effectiveness of screening increasing over time. The presence of the OnSS within the wider setting of the castle and the RPHG is expected to have a **low adverse** magnitude of impact to an asset of **high** heritage significance, resulting in a temporary **minor adverse** effect, which is not considered to be a significant effect in EIA terms.
- 178 Mitigation in the form of landscaping including planting is proposed to soften the form of the OnSS structure and reduce its visibility from the parkland and castle. Detail is set out in Volume 3 Chapter 2 Landscape and Visual Impact Assessment (application ref: 6.3.2) of this ES and the OLEMP (application ref: 8.4). The planting will take some time to mature, so that the mitigation will become more effective over time. Upon completion, the residual effect on the heritage significance of the Hall (and Parkland) will be **minor adverse** which is not considered to be a significant effect in EIA terms.

### Bryn Celyn Lodge on Bodelwyddan Park Boundary (80738)

- 179 Bryn Celyn Lodge is situated on the southern boundary of the Bodelwyddan estate as an entrance lodge. The lodge has group value with the estate wall and is well preserved example of an early 19<sup>th</sup> century gate lodge. Some of the significance of the asset is derived from its setting although this is considered to comprise the Bodelwyddan Estate, with little significance derived from its wider surroundings.
- 180 As the construction of the onshore ECC and OnSS will take place outside of the setting of the asset, there is expected to be no harm to the significance of this asset during the construction phase, an effect which is assessed as **negligible**.

181 No additional mitigation is proposed or considered necessary.

### 8.10.2 Offshore Array

#### Effect on settings and significance of selected onshore heritage assets

182 A number of heritage assets have been selected for assessment with respect to whether their significance could be affected through development of the AyM WTGs within their settings. The selection of assets is based on consultee responses to scoping and later engagement, as well as responses to the PEIR. An initial scoping exercise was conducted, with a view to determining which of these assets would be subject to assessment (using Step 1 of Cadw guidance); this is reported in Volume 5, Annex 8.2. Further assessment of selected sites (Steps 2 onwards) is reported in Section 8.11.2 below, in respect of the final built and operational form of the development, as this represents the worst case, combined with the distance from the coast which will mean construction works will have limited visibility, construction effects are not anticipated to cause any likely significant harm.

### 8.10.3 Mitigation

183 Mitigation measures proposed to minimise the potential adverse effects to buried archaeological remains resulting from the construction phase will be achieved through preservation by record. Preservation by record will consist of an appropriate programme of archaeological fieldwork and recording which will lead to the creation of an archaeological archive so that the remains can be preserved by record for future generations. Fieldwork responses may vary across the Onshore ECC and OnSS locations, but may include watching brief, trial trenching, test-pitting, strip map and sample investigation or formal excavation as appropriate. Additional non-intrusive survey may also be undertaken. An appropriate programme of post-fieldwork assessment and analysis of the archive generated by fieldwork will be agreed, leading to publication and dissemination of the results of that work, and the creation and deposition of a project archive in a suitable receiving museum or other body.

- 184 Details of archaeological fieldwork will be set out in a Written Scheme of Investigation (WSI)(see Volume 5, Annex 8.5: Outline WSI for mitigation (application ref: 6.5.8.5)) and agreed with the archaeological advisors at Clwyd Powys Archaeological Trust. The WSI(s) will detail method, areas, techniques to be applied, as well as programme in the context of the post-consent pre-construction period.
- 185 Where moderate and minor adverse effects are reported above during the construction phase, the application of mitigation will reduce these effects to the residual effects given above for each asset and summarised in Table 14, Summary of Effects.
- 186 The implementation of an appropriate programme of archaeological work (including post-excavation assessment, publication and archiving deposition etc.) as set out in any agreed Written Scheme or Schemes of Investigation will be secured as a requirement of the DCO.

## 8.11 Environmental assessment: operational phase

### 8.11.1 Onshore ECC and OnSS

#### Disturbance of archaeological assets during operational phase

- 187 It is not anticipated that the operational phase will have any direct physical effects to any archaeological assets within the Onshore ECC. The effects to archaeological sites identified as sensitive receptors during the construction phase will have been mitigated prior to and during that phase and no further effects during the operational phase are envisaged.

#### Direct Effects to Historic Hedgerows during operational phase

- 188 It is not anticipated that the operational phase will have any direct physical effects to historic hedgerows within the Onshore ECC. The effects to historic hedgerows will have taken place during the construction phase and mitigated during that phase and no further effects during the operational phase are envisaged. Any requirement for works to repair hedgerows as part of any repair works would be affecting hedgerows already mitigated through construction activity, where the same mitigation could be applied.

## Indirect Effects upon Heritage Significance during Operational Phase

- 189 Indirect effects during the operational phase will not occur from the Onshore ECC as this will be below ground and areas affected during the construction phase will be returned to their former use. The following section describes effects during the operational phase arising from the continuing presence of the OnSS and also effects arising to onshore assets from the presence of the completed WTG's during the operational phase.

### Barn to NW of Faenol-Bropor Farmhouse (1378)

- 190 The completed OnSS will continue to exist within the setting of Faenol-Bropor throughout the operational phase of the development.
- 191 The continued presence of the OnSS within the setting of the Barn at Faenol-Bropor of high heritage significance is expected to be an impact of **low adverse** magnitude (in that the architectural interest in the asset is changed and still appreciable, albeit it the contribution made by wider rural setting will be reduced as a result of the erosion of that rural setting represented by the final built form of the OnSS) to an asset of **high** heritage significance resulting in a **minor adverse** effect, which is not considered to be significant in EIA terms.

### Bodelwyddan Castle (1383)

- 192 The completed OnSS will be situated within the wider setting of Bodelwyddan Castle.
- 193 The continued presence of the OnSS within the wider setting of Bodelwyddan Castle of **high** heritage significance is expected to be an impact of **low adverse** magnitude resulting in a **minor adverse** effect, which is not considered to be significant in EIA terms.

## Bryn Celyn Lodge on Bodelwyddan Park Boundary (80738)

- 194 The completed OnSS will lie approximately 470m to the north east of Bryn Celyn Lodge in an area which is considered to be outside of the setting of the asset which does not contribute to its significance. As such there is expected to be no impact to Bryn Celyn Lodge due to the presence of the OnSS during the operational phase.

### 8.11.2 Offshore Array

#### Beaumaris Castle (Scheduled Monument and within WHS)

- 195 Beaumaris Castle is a scheduled monument in the care of Cadw. It is a component part of the "Castles and Town Walls of King Edward in Gwynedd" WHS. It is situated on the southern coast of Anglesey overlooking the eastern mouth of the Menai Strait, with the nearest proposed WTG lying approximately 25 km to the north north-east. A representative viewpoint from eastern inner curtain wall is provided as ViewPoint 44 (Volume 6, Annex 10.5: SLVIA Visualisations- Figure 71 (ViewPoint 44- Beaumaris Castle)(application ref: 6.6.10.5.44)). It lies to the east of the modern town and is nowadays at some distance from the sea, but when built the castle lay immediately adjacent, with water access right up to the outer curtain.

196 The castle is considered to be of Very High heritage significance, by virtue of its Scheduled status and as part of the WHS. Its heritage interest lies in the architectural, historic and archaeological value that it holds. Much of this interest lies in the construction and arrangement of the castle, a prime example of concentric design. Its historic interest lies with its association with the campaigns of King Edward to conquer and subjugate North Wales. The construction of Beaumaris and the adjacent settlement were part of a systematic plan to enforce control over the newly won principality through military control of strategic points, control of trade and the planting of English settlements. Crucial to the implementation of this strategy was the ability to maintain supply to the garrisons and towns by sea, so that the English were not reliant on precarious and more easily interdicted land routes. The settlements and castles begun by King Edward were strategically located adjacent to the sea, and Beaumaris is no exception. Originally, the sea came up to the southern walls of the castle, which could be supplied by vessels via a water gate. The Gunner's walk juts out to the south of the outer curtain wall to protect this access and together with the water-gate, these features clearly demonstrate the importance of access to the sea (and specifically here, the Menai Strait) for supply.

- 197 The proposed WTGs lie at a considerable distance from the castle, and will be visible at a distance of over 25 km from the eastern inner curtain wall (which is not currently accessible to the public). The more distant turbines of Gwynt y Môr are already visible in these views. There are no long views of the castle in which the WTGs will intrude, either from the coast to the south, or in approaches to the castle from the west as Beaumaris town largely blocks views of the castle in this direction). Even where visible from the inner curtain (and highest points of the castle) distant views of the WTGs will not prevent an appreciation of the design of the castle, its close intended relationship with the sea as supply route nor its relationship with the adjacent settlement (as best evidenced in the construction and arrangement of the dock protected by the Gunner's Walk on the southern side of the castle). In consultation responses, Cadw requested consideration be given to a view from the Gunners Walk, however, on visiting the site, it was clear that the WTGs would in fact not be visible to any significant degree from this location, so a worse case was chosen where the maximum amount of visibility would be apparent. For this purpose, a point on the eastern side of the inner curtain wall was selected (albeit this is not normally publicly accessible). This view conforms to one of the key views identified in the WHS management plan documentation for the Castle. It is clear that the ability to appreciate the intended functional relationship if the castle in terms of supply from the sea (via the Seagate protected by the Gunner's Walk) will not be affected.
- 198 The ability to appreciate the architectural arrangement of the castle in terms of defence and habitability, as well as its strategic location will not be affected by the WTGs, even where these may be visible in distant views to the east. However, the setting of the castle is not considered to extend this far; effectively it is considered to relate to the adjacent town, the higher ground to its east and north, and the waters of the straits to the south with the mainland beyond.

- 199 The outstanding universal value of the Castle as a masterpiece of military engineering and architecture as an expression of the political power of the Plantagenets at the end of the 13th century is unharmed. The Castle still serves to illustrate the way in which the English rule in Wales was cemented through the creation of the royal fortress and associated borough settlements. The authenticity and integrity of this component of the WHS, as evidenced in its fabric is not compromised by the proposed WTGs where or not visible at distance from the Castle.
- 200 Given that no effect on the significance of the castle in terms of its specific heritage interests, and its outstanding universal value as part of the WHS, is predicted from the operation of the AyM array, a **negligible** impact at most is judged to occur to this **highly sensitive** asset, and so the effect of AyM is assessed as a **negligible** effect, which is not significant in EIA terms.

### Conwy Castle and Town Walls (Scheduled Monument and within WHS)

- 201 Conwy Castle is a Scheduled Monument in the care of Cadw. It is a component part of the "Castles and Town Walls of King Edward in Gwynedd" WHS. It lies on the western bank of the Conwy River, and is approximately 17 km from the nearest proposed WTG. A representative view from the turret of the north-eastern most tower (Chapel Tower) is provided as ViewPoint 45 (Volume 6, Annex 10.5- SLVIA Visualisations- Figure 72- ViewPoint 45-Conwy Castle) (application ref: 6.6.10.5.45)); this view point corresponds to one of the arcs of view identified in the WHS management plan documentation for the castle, and represents the maximum extent to which the WTGs are likely to be visible, with visibility from elsewhere in the castle likely to be significantly less than shown here.

- 202 The castle (along with the town walls) is considered to be of Very High heritage significance, by virtue of its Scheduled status and as part of the WHS. Its heritage interest lies in the architectural, historic and archaeological value it holds. Much of this interest lies in the construction and arrangement of the castle and its relationship with defences of the town. As with Beaumaris Castle, its historic interest lies with its association with the campaigns of King Edward to conquer and subjugate North Wales. Both the walled town and the castle are part of the WHS and have group value together. As with Beaumaris Castle, Conwy and its walled settlement formed part of the strategic plan for the military occupation of Wales by King Edward, using locations that could be supplied by sea, or in the case of Conwy, along the River Conwy. Conwy occupies an elevated position above the river, overlooking the town and harbour area. It is likely that the castle could be directly supplied from the sea via a separate dock, accessed via the sea gate from the eastern barbican.
- 203 The proposed WTGs lie at a considerable distance from the castle (approximately 17 km). Parts of up to 16 of the WTGS will be partially visible as blades and blade tips over intervening land in view to the east and north east of the castle (see ViewPoint 45 (Volume 6, Annex 10.5-SLVIA Visualisations- Figure 72- ViewPoint 45-Conwy Castle) (application ref: 6.6.10.5.45)). The degree of visibility will be lower or further screened from elsewhere on the castle walls or turrets. However, there are no long views of the castle in which the WTGs will intrude. Even where visible from the inner curtain (and highest points of the castle) distant views of the WTGs will not prevent an appreciation of the design of the castle, its close intended relationship with the sea (and specifically the Conwy River and Bay) as supply route nor its relationship with the adjacent settlement. The ability to appreciate the architectural arrangement of the castle in terms of defence and habitability, as well as its strategic location will not be affected by the WTGs, even where these may be visible in distant views to the east from the castle. However, the setting of the castle is not considered to extend this far; effectively it is considered to relate to the adjacent town, the higher ground to its west and south, and the estuary to the north and east, and the river to its immediate east.

- 204 As with Beaumaris, the outstanding universal value of the Castle (and the adjacent town) is not affected or diminished, whether or not the AyM WTGs may be visible at distance. The castle remains as an outstanding masterpiece of military engineering, and together with the town walls (and the planting of English Boroughs), continues to embody the political power of King Edward in confirming his rule in Wales. The authenticity and integrity of this component of the WHS, as expressed in the fabric of the castle and town walls, is unaffected.
- 205 Given that no effect on the significance of the castle and the town defences in terms of their specific heritage interests, and outstanding universal value as part of the WHS, is predicted from the construction and operation of the AyM array, an impact judged to be **negligible** at most will occur to this **highly sensitive** asset, and so the effect is assessed as **negligible**, which is not significant in EIA terms.

## Penrhyn Castle (Grade I)

- 206 Penrhyn Castle is a Grade I listed building, set within extensive grounds, including formal garden within a wider parkland (Penrhyn Park) situated to the east of Bangor. It is located within (and associated with) the "North Wales Slate Mining Landscape" WHS, as part of Component Part 1 Penrhyn Slate Quarry and Bethesda and the Ogwen Valley to Port Penrhyn. The WHS component is assessed as a whole, below. It is in the care of the National Trust. The nearest point of the Array would be approximately 28.6 km to the north-north-east. A representative viewpoint from the terrace on the northern side of the Penrhyn Castle is provided as ViewPoint 17 (Volume 6, Annex 10.5- SLVIA Visualisations- Figure 44- ViewPoint 17-Penry Castle) (application ref: 6.6.10.5)). This shows that the WTGs will be visible at distance where views out to sea are available.

- 207 The castle structure as visible today is in the form of medieval style castle with architectural detail evoking multiple periods, dominated by a large 4 -storey Norman style keep. It was built between 1820 and 1837, but part of the structure includes a former manor which existed on the site from the 15th century to 1780, before being remodelled in a castellated gothic style. It came into the ownership of the National Trust in 1951. Its Grade I listing reflects its status as a largely unaltered example of the early 19<sup>th</sup> century "Norman revival", and it is regarded as the architect Thomas Hopper's masterpiece.
- 208 The house has architectural, historic and archaeological interest. Part of this historic interest is the clear association of Penrhyn Castle with the Pennant family representing an expression in stone of the wealth and power of that family, derived from the Welsh mining and slate interests as well as their Jamaican plantations.
- 209 Penrhyn Castle's significance is enhanced by its immediate setting, namely the surrounding gardens and parkland, and it has a wider visual setting which includes the availability (especially from upper floors) of the higher ground the east and south and west, and across the Menai Strait to the north (in which WTGs may be visible in good conditions at distance). However, it is the availability of these long views to the sea that is important, with the landward views providing a backdrop for view within the parkland to Penrhyn Castle.
- 210 It is considered that the architectural interest in Penrhyn Castle is best appreciated from within the parkland and in close proximity to the structure itself, where the detail and arrangements can best be viewed. Similarly with the parkland itself, the arrangement of spaces and planting within it (including the formal gardens) and their relationship to Penrhyn Castle (framed views, glimpsed and open views on principal routes through the landscape) are best appreciated within the park. This is not affected by the proposed WTGs, whether or not they may be visible (at distance) in views to sea.

- 211 The keep has some presence as a landmark, and is visible from points in the surrounding landscape (typically along the coast), including from parts of the southern coast of Anglesey around Beaumaris where it can be seen in views south across the Menai Strait. The proposed WTGs are will not be prominent in any views towards the castle and keep (even where visible at distance in views to the north that may include the castle, and will not diminish its presence in the landscape).
- 212 The historic and archaeological interest is likewise unaffected, with this being best appreciated within the context of the castle and grounds. The role of the parkland as an appropriate setting for Penrhyn Castle is not affected.
- 213 The asset (park and castle) is considered to be of High sensitivity and this is elevated by its historic association with the Pennant family and the history of the slate industry in North Wales (the importance of which to the cultural and landscape of Wales is recognised by the recent inscription of parts of Gwynedd as the Slate Mining Landscape of North West Wales WHS). However, it is not considered that the distant presence of the proposed WTGs in glimpsed views from within the parkland and/or around Penrhyn Castle will in any way prevent the appreciation and understanding of the historic, architectural and archaeological interest. Even the presence of the WTGs in the distance in open views out to sea from upper floors is considered incidental and determinative in the ability to understand the positioning of Penrhyn Castle and its relationship to the wider landscape.
- 214 The contribution made by Penrhyn Castle and its surrounding parkland (as exemplifying the wealthy extreme of the social mix of the community, built on the proceeds of the quarries, as well as in the architectural and historic interest in Penrhyn Castle as a masterpiece in its own right) to Component 1 of the Slate Landscapes of North West Wales WHS is considered to be unaffected, with no harm to the outstanding universal value, nor any reduction in the authenticity or integrity of that designation (see below for assessment of the WHS).

- 215 Consequently, an impact of **negligible** magnitude is found in that the contribution made by the setting to the significance of Penrhyn Castle is undiminished. The effect of the WTGS is therefore assessed as **negligible**, which is not significant in EIA terms.

## Component Part 1 Penrhyn Slate Quarry and Bethesda, and the Ogwen Valley to Port Penrhyn, Slate Landscape of Northwest Wales WHS

- 216 The Slate Landscape of Northwest Wales was inscribed on UNESCO's list of World Heritage Sites in 2021. This WHS is composed of six component parts, representing a range of areas, landscapes and activities, above and below ground, physically embodying a cultural landscape. This cultural landscape expresses the close relationship of the people to their natural environment. The WHS has unique value in the close identification of the extensive physical remains of the mining activity with the appearance and form of the landscape within which this activity has taken place. The importance of this activity which historically (and continuing into the present day) took place within the WHS can be seen in the worldwide distribution of Welsh slate, as well as the influence the technologies developed here had upon mining operations elsewhere in the world, not least in the development and operation of narrow-gauge railways and other transport means.
- 217 The WHS also contains evidence for the social and communal environment within which the mining took place. This ranges from the planned settlement and provision of workers' housing, and the creation of the designed landscapes and building of the grand mansions reflecting the wealth of the quarry owners. The cultural and learning aspirations of the community are represented as well, exemplified by the building of Bangor University by subscription of workers in the slate industry.
- 218 Whilst all the components are situated in Snowdonia and Gwynedd, only one component part is considered to be located where the AyM WTGs may have any influence. This is the northern most component, "the Penrhyn Quarry and Bethesda and the Ogwen Valley to Port Penrhyn".

- 219 This component part contains a range of assets which illustrate all of the key attributes of the WHS as a whole. There is the extensive quarry, together with the slate processing works at Felyn-Fawr. The complex business of transporting the slate both for working and for export is evidenced by the Quarry railroad and Railway systems. A purpose-built port (Port Penrhyn) was created at the eastern end of the Menai Strait to the east of Bangor for export. Contrasting settlements are represented by the planned settlement for quarrymen at Mynydd Llandygai, a part of the Penrhyn Estate and the village of Bethesda, inhabited by those who chose not to live on the Penrhyn estate. Finally, as a contrast in wealth and social scale, there is the grand mansion of Penrhyn Castle, built around a neo-Norman keep and set within an extensive designed landscape which was the home of the quarry owners, and funded by the exploitation of the wealth of the quarries (as well as the family maintained in the Caribbean).
- 220 This extensive and inter-related group of assets extends from quarry near the head of the Ogwen and Cegin Valleys in the south, all the way to the coast at the northern extent of the component, including the Port and with the grounds of Penrhyn Park extending to the shore overlooking Bangor Flats and affording sea views from within the parkland and from the castle itself. The valleys themselves and enclosing slopes form the setting of this component. Key views are from the relict quarry looking north, in which the settlements of Bethesda and Mynydd Llandygai can be seen, along with the Keep and grounds of Penrhyn Castle at distance, as well as more distant views across the Menai Strait and across Liverpool Bay. The extensive scale of the workings and the extent to which the landscape along the valleys has been changed can be readily appreciated in sequential or "moving" views when travelling along the A55 in either direction.
- 221 The significance of the WHS as a whole (which equally applies to this component part) is expressed by the Outstanding Universal Values cited in the nomination and inscription.
- 222 Specifically, two of the relevant qualifying criteria are met:

*"(ii) The north Wales slate industry landscape exhibits an important global interchange of human values in terms of extractive technology,*

*building materials and transport technology and emigration. The influence of its extractive technology is felt in the quarries of the USA and France, and of its transport technology in narrow-gauge rail systems all over the world. The extensive use of the main product is evident world-wide.*

*(v) The north Wales slate industry landscape is an outstanding example of the adaptation of a traditional human settlement and land-use to modern industry without losing its distinctive character and language. This is representative of a strong minority culture, as well as of human interaction with the environment through quarrying and engineering."*

- 223 The AyM WTGs will be visible as more or less distant objects clearly out to sea, from various locations within the component area. It is likely that the greatest visibility will be from the coast, at Port Penrhyn and the coastal margins of the Penrhyn Park (Penrhyn Castle and surrounding parkland are considered separately above, but a view from the terrace at the Castle is presented as ViewPoint 17(Volume 6, Annex 10.5-SLVIA visualisations- Figure 44- ViewPoint 17- Penrhyn Castle) (application ref: 6.6.10.5.44).
- 224 However, it is not considered that the presence of the turbines in long views out to sea from the coast, or in glimpsed views from within Penrhyn Park, or distant views from the relict quarry and valley slopes inland will in any way affect the ability to understand and appreciate the value of the WHS or compromise the criteria under which it qualifies for its international status. The authenticity and integrity of the WHS is unaffected by the proposed AyM WTGs, whether or not visible from within the WHS component area.

- 225 The ability to understand the technological achievements in respect of the mining and processing of slate and the physical evidence for the processes involved is unaffected. The ability to understand and appreciate the development and use of transport links to both move the slate to processing areas, and to facilitate its export, in the form of rails roads, railway, narrow gauge engines and track and port installations is unaffected by the proposed development. The architectural and historic interest in the settlement patterns (and cultural and social dynamics that these represent) as evidenced at Mynnydd Llandygai and Bethesda and the owners' grand residence at Penrhyn is similarly unaffected. The clearest maritime association is at Port Penrhyn, where slate was shipped for export around the world. The ability to appreciate the form and function of the port, and its location along the coast is unaffected, whether or not turbines may be visible out to sea; the association of the sea as a transport route for an industrial product is unaffected.
- 226 Taking the above into account it is considered that the AyM WTGs represent an impact of **negligible** magnitude upon an asset of **very high** sensitivity and importance, the effect of which is assessed as **negligible**, which is not significant in EIA terms.
- 227 No mitigation is proposed or considered necessary.

## Gwrych Castle (Grade I)

- 228 The castle lies west of Abergele, approximately 1 km south of the sea. The castle takes the form of a large medieval/romantic themed castle with a range of turrets, walls, terraces and other structures occupying a large site at base of rising wooded ground east of Abergele. It was built in the first part of the 19th century, but suffered fire, vandalism and abandonment in the twentieth century, although currently undergoing partial renovation. It is Grade I listed, and set within parkland (also designated) that includes the higher wooded ground to its south. It is in private ownership but open to the public. The nearest part of the offshore array will be approximately 18 km to the north, north west. A viewpoint (ViewPoint 50) from the terrace to the east of the main castle structure is included at Volume 6, Annex 10.5 SLVIA visualisations- Figure 74 (ViewPoint 50-Gwrych Castle) (application ref: 6.6.10.5.50).

- 229 The significance of the castle lies in its architectural and historic interest, and this is enhanced by the designed landscape elements including formal gardens and formal terraces around it.
- 230 There are extensive open views from much of the terraced and formal garden to the east of the main castle structure across parkland to the wider countryside beyond, these are primarily oriented north north-east, and provide long views across Abergale and the coast towards Rhyl, in which modern settlement and structures are readily apparent. Open views out to sea in this direction include the distant WTGs of the Gwynt y Môr offshore wind farm. The proposed WTGs will be visible at distance, in overlapping and behind the Rhyl Flats wind farm and to the western extent of the Gwynt y Môr offshore wind farm. The wider landscape includes designed walks through heavily wooded and elevated ground to the west of the castle, which includes the contemporary Lady Emily's tower, providing a viewpoint with extensive views in all directions, but focussed on the availability of long views to the north and north-east taking in the coast towards Rhyl.
- 231 The proposed WTGs will not affect the ability to appreciate or understand the evolution of the castle and its structures, nor impede an ability to appreciate the architectural details on display. Nor will the association of Gwrych Castle with its surrounding countryside and landscaping be affected; it will still be readily appreciable as the site of wealthy landowner's fantastic and romanticised vision of a medieval residence in an appropriate parkland setting. Long views to the north and along coast will remain, although the WTGs of the AyM array will be an addition (but not a new feature type). Taking the above into account, the impact of the development is considered to be **negligible** upon an asset of **high** sensitivity, the effect of which is assessed as **negligible**, which is not significant in EIA terms.

## Trywn Du (Penmon) Lighthouse (Grade II\*)

- 232 The lighthouse was built in 1837 (after the wreck of the Rothsay Castle on a sandbank near Puffin Island in 1831) and is situated on rock just off Penmon point, south of Puffin Island. The tower is 22m high (19m above mean high water) and distinctively marked with three broad black stripes. It was manned until 1922. It is now automated, and still operational, in the care of Trinity House. It was designed to mark the north side of the entrance to the Menai Strait. A view from the coast at a distance of 20 km from the array, near to the former Pilots Cottage on the Anglesey Mainland at Penmon Point (also listed) is shown as Viewpoint 7 at Volume 6, Annex 10.5-SLVIA Visualisations-Figure 34 (ViewPoint 7-Trywn Du) (application ref: 6.6.10.5.7). The distant turbines of Rhyl Flats and Gwynt y Môr wind farms are present on the horizon.
- 233 The Lighthouse has architectural and historic value. Its setting is related to the Penmon coast and Puffin Island, and functionally to the entrance to the Menai Strait.
- 234 The WTGs will be a new and noticeable addition in views that include the lighthouse from Penmon point, at distance and partially behind Puffin Island. However, this will not affect the ability to appreciate the built form and function of the lighthouse, nor to understand its historic interest and the reason for its location.
- 235 The lighthouse is considered to be of **High** sensitivity by virtue of its designation, but as the ability to appreciate its architectural interest and historic value is not affected, an impact judged as **negligible** at most, the effect of the development on its heritage significance is assessed as **negligible**, which is not significant in EIA terms.

## Puffin Island Tower and Remains of Church and Monastic Settlement (SM)

- 236 Puffin Island lies off Penmon point on the south-eastern tip of Anglesey, and approximately 17 km south-east from the nearest point on the AyM Array. The Island contains the remains of 12<sup>th</sup> century monastery. Ecclesiastical settlement is believed to have existed on the island since the Sixth century, when a hermitage is believed to have been established. The island is not accessible to the public and is additionally protected with Site of Special Scientific Interest (SSSI) status. It was not visited as part of this assessment. A representative viewpoint is provided as ViewPoint 53 in (Volume 6, Annex 10.5- SLVIA Visualisations-Figure 76 (ViewPoint 53- Puffin Island) (application ref: 6.6.10.5.76). The turbines of Gwynt y Môr offshore wind farm will be present in this view at distance. A view of the island from the Anglesey coast near to the former Pilots Cottage at Penmon Point (also listed) is shown as Viewpoint 7 at Volume 6, Annex 10.5-SLVIA Visualisations-Figure 34 (ViewPoint 7-Trywn Du) (application ref: 6.6.10.5.7).
- 237 Remains of the tower and nave still survive, and the transept and chancel are now under a nineteenth century cottage. The significance of the monument lies primarily in its archaeological interest and the evidential value it holds for understanding earlier medieval ecclesiastical settlement development in general, as well as the specific construction, evolution and utilisation of this specific settlement.

- 238 The setting of the monument is effectively defined by its location on the island, albeit this includes the sense in which it is cut off from the North Wales mainland and the Anglesey coast, with a wider maritime setting. The selection of this location for the monastic settlement may well have been chosen deliberately for this sense of isolation and being physically cut off from the world, so the wider maritime setting and in particular the waters separating the Island from the coast at Penmon is a contributor to understanding the significance of the monument. Nevertheless, the views from the island today are not untouched by development, including the presence of existing WTGs in the Gwynt y Môr wind farm (and others). The presence of the AyM WTGs at distance in views to the east will not affect the ability to appreciate or understand the built form or archaeological interest in the monument, nor its island location. The historic association of the scheduled remains with the former Penmon manor and current monastery on the mainland of Anglesey is not affected by the development.
- 239 Although the church tower does still survive it is not a prominent landmark (and is not readily visible from Penmon Point, adjacent to the Pilot's house in views across the water towards the island) and the WTGs are sufficiently distant that they would not prevent its identification for navigation purposes from the sea. The tower is visible in distant views of the Island from the south (on the North Wales coast), but the AyM WTGs will be well separated (to the east in such views) and not in view behind the Island. A representative view from the North Wales Coast (from Llanfairfechan) is presented as Viewpoint 11, Figure 38 (Volume 6, Annex 10.5 (application ref: 6.6.10.5.11)). The church tower is just perceptible on the skyline of the island, but does not constitute a prominent landmark, nor will it be seen together with the AyM WTGs.
- 240 The monument is considered to be of **high** sensitivity, but although intervisible, the WTGs are not considered to affect the special interest in the remains nor the ability to appreciate them. Taking into account this **negligible** impact, the effect on the heritage significance of the Monument is assessed to be **negligible**, which is not significant in EIA terms.

## Puffin Island Telegraph Station (Grade II)

- 241 The telegraph station was constructed on the north-eastern end of the island as single storey building in the 1840s but is now disused and derelict. It is of historic interest as part of the Holyhead to Liverpool telegraph system. The nearest part of the AyM array will be approximately 17 km to the east. A representative viewpoint from the centre of Puffin Island is provided as ViewPoint 53 in Volume 6, Annex 10.5- Figure 76 (ViewPoint 53- Puffin Island) (application ref: 6.6.10.5.53).
- 242 The structure itself has limited architectural interest and aesthetic value, and the ability to appreciate this (or its historical function) is not dependant on the presence or otherwise of the proposed WTGs in distant view out to sea. There are no long views to or from the station which are severed by the array. Although the array would bring WTGs much closer to the station site, modern structures are already visible at distance to the east offshore as well as part of the modern settlement pattern along the coast.
- 243 The asset is considered to be of **high** value by virtue of its designation, but the impact upon its heritage significance and the ability to appreciate or understand that significance is considered to be of **negligible** magnitude of impact, notwithstanding any intervisibility. The potential effect is therefore assessed to be **negligible**, which is not significant in EIA terms.

## Pen y Dinas Hillfort (SM)

- 244 This scheduled monument lies on a spur on the southern side of the Great Orme, and takes the form of a Hillfort with defences to the north-west (that is, adjoining the main part of the Orme) with some evidence of settlement in the interior. The nearest point of the array is approximately 11 km to the north-north-east. A viewpoint from the interpretation board is presented as ViewPoint 52 in Volume 6, Annex 10.5- Figure 75 (ViewPoint 52- Pen y Dinas Hillfort) (application ref: 6.6.10.5.52).

- 245 The primary significance of the monument lies in its archaeological interest, and potential for evidence to survive informing our understanding of prehistoric settlement and defence, as well as the development, evolution and construction of this particular monument. The situation of the hillfort in close proximity to the Great Orme, with its long history of settlement and specifically the long association of the Great Orme with copper mining is also part of its significance (and setting). The visual setting of the monument is the land and coast which it over looks, in particular over the coast now occupied by Llandudno and the bay, towards the Little Orme.
- 246 The proposed WTGs will be visible at distance to the north-east, but the bulk of the AyM array will be screened by the intervening mass of the Great Orme itself. It is noted that WTGs are already a feature of the seascape in views to the east, with Rhyl Flats being prominent, with the Gwynt y Môr WTGs at distance beyond. Modern development is obvious in the form of the modern settlement along this coast (including Llandudno at the foot of the Great Orme), and the ski-slope on the side of the Great Orme to the immediate north.
- 247 The monument has **high** sensitivity by virtue of its designation, but this significance resides primarily in its archaeological interest. The ability to enjoy and understand this is not affected by the proposed WTGs, even where visible at distance from the monument. The impact is considered to be **negligible**. The effect of the AyM WTGs upon the heritage significance of this monument is therefore assessed as **negligible**, which is not significant in EIA terms.

## Llandudno Conservation Area

- 248 Whilst settlement at Llandudno and on the Great Orme dates back to the prehistoric period, much of the iconic seafront dates to the 1860s and 70s. This assessment is concerned with the potential effect on the significance of Llandudno in terms of its historic value as a Victorian and later seaside resort, with much of the centre of the town laid out to accommodate the burgeoning fashion for seaside holidays from the mid-19<sup>th</sup> century onwards. Much of this historic interest is exemplified in the fine buildings fronting the Bay, along the Promenade (including amongst others The Grand Hotel, St Georges Hotel as well as the modern Venue Cymru), along with purpose-built attractions including the paddling pool, as well as the Grade II\* listed pier. Much of the historic value of the planned Victorian development along the bay (as well as the core of the town) is covered by a Conservation Area designation.
- 249 The setting of the Conservation Area is defined by the limits of the town itself to the north, nestling under the Great Orme, as well as the development facing the promenade on the eastern side of the town, (the western side of the Bay). It is the eastern side of the Conservation Area that fronts the sea in this direction that is of concern for this assessment (and which also arguably contributes most to the significance of the Conservation Area as a whole). The relationship to the sea is a key aspect here, with key views present along the promenade in both directions, as well as across the bay to the Little Orme along those streets that meet the promenade at a right angle.

- 250 The significance in (this part of) the Conservation Area, lies in its historic and evidential values with the built form telling the story of the evolution of the town into a seaside resort, and the responses of that resort to changing economic circumstances and fashions. There is also the strong historic link to the Mostyn family, which owned much of the land here and promoted much of the development of the low-lying marshland behind the beach and south of the Great Orme, creating the town much as it is seen today. The grand design of much of the town, with the wide-open promenade fronted by substantial buildings of similar form and design along the sweeping bay, marked at either end by the eminences of the Great and Little Orme holds much aesthetic value (as do many of the component buildings that form this vista). The open space of the promenade, with its gardens and paddling pool, along with shelters and bandstand and access to the beach itself have a communal value as much as the main draw to the town and where the seaside amenity has always been most readily (and freely) appreciated and enjoyed by visitors.
- 251 The AyM WTGs will be a clear and new addition in views across the bay at a distance of approximately 12 km, particularly in views from the southern end of the Promenade (see ViewPoint 18, Volume 6, Annex 10.5-SLVIA Visualisations- Figure 45) (application ref: 6.6.10.5.18) for a visualisation centred on the paddling pool). The visibility of the whole array will tend to diminish as the visitor moves north and closer under the shadow of the Great Orme, but WTGs will continue to be seen in combination with key elements of the area, such as the Pier (from which more extensive views will be available). A view from the lifeboat slipway incorporating the Pier and Grand Hotel is included as ViewPoint 59, Volume 6, Annex 10.5- SLVIA Visualisations- Figure 82 (ViewPoint 59- Llandudno) (application ref: 6.6.10.5.59).

- 252 Whilst the WTGs will be a noticeable addition to views along the coast and out to sea, they are not an entirely new feature-type. It should be noted that built forms are visible along the whole of the bay, and the Great Orme itself hosts modern developments in the form of the ski-slope and cable cars (this chapter does not assess effects to tourism or recreation, such effects are reported in Volume 3, Chapter 4- Tourism and Recreation (application ref: 6.3.4). Wind turbines are an existing feature of views to sea with Rhyl Flats being clear to the north east with the more distant turbines of Gwynt y Môr behind.
- 253 However, it will still be possible to appreciate the design and form of the planned development along the eastern side of the Conservation Area. The ability to appreciate the historic association of the promenade (and related features) with leisure and recreation will not be affected, and the ability to enjoy these activities, which are facilitated by these assets will not be reduced. The ability to appreciate the architectural detail and interest in the various buildings (whether designated or otherwise) will not be impeded, as much of this detail is best viewed in close proximity. The pier will still form a focal point at the northern end of the bay, and continue to afford yet another traditional recreational experience for visitors, and understandable (and enjoyable) within the context of the historic core of the resort.
- 254 The presence of the WTGs in views from the Conservation Area will therefore not detract from an appreciation of the historic development of the town, nor its historic recreational value in the past and today as a historic seaside resort. The Conservation Area will still serve itself as a suitable setting for the various designated and non-designated assets within it, and its setting (as defined by its location with regards to the sea on either side, the Great Orme to the north, and the sweep of Llandudno Bay to the east and south, will remain effectively unchanged. The ability to appreciate the planned development of the town, its evolution as a historic seaside resort, as well as the architectural detail of the buildings within it will be undiminished. However, there is an awkward juxtaposition of the WTGs behind the pier in some views, which may distract from the prominence of the pier as a focal point at the northern end of the promenade. As a result, the pier is assessed separately below.

- 255 Taking the above into account, the potential effect on the heritage significance of the Conservation Area (an asset of **medium** importance) is considered to be **low** in magnitude, resulting in an effect that is assessed as **minor** and Not Significant for purposes of the EIA regulations.

## Llandudno Pier (Grade II\*)

- 256 The pier is situated at the northern end of the Promenade, close to the Grand Hotel and under the lee of the Great Orme. The form is of a traditional wrought iron Victorian pleasure pier some 700 m long. It was built in 1877, replacing an earlier, shorter structure that was damaged in the storm of 1859. It has been modified and altered over the period since its initial construction. A pavilion built on the structure was burnt down and not replaced in the later part of the twentieth century.
- 257 The pier's setting is very much connected with the promenade and Llandudno Bay. It serves as a focal point at the northern end of the bay, serving as a recreational amenity and previously providing access to vessels providing pleasure cruises in the Irish Sea and across Liverpool Bay. The seaward end of the pier affords extensive views out to sea along the eastern side of the Great Orme to the north and east, and views over the bay to the Little Orme.
- 258 Its significance lies in its architectural (and aesthetic) interest, but it also has historic value in its relation to the historic development of Llandudno as a resort.
- 259 The AyM WTGs will be clear addition to the seascape, albeit not a new feature, given the visibility of the Rhyl Flats turbines in relatively close proximity and the Gwynt y Môr turbines further out to sea to the north-east. However, they will be noticeably different in size and scale.

- 260 A view of the pier from the former lifeboat slip way near the memorial is provided at Viewpoint 59, Figure 82 (Volume 6, Annex 10.5 (application ref 6.6.10.5). It is clear that the proposed Aym WTGs will be visible in combination with the pier and some views they will seem to emerge from the pier's deck. This discordant and awkward juxtaposition will detract from the place of the pier as a focus at this end of the promenade. This effect will be less noticeable from the southern end of the promenade, but will tend to increase as one approaches to the north, before lessening closer to the access point from the promenade.
- 261 Although the historic association of the pier with the town and its evolution as a leisure resort will not be affected, the architectural interest in the pier (particularly in relation to its focal position at the northern end of the promenade) will be affected adversely.
- 262 The asset is considered to be of **high** importance and the impact is considered to be **medium** in magnitude, challenging the appreciation of one of the key interests in the structure, albeit in some views only. The significance of this effect is assessed as **moderate adverse** and significant for purposes of the EIA regulations.
- 263 No mitigation is proposed or considered practicable for this effect.

## Mitigation

- 264 No specific mitigation is considered practical or necessary as, with the exception of the predicted effect for Llandudno pier (for which no mitigation is proposed), no other significant indirect effects on the heritage significance of any onshore assets has been predicted.

## Bangor Pier (Grade II\* LB)

- 265 The pier was built in 1896, and projects approximately 470m into the Menai Strait. It is largely of steel and cast iron with timber decking, lined at intervals with kiosks and a larger pavilion at the seaward end. The pier was used by pleasure steamers of the Liverpool and North Wales Steamship Company, providing cruises in the Irish Sea. Originally the pier had a narrow-gauge railway to move baggage to the vessels using the pontoon and pier; this was removed in 1914. The Pier has had a somewhat chequered history, being damaged by a collision in 1916, with final repairs not made until the 1920s, then suffering neglect to the point it was judged unsafe and closed in 1971. It is currently in the ownership of Bangor City Council and is open again to the public.
- 266 The pier's significance derives principally from its architectural interest and is one of the few surviving and accessible piers in Wales, and considered to be nationally important. It is a relatively rarer example of a pier with no larger terminal building. It also has historic interest, as well as communal (recreational) value and is nationally important.
- 267 Its setting is considered to relate primarily to the part of Menai Strait in which it lies, as well as to the area of Garth, in Bangor on its landward side. It affords extensive views up and down the Straits, as well as to the coast of Anglesey to its north. Views of the Snowdonia range to the south are also available. It retains a wider historic maritime association through vestiges of its former use as a landing stage for the pleasure steamers that formerly provided cruises and services through the Irish Sea. A view is presented as Viewpoint 9, Figure 39 in (Volume 6, Annex 10.5 (application ref: 6.6.10.5.9)).

- 268 The proposed AyM WTGs, which have been markedly reduced in number (from PEIR to ES), will be visible in views towards the east along the straits, with the nearest turbine at approximately 29km distant. The function of the pier in providing long views along the straits (as well as towards Anglesey and back to the higher land south of Bangor) will not be affected, with the proposed WTGs simply forming an addition to views in one direction. The ability to appreciate and understand the architectural interest in the location and construction of the pier will be unaffected. There are no long views towards the pier itself in which the turbines will be prominent (given the distance) or which would affect the ability to understand or appreciate the pier's form and aesthetic value and its function, and historic interest. The recreational use of the pier will be unaffected, and its historic maritime associations are undiminished. Consequently, the addition of the proposed WTGs to view in one direction from the pier, taking into account the distance, is not considered to cause any harm to the heritage value of the pier, in terms of the interests set out above.
- 269 The pier is of **high** importance, and the impact upon its interests and the ability to appreciate those interests is considered to be **negligible**. This effect is therefore assessed as **negligible**, and not significant in EIA terms.

## Menai Bridge (Grade I LB)

- 270 The bridge is a suspension bridge, suspended between two towers, one on either side of the Menai Strait. It was begun in 1819 and opened in 1826, built to the design of Thomas Telford. It was strengthened in 1840 and a new steel deck provided in 1893. The towers are of Penmon Limestone, and the suspending cables originally of wrought Iron links (replaced by steel in the mid-twentieth century). It is 417 m in overall length with the main span 176 m in length. It was located at this point in the Menai Strait so that the towers could start higher, providing sufficient height for sailing vessels to pass beneath. It has a clearance of 31m. It is used by pedestrians and road traffic and currently carries the A5 and was formerly the principal road crossing for the route to Holyhead before the construction of the Britannia Bridge.

- 271 The significance of the building lies in its architectural interest and evidential value as an early example of suspension bridge engineering (said to be the first major or important modern suspension bridge) and in its construction arrangements, and as an exemplar of Telford's designs. It has further interest both in terms of its engineering, as well as in its historic place as the first bridge between Anglesey and the mainland, and its role in the Holyhead route across Anglesey, linking Ireland to the rest of the United Kingdom, giving it additional communal value.
- 272 Its setting is fundamentally related to the Menai Strait it crosses, and the higher banks at either side at this point, enabling it to achieve the desired clearance height. This setting includes the adjacent settlement of Menai Bridge. It can be said to have a wider historic setting related to the historic route of the A5 and the London-Holyhead traffic this carries.
- 273 The AyM WTGs will be visible from the bridge deck at a distance of over 32km in views along the Straits to the east. They will form a new addition to this view, which already contains modern development and settlement along both sides of the Straits. Viewpoint 49, Figure 73 (Volume 6, Annex 10.5 (application ref: 6.6.10.5) presents a view from the bridge deck looking east along the Straits.
- 274 It is not considered that the AyM WTGs will affect the ability to understand the significance of the bridge, either in terms of its engineering and architectural interest, or its historic association with the A5 route, nor its specific location at this point on the Straits. Its engineering and architectural qualities (and aesthetic and evidential values) are best appreciated in relatively close proximity to the structure, from along the adjacent banks of the Straits and as the users progress along the bridge from either side. The availability of long views along the Straits to east and west is incidental, a result of the location of the structure and its need to achieve height to enable the passage of sailing vessels beneath it. The AyM WTGs are an addition to these views, forming and new a distant feature, which will not affect the ability to appreciate the significance of the listed building itself.

- 275 The asset is of **high** importance, but notwithstanding some distant visibility of the WTGs from the deck of the bridge the impact upon the ability to understand and appreciate the historic and other interests in the bridge is considered **negligible** in magnitude. The effect is therefore assessed as **negligible**, which is not significant in EIA terms.

## Historic Landscapes of Wales (HLW)

- 276 The Historic Landscapes of Wales designation (HLW) is an advisory, non-statutory designation intended to highlight the historic aspects of landscape for consideration in the management of landuse and development by relevant decision-makers. It has been supported since its initial inception in Wales by more detailed historic landscape characterisation exercises undertaken by the various Welsh archaeological trusts.
- 277 The intention of the HLW designation is to promote and protect historic landscapes whilst recognising that the landscapes, as they are today, result from change and evolution throughout time, up to and including the present. This process of change is ongoing and the landscape is thus seen as non-static, but the HLW Register is aimed at raising awareness of the historic dimension of the landscape, as distinct from ecological, amenity and scenic values, so that this can be taken into account in future management decisions. This assessment attempts to avoid straying into consideration of what may be regarded as more traditional landscape values (which are separately dealt within the Seascape Landscape Visual and Impact Assessment chapter (Volume 2, Chapter 10)), or discussion of amenity and recreational value (as these may relate to tourism and other social value). Whilst there is crossover in these aspects, this assessment attempts to confine itself to potential effects on "heritage" significance (that is, primarily the archaeological and built heritage resource as this lends character and defines the HLWs).

- 278 The Landscape included on the register are designated as examples where the historic dimension contributes so significantly as to define the character of the area selected (which might be the case for areas strongly associated with mining, for example Holywell Common in HLW 2 or slate quarrying in parts of the Ogwen Valley, HLW 28), or where the archaeological evidence survives for large and relatively intact former landscapes and settlement (such as the Lower Conwy Valley HLW22 and North Arllechwydd (HLW 30 area)).
- 279 For purposes of this assessment, and following consultation, the following HLWs are considered below: 23, Creuddyn and Conwy; 30, North Arllechwydd; and 33, Penmon. It has been agreed through the Evidence Plan process (application ref: 8.2) that the standard ASIDOHL methodology is not appropriate here, given that that the WTGs are not within any of the HLWs and are at some distance out to sea. In undertaking the brief assessment presented below, the methodology used for all assets has been applied. It is important to note here that, following that methodology, "setting" is not regarded as an asset itself. Its value lies in what it contributes to the heritage significance of an asset. Simply intervisibility of the AyM WTGs and an asset, either from a specific location or across a larger area such as an HLW, is again not necessarily harmful. There has to be a specific reduction in the contribution made by setting leading to a reduction in or loss of the heritage significance of an asset within that setting (or the ability to appreciate or understand that significance).

- 280 In carrying out this assessment, it is borne in mind that the historic character of an HLW is a product of the various archaeological and built heritage assets within them, to which can also be attributed (or from which derive) distinct cultural aspects or associations. In this respect the HLWs are effectively the setting of the individual assets within them, rather than a distinct asset in their own right. In part this is because the boundaries as drawn are necessarily a product of a selection exercise. The value of a given area outside an HLW may be the same as an area within an HLW (or meet the same criteria) but has not been included for various reasons. The ongoing Historic Landscape Characterisation (HLC) exercises may lead for changes in the formal boundaries in the HLWs as currently included in the register. In this regard, the HLWs cannot be seen to have specific "settings", although it is recognised that the areas beyond the boundaries as drawn can be relevant in allowing the value of a given HLW to be seen (or why the boundary is drawn where it is). For example, the greater Snowdonia range provides a backdrop to much of the Ogwen Valley HLW, and this can be taken to be part of the setting for the various elements within the HLW itself. Similarly, whilst the Creuddyn and Conwy HLW is characterised as a result of the historic assets within it (and for which it forms a setting), it is recognised that topographically the presence of the surrounding sea, and its connected bays and estuaries is an important backdrop, both as part of the setting for those individual assets, and against which the HLW is itself to be appreciated.
- 281 The following brief assessments draw on the text in the Register of Landscapes of Historic Interest in Wales, Part 2.1 Landscape of Outstanding Historic Interest (published by CADW, Countryside Commission for Wales and ICOMOS in 1998), and the HLC exercise carried out by Gwynedd Archaeological Trust<sup>ii</sup>. This HLC has boundaries that are similar but not exactly coterminous with the HLW boundaries, but has useful subareas defined.

---

<sup>ii</sup> Available online at [REDACTED] (accessed 20/01/2022)

## Creuddyn and Conwy (HLW 23)

- 282 This HLW covers the Great Orme and Little Orme as well as the lower lying land containing Llandudno. It also encompasses the lower Conwy valley, with the town and estuary, and Conwy mountain to the west. It is included on the Register as it meets Criteria 1 and 3 (large scale human remodelling – in this case the planned towns and human settlement, as well as the mining and grazing on the Orme, and that multiple periods are well represented leaving significant traces in the landscape). See page XXII of the Preface to Part 2.1 of the Register for definitions. Llandudno as a historic resort has been assessed separately above (in respect of the Conservation Area, and Llandudno Pier selected for separate assessment), and the WHS component of Conwy Castle and Town Walls has also been separately assessed.
- 283 The surrounding sea adds significantly to the character of the HLW, defining the distinct headlands of Great and Little Orme, as well as the eastern side of Llandudno. The sea (or at least the bay and estuary of the Conwy) is again a significant factor in the wider setting for Conwy (town and Castle) and in terms of understanding the evolution of settlement in this area, and appreciating the utility of sea-borne transport in the past. However, the occupation on the Great Orme owes as much to its geology, in that it provides caves and higher ground suitable for use from the palaeolithic onwards. The presence of copper has also seen the Great Orme become a focus for exploitation and settlement over the millennia, and no doubt the sea has provided a means to transport the extracted materials. Similarly, the Value of King Edwards castle and planned settlement at Conwy relies on the sea as a means of supply that couldn't be easily interdicted by the defeated Welsh.

- 284 It is clear that the AyM WTGs will be a visible new addition to the seascape when viewed from within some points the HLW. This is less the case at low level and from within the lower Conwy Valley, as the WTGS will be effectively screened by the intervening higher ground on the east side of the River. Views in that direction from the highest point of Conwy Castle will include limited presence of the WTGs. In some views, offshore infrastructure is already a feature of the seascape (such as the presence of the Rhyl Flats turbines from Llandudno) so that the AyM WTGs, albeit of a different scale, will not be a totally new feature.
- 285 There are, however, some views to the east in which the AyM WTGs can be seen with the Great Orme (from points further west) and in which they are visible in where the Orme is a prominent landmark. This does not devalue the HLW itself as the setting for the various assets within it (these assets contributing to its character). As noted above, large scale renewable generation infrastructure is already a feature of the seascape to the east of the Great Orme. Views towards and across this HLW from the east (such as from the Little Orme) will not have the AyM WTGS within them, and certainly not in combination with the seafront at Llandudno or with the Great Orme (see Viewpoint 58, Figure 81 (Volume 6, Annex 10.5: SLVIA Visualisations- Figure 81 (ViewPoint 58) (application ref: 6.6.10.5.58)).

- 286 Viewpoint 12, Figure 39 (Volume 6, Annex 10.5 (application ref: 6.6.10.5) shows a view over the HLW (looking approximately North-east from Conwy Mountain. The AyM WTGs are a clear addition, visually interacting with the Great Orme, but the principal form and components of this HLW are still readily appreciable, with the geological banding on the Orme well seen, and the main arrangement of Llandudno on its narrow neck of land connecting to the mainland, clearly apparent. The maritime aspect of the HLW as the sea warps around both the Great and Little Ormes and the bays and estuaries define Llandudno and Conwy is clear (Volume 6, Annex 10.5: SLVIA Visualisations- Figure 39c in which Conwy Castle is clearly seen (application ref: 6.6.10.5.39c). The WTGs sit behind all of the terrestrial components of the HLW, within a wider maritime backdrop. Whilst there is visual interaction, with the Great Orme, the WTGs are not "foregrounded" and the clear position of the Orme as a prominent headland is maintained. From a heritage perspective, the HLW's importance is not diminished, notwithstanding the visibility of the WTGs.
- 287 The key issue with respect to this HLW is to what degree the visual presence of the WTGs offshore (and within the maritime "setting" of the northern side of this HLW) would have potential to reduce the significance of the HLW as a whole (given that this significance resides primarily in its role as a setting of the assets which give it its character). Clearly there is interaction between the Great Orme and the WTG in long views from the west and from the south, as well from view from the Great Orme itself. However, this is often in the context of existing offshore infrastructure, and in relation to a dynamic seascape with large vessels frequently passing the coast. The presence of the AyM WTGs does not affect the ability of the HLW designation to promote the consideration of the historic landscape that the HLW defines, and (with one exception) the assets within the HLW assessed separately above are not considered to receive any significant adverse effect upon their heritage significance. The basis for the registration of this landscape is not considered to be jeopardised and it retains its outstanding historic interest.

- 288 Viewpoints 64 and 65 (Volume 6, Annex 10.5 (application ref: 6.6.10.5)) looking east along the coast (from points within the North Arllechwydd HLW) will show that the AyM WTGs start to be seen with the Great Orme, and to overtop it in some views (such as Viewpoint 11, Figure 38 and Viewpoint 60, Figure 83 (Volume 6, Annex 10.5 (application ref: 6.6.10.5)). At these ranges, the individual assets that lend the HLW its historic character cannot be appreciated, and the effect of any broader visibility of the WTGs is one for the Seascapes Landscape Visual Assessment (Volume 2, Chapter 10, application ref: 6.2.10), and no longer a specifically "heritage" concern.
- 289 This HLW is considered to be of **high** importance reflecting its registration as being of Outstanding Historic Interest. However, given that the AyM WTGs are not considered to jeopardise the basis of the registration nor change the value of the HLW as a landscape of outstanding historic interest, the effect (notwithstanding the visibility of the turbines from points within and in views across the HLW) is considered to be of **negligible** magnitude. This is assessed as an effect of **negligible** significance upon the heritage significance of the HLW, which is not significant in EIA terms.

## Dyffryn Ogwen (HLW 28)

- 290 This HLW covers the Ogwen valley from the coast south into the Snowden range. It lies within the Arfon HLC area (with multiple sub-areas along the valley's length) and also within the recently inscribed North Wales Slate Mining World Heritage site (assessed in its own right above).
- 291 It consists of a classic glacial valley in its upper reaches becoming shallower and wider before blending into the coastal zone. It contains traces of human activity of various types from the neolithic sites, bronze age funerary and ritual sites, iron age hillforts, settlements and field systems, medieval farming and settlement through to the huge scale (and in place still active) slate mining operations around Penrhyn Quarry. The landscape has been extensively changed by the mining activities, and the modern settlement pattern reflects the various developments in provision of workers housing and services, reflecting changing economic and social circumstances, as well as reflecting (and contributing to) the distinct culture of this part of Wales.

- 292 Whilst there is a maritime association in that much of the quarried slate was transport out of Wales (and all over the word) by sea (including the purpose-built harbour at Port Penrhyn), the sea contributes little to the historic character of this HLC. There are long views north from elevated positions within the HLW (for example at Carnedd Llywelyn, see Viewpoint 10, Figure 37 (Volume 6, Annex 10.5 (application ref: 6.6.10.5))), but the AyM WTGS are incidental, albeit new and in the right conditions noticeable, additions to such views.
- 293 This historic character of the HLW, in terms of its archaeological remains and relict landscapes, as well as the prominent effects of the slate mining industry upon both the landscape and in shaping human settlement throughout the area does not rely on any contribution from the seaward aspect. The limited interaction with the coast at Port Penrhyn, and in relation to the designed landscape surrounding Penrhyn Castle (separately assessed above) does not define this HLW. The incidental visibility of the WTGs from the along the coast, or from elevated positions elsewhere in within the area does not affect the ability to appreciate the character of the HLW as derived from the topographic form and geological processes which shaped the upper valley, or from the traces (including those of a grand scale) of human activity and settlement throughout the rest of the valley.
- 294 The HLW is considered to have **high** importance by virtue of its Outstanding Historic Interest. The magnitude of impact is considered to be **negligible**, and the effect upon the heritage significance of the HLW is therefore assessed as **negligible**, notwithstanding incidental visibility of the AyM WTGS from points within the HLW. A negligible effect is not significant in EIA terms.

## North Arllechwedd (HLW30)

- 295 This HLW covers much of the area west of Conwy and east of Bangor, including an area of the Menai Strait (the Lavan Sands) and extend to cover higher ground on the northern flanks of the Carneddau range of northern Snowdonia. It is included on the register as it meets Criteria 2 and 3. It preserves extensive evidence for phases of land use and settlement from the prehistoric to the post-medieval periods. This includes neolithic tool production sites, ritual and funerary sites from the Bronze Age, Iron age hill forts and field systems as well as evidence for later periods. The Gwynedd HLC has the western part of this HLW within its Arfon HLC area, and the eastern within the western part of its Arllechwedd HLC area. The Lavan sands area of the Straits is not covered by any of the HLC sub-areas.
- 296 The lowland, coastal zone (Area 31 in the Arfon HLC) is defined by land division in the form of large regular fields and large farms, transected by modern transport links running east-west (both road and rail). The Villages of Llanfairfechan and Penmaenmawr lie further east and are not within the original HLW (but are captured in the Gwynedd HLC for Arllechwedd as areas 10 and 12).
- 297 Much of the higher ground to the south retains the imprint of previous eras of settlement and activity extending back to the Neolithic, and forms important relict archaeological landscapes.
- 298 Viewpoints 64 and 65 (Volume 6, Annex 10.5 (application ref: 6.6.10.5)) from points within the North Arllechwedd HLW show that the AyM WTGs will be visible clearly from the coastal margins, at distance out to sea adjacent to and beyond the Great Orme. Other more distant views out to sea from elevated positions higher and further to the south will also contain the AyM WTGs, but only as distant objects in much wide views. However, the coastal aspect of this HLW is not considered to rely on any maritime element to understand its significance, which primarily derives from the archaeological evidence of successive periods of settlement and activity, as noted above.

- 299 This HLW is considered to be of **high** importance reflecting its registration as being of Outstanding Historic Interest (albeit this is non-statutory). However, given that the AyM WTGs are not considered to jeopardise the basis of the registration nor change the value of the HLW as a landscape of outstanding historic interest, the effect (from the coastal margins and at distance from the higher ground further south within the HLW) is considered to be of **negligible** magnitude. This is assessed as an effect of **negligible** significance upon the heritage significance of the HLW, which is not significant in EIA terms.

### Penmon (HLW 33)

- 300 This HLW covers the south eastern tip of Anglesey, including Beaumaris (with the castle as a component part of the Castles of King Edward World Heritage Site, and assessed separately above) and the Penmon area, as well as Puffin Island. It is included in the register as it meets criteria 2 and 3, with multiple periods of human activity represented.
- 301 Proximity to the sea is a defining characteristic of significant parts of the HLW, in particular for the Penmon and Puffin Island subarea (Area 4 on the Gwynedd HLC), and for Beaumaris (Area 2), where its situation on the northern side of the Menai Strait is crucial for understanding the placement and arrangement of the Castle and town. Puffin Island lies a little out sea off the eastern tip of Anglesey, and contains a former monastic settlement (with an extant church tower, and a former telegraph station (these are assessed separately above). The island is not accessible to the public. The Trwyn Lighthouse lies between Puffin Island and the tip of Penmon point (also separately assessed above).

- 302 Whilst the AyM WTGs will be visible from the northern part of the HLW (see Viewpoint 6, Figure 33 (Volume 6, Annex 10.5 (application ref: 6.6.10.5)), seaward views in this location are not critical to understanding landform and historic settlement patterns within the area (Area 8). The windfarm forms a new and coherent element some 23km out to sea. The situation at the eastern tip of Penmon is somewhat different. The landform narrows to a peninsula surrounded by the sea on three sides, and this maritime connection is further reinforced by the pilot station on the point, the Trewyn Light out to sea and Puffin Island a little further to the east (see Viewpoint 7, Figure 34 (Volume 6, Annex 10.5 (application ref: 6.6.10.5))). Here, the WTGs (the nearest of which is approximately 19.4km from the viewpoint) are closer and visible to either side of the Island. The WTGs are sufficient distant that they clearly behind and separated from Puffin Island and do not challenge it (or the Lighthouse) for prominence in views from Penmon Point. The church tower and former telegraph station are not visible in this view, so that their contribution to the historic character so the Island is not appreciable here.
- 303 It is noted that there are already man-made items out to sea (including the lighthouse itself and a large marker buoy), including the more distant Gwynt Y Mor and Rhyl Flats WTGs.
- 304 Beaumaris (town and castle) lie on the southern side of Anglesey on the northern side of the Menai Strait, and this relationship is important for their understanding. WTGs may be visible in views along the coast and over intervening ground from the highest parts of the castle (inner curtain wall - see assessment provide above), but these are not considered to alter the character of the HLW as a whole, nor to reduce the contribution to that character made by the town and castle. The key aspect of their maritime setting is to the Straits immediately to their south, and this is not changed.
- 305 The historic character of this HLW is largely unaffected by the presence the AyM WTGs at considerable distance out to sea, even where such views can be obtained. The importance of Beaumaris Castle (and its Outstanding Universal Value) and the town is unchanged and their contribution to the HLW is undiminished.

- 306 The value and purpose of the HLW registration is not considered to be reduced by the presence of the WTGs out to sea, where visible. Even at the Penmon Point viewpoint, the WTGs do not affect the ability to appreciate the maritime context, which is amply demonstrated by the Lighthouse, and the historic interest in Puffin Island is not affected (or indeed appreciable here).
- 307 The HLW is considered to be of **high** importance reflecting its registration as being of Outstanding Historic Interest (albeit this is non-statutory). However, given that the AyM WTGS are not considered to jeopardise the basis of the registration nor change the value of the HLW as a landscape of outstanding historic interest, the effect (notwithstanding the visibility of the turbines in conjunction with Puffin Island at Penmon Point, and incidental visibility from Beaumaris) is considered to be of **negligible** magnitude. This is assessed as an effect of **negligible** significance upon the heritage significance of the HLW, which is not significant in EIA terms.

## 8.12 Environmental assessment: decommissioning phase

### 8.12.1 Onshore ECC and OnSS

#### Disturbance of archaeological assets during decommissioning

- 308 For the purposes of the MDS for the ES it is assumed that all infrastructure will be completely removed as part of the decommissioning. It is not anticipated that the below ground effects of the decommissioning phase will extend beyond the footprint of the area required during the construction phase. As such there are not expected to be any additional effects to below ground archaeological remains as a result of the removal of the export cables, ducts and landfall infrastructure. No adverse direct effects are anticipated during the decommissioning phase as any intrusive works will be restricted to areas which have already been disturbed during the construction phase. No mitigation is proposed or considered necessary.

## Direct Effects to Historic Hedgerows during decommissioning

309 It is anticipated that to facilitate the decommissioning of the export cables that sections of historic hedgerows will need to be removed. These sections are those which will have already been reinstated as mitigation for construction effects, with any required archaeological mitigation having already been carried out. No additional archaeological impact is anticipated, and hedgerows will again be reinstated. No adverse impact is therefore predicted, and no archaeological mitigation is proposed or considered necessary.

## Indirect Effects upon Heritage Significance during decommissioning of onshore infrastructure

- 310 Indirect impacts during the decommissioning phase could arise from activities such as construction traffic, flashing lights on moving vehicles, noise and dust created by activities associated with the removal of the export cable and demolition of the OnSS. These impacts are expected to be temporary and short term only, lasting only for the decommissioning programme, and are not considered to give rise to any significant indirect effect.
- 311 The decommissioning and demolition of the OnSS would restore the setting of onshore historic assets (assuming all other factors remain the same) as visually intrusive elements of the scheme would be removed. No mitigation is proposed or considered necessary.

### 8.12.2 Offshore Array

312 The decommissioning of the array and the removal of the WTGs would have the effect of reversing any impacts upon setting and heritage significance identified during operation (including the significant effect identified for Llandudno Pier, and assuming no other changes have taken place in the interim). No adverse effect on the settings and hence significance of any heritage assets is predicted to occur from decommissioning. No mitigation is proposed or considered necessary.

## 8.13 Environmental assessment: cumulative effects

313 A comprehensive list of projects that have the potential to contribute to cumulative impacts of the proposed OnSS, onshore ECC and Landfall has been compiled and this list and the approach to compiling this list is described in Volume 1, Annex 3.1 (application ref: 6.1.3.1).

### 8.13.1 Cumulative Direct Effects

314 The specific onshore projects scoped into this cumulative impact assessment, and the tiers into which they have been allocated are presented in Table 12 below.

Table 12: Onshore Projects considered within the onshore cultural heritage and archaeology cumulative effect assessment.

DEVELOPMENT TYPE	REFERENCE	STATUS	COUNCIL AREA/ DISTANCE	TIER
Energy- Construction of 5 MW Flexible gas fired power plant	40/2018/10-36	Consented	Denbighshire- 0.0 km from OnSS	Tier 1
Energy- Erection of 11 kV overhead line	0/44022	Consented	Conwy- 3.6 km from OnSS	Tier 1
Residential- 5 self contained residential units	0/44263	Consented	Conwy- 5.7 km from OnSS	Tier 1
Coastal Protection Works- East Rhyll Coastal Defence works, rock	45/2018/1036	Consented	Denbighshire- 0.1km from OL	Tier 1

DEVELOPMENT TYPE	REFERENCE	STATUS	COUNCIL AREA/ DISTANCE	TIER
revetment, replacement sea wall, amended access				
Coastal Protection Works- Coastal defence including ramps, embankments and outfall structures	45/2021/1248	Pending Decision	Denbighshire- 0km from OL	Tier 2
Commercial- Erection of No.7 industrial units with associated parking, landscaping access road and external storage area	40/2017/1232	Consented	Denbighshire 0.1km from OL	Tier 1
Commercial- Redevelopment of the Site for commercial vehicle sales unit and parking/landscaping	46/2021/0159	Pending Decision	Denbighshire 0.2km from OL	Tier 2
Leisure- additional caravan pitches and 39 timber camping pods	43/2017/1121	Consented	Denbighshire 0.2km from OL	Tier 1
Residential- Erection of 109 dwellings and associated works	45/2018/1215	Consented	Denbighshire 0.3km from OL	Tier 1

DEVELOPMENT TYPE	REFERENCE	STATUS	COUNCIL AREA/ DISTANCE	TIER
Energy- Elwy Solar Energy Farm	DNS/3247619	Pending Decision	Denbighshire 0.7km from OL	Tier 2

315 Table 13 presents the scenarios whereby AyM and the other projects listed in Table 12 could potentially result in cumulative direct effects.

Table 13: Cumulative MDS.

POTENTIAL EFFECT	SCENARIO	JUSTIFICATION
Direct effects on historic assets	Assess committed development that would impact discrete historic assets or groups of historic assets that would also be affected during the construction phase of AyM	Disturbance of historic assets or groups of historic assets by other development would present an increased magnitude of change
Indirect effects on setting and views to/ of designated historic assets, causing a reduction in the contribution of setting to the significance of historic assets	Assess committed development that would impact on the settings and views to/ from selected designated and non-designated historic assets during the construction, operational and decommissioning phases of AyM.	Construction and operation of other development alongside AyM may result in cumulative effects on the settings and views to/ from the historic assets and represent a worst-case.

316 No other proposed onshore development has been identified that has the potential to give rise to cumulative adverse direct effect on below ground archaeological remains that may exist within the Onshore ECC or OnSS. Similarly, no related groups of below ground archaeological assets or deposits of the same type are expected to be affected by the cumulative developments. Consequently, no cumulative adverse effects would arise to these below ground assets.

### 8.13.2 Cumulative Indirect Effects

- 317 Consideration has been given to the potential for cumulative effects of the AyM in combination with operational, consented and planned development of a similar type, where overlapping areas of influence may lead to combined or enhanced effects on the significance of specific heritage assets through development within their settings.
- 318 For purposes of this assessment, a review of potential cumulative development as identified in the 50 km study area for the Seascape, Landscape and Visual Impact assessment was undertaken (see Volume 2, Chapter 10, Seascape, Landscape and Visual Assessment (application ref: 6.2.10), paragraphs 103 and following of this ES). The only operational offshore wind farms (OWFs) identified were Rhyd Flats, Gwynt y Môr, Hoyle Bank and Burbo Bank and Burbo Bank Extension Offshore Wind Farm. These have been referred to in the assessment text presented in respect of assets/asset groups discussed earlier in this Chapter, where necessary, and are not otherwise separately considered.
- 319 Whilst the AyM WTGs will certainly form a new addition in views which include one of more of the OWFs listed above, this is not considered to be automatically harmful in cumulative terms. In no case are the AyM turbines considered to cause additional or cumulative harm to the specific heritage interest of value of any asset, in such a way that that the heritage significance of that asset is reduced, or the ability to appreciate and understand that interest diminished.

320 No Onshore Windfarm development was considered relevant to this assessment (see para 106 and following, Volume 2, Chapter 10: Seascapes, Landscape and Visual Impact Assessment (application ref: 6.2.10)) nor was any other non-windfarm development identified as likely to cause any significant cumulative effect (see para. 111 and following, Volume 2, Chapter 10 Seascapes, Landscape and Visual Impact Assessment of this ES (application ref 6.2.10)).

## 8.14 Inter-relationships

321 Inter-related effects on historic assets are not anticipated.

## 8.15 Transboundary effects

322 Transboundary effects to cultural heritage and archaeological assets are not anticipated.

## 8.16 Summary of effects

323 Table 14 provides a summary of all potential significant effects to onshore historic assets resulting from AyM together with mitigation measures that could be employed to reduce these effects.

324 Only one effect considered to be of Moderate significance (and therefore significant for purposes of the EIA regulations) was identified. This is respect of the Grade II\* Listed Llandudno Pier, where in some key views from along the Promenade, the proposed WTGs appear in an awkward juxtaposition and will detract from the ability to appreciate the architectural interest in the pier.

- 325 In a small number of other cases minor adverse effects have been identified as occurring to designated heritage assets during the construction phase arising from change within the setting of the assets which results in a reduction of the contribution that the setting makes to the significance of the asset. These are not considered significant in EIA terms and as these effects largely relate to construction activities these effects will be temporary and fully reversible once the construction phase is over. It has been assumed that the decommissioning phase will involve similar activities in reverse and therefore that the effects will be very similar, resulting in minor (and not Significant for purposes of the regulations) adverse effects during the decommissioning phase.
- 326 In all other cases, no significant adverse effect has been predicted to the heritage significance of historic assets (including those assessed in relation for potential effects from the AyM array), nor to the way in which that significance is appreciated and/or understood.

Table 14: Summary of effects

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
<b>CONSTRUCTION</b>				
Disturbance to assets identified on foreshore	High	Low to Medium	Preservation by record	<b>Minor Adverse</b>
Disturbance to ridge and furrow Identified on LiDAR (Direct Effect)	High	Low	Preservation by record	<b>Minor Adverse</b>
Extant ridge and furrow earthworks (Direct Effect)	High	Low	Preservation by record	<b>Minor Adverse</b>
Potential Roman Road and associated activity (Direct Effect)	High	Low to Medium	Preservation by record	<b>Minor Adverse</b>
Potential Geoarchaeological	High	Medium	Preservation by record	<b>Minor Adverse</b>

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Deposits (Direct Effect)				
Geophysical Anomalies of potential archaeological origin (Direct Effect)	High	Low to Medium	Preservation by record	<b>Minor Adverse</b>
Unknown archaeological remains (Direct Effect)	High	Unknown	Preservation by record	Unknown
Historic Hedgerows (Direct Effect)	Medium	Low	Minimise hedgerow removal as far as possible and reinstate hedgerow following completion of construction phase	<b>Negligible Adverse</b>
Bryn Cwnin Farmhouse and L-	Negligible	High	None proposed	<b>Negligible Adverse</b>

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Plan Range of Farm buildings (Indirect effect)				
Tyddyn Isaf (Indirect effect)	Negligible	High	None proposed	<b>Negligible Adverse</b>
Barn to NW Faenol-Bropor Farmhouse (Indirect effect)	Low Adverse	High	None proposed	<b>Minor Adverse</b>
Bodelwyddan Castle (Indirect effect)	Low Adverse	High	None proposed	<b>Minor Adverse</b>
Bryn Celyn Lodge (Indirect effect)	No effect predicted	High	None proposed	<b>Negligible Adverse</b>
Rhuddlan Chain Home Radar Station (Geophysical anomaly) (Direct Effect)	Medium	Medium	Preservation by record	<b>Minor Adverse</b>
<b>OPERATION</b>				

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Archaeological Assets (Direct Effect)	No impact	Low to Medium	None proposed	No effect predicted
Historic Hedgerows (Direct effect)	No impact	Medium	None proposed	No effect predicted
Barn to NW of Faenol-Bropor (Indirect effect)	Minor Adverse	High	None proposed	Minor Adverse
Bodelwyddan Castle (Indirect effect)	Minor Adverse	High	None proposed	Minor Adverse
Bryn Celyn Lodge (Indirect effect)	No impact predicted	High	None proposed	No effect predicted
Beaumaris Castle (indirect effect)	Negligible	High	None proposed	Negligible
Conwy Castle and Town Walls (indirect effect)	Negligible	High	None proposed	Negligible

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Penrhyn Castle (indirect effect)	Negligible	High	None proposed	Negligible
Slate Landscapes of NW Wales (component part 1) (indirect effect)	Negligible	Very High	None proposed	Negligible
Gwrych Castle (indirect effect)	Negligible	High	None proposed	Negligible
Trwyn Du (Penmon) lighthouse (indirect effect)	Negligible	High	None proposed	Negligible
Puffin Island Tower and remains of church and monastic settlement (indirect effect)	Negligible	High	None proposed	Negligible

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Puffin Island Telegraph Station (indirect effect)	Negligible	High	None proposed	Negligible
Pen y Dinas Hillfort (indirect effect)	Negligible	High	None proposed	Negligible
Bangor Pier (Indirect effect)	Negligible	High	None proposed	Negligible
Menai Bridge (indirect effect)	Negligible	High	None proposed	Negligible
Llandudno Conservation Area (indirect Effect)	Minor Adverse	Medium	None proposed	<b>Minor Adverse</b>
Llandudno Pier (indirect effect)	Moderate Adverse	High	None Proposed	<b>Moderate adverse</b>
HLWs 23, 28, 30 and 33	Negligible	High	None proposed	Negligible
DECOMMISSIONING				

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Archaeological Assets (Direct effect)	No effect predicted	Low to Medium	None proposed	No effect predicted
Historic Hedgerows (Direct effect)	<b>No effect predicted</b>	Low	Hedgerows (which are those reinstated after construction) will again be reinstated. Any associated archaeological impact will have already been mitigated in relation to the construction effects, and no additional impact is anticipated. No mitigation is proposed or considered necessary	No effect predicted

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Heritage Assets (indirect effect on Setting from removal of onshore and offshore infrastructure)	No effect predicted (setting effectively restored)	Low to High	None proposed or considered necessary	No effect predicted
<b>CUMULATIVE EFFECTS</b>				

No cumulative effects reported

---

## 8.17 References

Ancient Monuments and Archaeological Areas Act (1979) Available at: [Ancient Monuments and Archaeological Areas Act 1979 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/1979/28/contents.html) [Accessed 06/2021]

Archaeoleg 2003. A Research Framework for the Archaeology of Wales. Available at: [Research Framework for the Archaeology of Wales - Fframwaith Ymchwili Archaeoleg Cymru](https://www.culturewales.gov.wales/sites/default/files/2019-03/Research_Framework_for_the_Archaeology_of_Wales_Fframwaith_Ymchwili_Archaoleg_Cymru.pdf) [Accessed: 06/2021]

Chartered Institute for Archaeologists, 2020. *Standards and guidance for historic environment desk-based assessment*. Available at: [ClfAS&GDBA\\_4.pdf](https://www.archaeologists.net/standards-and-guidance-for-historic-environment-desk-based-assessment) (archaeologists.net) [Accessed 06/2021]

Chartered Institute for Archaeologists, 2020. *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment*. Available at: [ClfAS&GCommissioning\\_2.pdf](https://www.archaeologists.net/standard-and-guidance-for-commissioning-work-or-providing-consultancy-advice-on-archaeology-and-the-historic-environment) (archaeologists.net) [Accessed 06/2021]

Cadw 2017. *Heritage Impact Assessment in Wales*. Available at: [Managing Change in World heritage Sites in Wales \(gov.wales\)](https://gov.wales/Managing_Change_in_World_heritage_Sites_in_Wales_en.pdf) [Accessed 06/2021]

Cadw 2017. *Setting of Historic Assets in Wales (2017)*. Available at: [Setting of Historic Assets in Wales EN.pdf \(gov.wales\)](https://gov.wales/Setting_of_Historic_Assets_in_Wales_EN.pdf) [Accessed 06/2021]

Cadw 2017. *Managing Change in World Heritage Sites in Wales*. Available at: [20170531Managing\\_Change\\_in\\_World\\_Heritage\\_Sites\\_in\\_Wales\\_31146\\_EN\\_0.pdf \(gov.wales\)](https://gov.wales/20170531Managing_Change_in_World_Heritage_Sites_in_Wales_31146_EN_0.pdf) [Accessed 06/2021]

Cadw 2017. *Managing Historic Character in Wales*. Available at: [Managing Historic Character in Wales EN.pdf \(gov.wales\)](https://gov.wales/Managing_Historic_Character_in_Wales_EN.pdf) [Accessed 06/2021]

Cadw 2017. *Managing the Marine Historic Environment of Wales*. Available at: [Managing the Marine Historic Environment of Wales \(gov.wales\)](https://gov.wales/Managing_the_Marine_Historic_Environment_of_Wales_EN.pdf) [Accessed 06/2021]

Cadw 2018. *Managing Scheduled Monuments in Wales*. Available at: [Managing Change in World heritage Sites in Wales \(gov.wales\)](https://gov.wales/Managing_Change_in_World_heritage_Sites_in_Wales_en.pdf) [Accessed 06/2021]

CPAT, 1996. Proposed Cefn Meiriadog Watermains Refurbishment, Archaeological Assessment. CPAT Report No. 180.

CPAT, 2008. Defended Enclosures in North-east Wales 2007-2008. CPAT Report No.921.

CPAT, 2014. Twentieth Century Military Project, Bodelwyddan Castle Park Trenches & Kinmel Park Camp Scoping Study. CPAT Report No. 1255.

CPAT, 2019. East Rhyl Coastal Defence Scheme, Archaeological Watching Brief. CPAT Report No. 1582.

Department of Energy and Climate Change, 2011. Overarching National Policy Statement for Energy (EN-1).

Department of Energy and Climate Change, 2011. National Policy Statement for Renewable Energy Infrastructure (EN-3).

Department of Energy and Climate Change, 2011. National Policy Statement for Electricity Networks Infrastructure (EN-5).

Department for Business, Energy & Industrial Strategy, 2021. Draft Overarching National Policy Statement for Energy (EN-1). Draft- Unadopted.

Department for Business, Energy & Industrial Strategy, 2021. Draft National Policy Statement for Renewable Energy Infrastructure (EN-3). Draft- Unadopted.

Department for Business, Energy & Industrial Strategy, 2021. Draft National Policy Statement for Electricity Networks Infrastructure (EN-5). Draft- Unadopted.

The Hedgerows Regulations 1997. Available at: The Hedgerows Regulations 1997 (legislation.gov.uk) [Accessed 06/2021]

Historic Environment (Wales) Act 2016. Available at: Historic Environment (Wales) Act 2016 (legislation.gov.uk) [Accessed 06/2021]

Oxford Archaeology, 2016. Burbo Bank Extension Offshore Wind Farm, Denbighshire, Archaeological Assessment Report.

Planning (Listed Buildings and Conservation Areas) Act (1990). Available at: Planning (Listed Buildings and Conservation Areas) Act 1990 (legislation.gov.uk) [Accessed 06/2021]



Welsh Government 2017, Planning Policy Wales, Technical Advice Note 24: The Historic Environment. Available at: Planning Policy Wales Note 24 May 2017 (gov.wales) [Accessed 06/2021]

Welsh Government 2018, Planning Policy Wales (Edition 11, February 2021) Available at: Planning Policy Wales - Edition 11 (gov.wales) [Accessed 06/2021]

National Historic Assets in Wales, Online Resource. Available at: Search Cadw records | Cadw (gov.wales)



RWE Renewables UK  
Swindon Limited

Windmill Hill Business Park  
Whitehill Way  
Swindon  
Wiltshire SN5 6PB  
T +44 (0)8456 720 090  
[www.rwe.com](http://www.rwe.com)

Registered office:  
RWE Renewables UK  
Swindon Limited Windmill  
Hill Business Park Whitehill  
Way  
Swindon