

# ENVIRONMENTAL STATEMENT (VOLUME II)

## **Padeswood Carbon Dioxide Spur Pipeline Proposed Development**

Town and Country Planning Act 1990

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## 8. CULTURAL HERITAGE

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### 8.1. INTRODUCTION

- 8.1.1. This chapter assesses the effects of the Padeswood Carbon Dioxide Spur Pipeline Proposed Development on Cultural Heritage. Cultural heritage in this context includes archaeological remains, palaeoenvironmental deposits, historic buildings, structures, monuments and landscapes of heritage interest and any other elements that may contribute to the heritage of the area. It considers effects that may arise as a result of the Padeswood Spur Pipeline Proposed Development on historic assets including built heritage and buried archaeological remains.
- 8.1.2. The Chapter describes the assessment methodology, the baseline conditions within the Padeswood Spur Pipeline Proposed Development and in the surrounding area and provides a summary of the likely significant environmental effects arising from the construction, operation and decommissioning of the Padeswood Spur Pipeline Proposed Development. It outlines mitigation measures required to prevent, reduce or off-set any significant negative environmental effects, and reports on the likely residual effects after these measures have been employed.
- 8.1.3. This Chapter is supported by the following Technical Appendices:
- Cultural Heritage Baseline Report (**Appendix 8.1, Document Reference: PW.3.3.8.1**),
  - Cultural Heritage Impact Assessment (**Appendix 8.2, Document Reference: PW.3.3.8.2**)
  - Geophysical Survey Report (**Appendix 8.3, Document Reference: PW.3.3.8.3**).
- 8.1.4. This Chapter is also supported by the following Technical Figures:
- Figures 8.1 – Designated Historic Assets (**Document Reference: PW.3.4.8.1**)
  - Figure 8.2 – Non-designated Historic Assets (**Document Reference: PW.3.4.8.2**)

- 8.1.5. This Chapter reports the assessment of the likely significant effects of the Padeswood Spur Pipeline Proposed Development on Cultural Heritage and describes:
- Relevant, legislation, policy and guidance;
  - Consultation undertaken;
  - Assessment methodology;
  - Baseline conditions
  - Potential effects of the Construction, Operational and Decommissioning Stages of the Padeswood Spur Pipeline Proposed Development;
  - Potential design, mitigation and enhancement measures;
  - Residual effects; and
  - Next steps.
- 8.1.6. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with reference to **Chapter 18 – Combined and Cumulative Effects (Document Reference: PW.3.2.18)**.

## **8.2. LEGISLATIVE AND POLICY FRAMEWORK**

- 8.2.1. A summary of the international, national, and local legislation, planning policy and guidance relevant to the Cultural Heritage assessment for the Padeswood Spur Pipeline Proposed Development is set out below. For further details of the documents relating to legislation see the **Cultural Heritage Baseline Report (Appendix 8.1, Document Reference: PW.3.3.8.1)**.

### LEGISLATIVE FRAMEWORK

#### National

- 8.2.2. The following legislation is relevant for the Padeswood Spur Pipeline Proposed Development:
- Ancient Monuments and Archaeological Areas Act 1979 (UK GOV);
  - The Planning (Listed Buildings and Conservation Areas) Act 1990 (Welsh Government , 1990); and
  - The Hedgerow Regulations 1997 (UK GOV, 1997).

## POLICY

8.2.3. The following legislation is relevant for the Padeswood Spur Pipeline Proposed Development:

### National

- National planning policy for Wales is set out in Planning Policy Wales (Welsh Government , 2024)

### Local

- The Flintshire Local Development Plan (LDP) 2015 – 2030 (Adopted 2023)
- EN8 Built Historic Environment and Listed Buildings
- EN9 Development in or Adjacent to Conservation Areas
- EN10 Buildings of Local Interest

## GUIDANCE

8.2.4. Guidance documents which are relevant to the baseline data collection, and which are relevant to the assessment of the effects on historic assets are:

- *Conservation Principles for the Sustainable Management of the Historic Environment in Wales 2011* (Cadw, 2011)
- *Setting of Historic Assets in Wales 2017*
- *Heritage Impact Assessment in Wales 2017 Managing Change to Registered Historic Parks and Gardens in Wales* (Cadw, 2017)
- *Managing Change to Registered Historic Parks and Gardens in Wales* (Cadw, 2017)
- *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process 2007*
- Technical Advice Note 24 (Welsh Government , 2017)
- Chartered Institute for Archaeologists *Standard and guidance for historic environment desk-based assessment* (ClfA, 2020)

## 8.3. SCOPING OPINION AND CONSULTATION

### RESPONSE TO THE SCOPING OPINION

8.3.1. An EIA Scoping Opinion (**see Appendix 1.2, Document Reference: PW.3.3.1.2**) was received by the Applicant from the Local Planning Authority (LPA) on 8 May 2024, including formal responses from Statutory Consultees. The responses from the LPA in relation to Cultural Heritage and how these requirements will be addressed by the

Applicant are set out in **Appendix 1-3 Scoping Opinion Responses (Document Reference: PW.3.3.1.3)**.

CONSULTATION UNDERTAKEN TO DATE

- 8.3.2. **Table 8-1** provides a summary of the consultation undertaken to inform the Cultural Heritage assessment to date.

**Table 8.1 - Summary of Consultation Undertaken**

Organisation	Meeting dates and form of consultation	Summary of outcome of discussions
Cadw	15/04/2024- EIA Scoping response	The scope for Cultural Heritage was broadly accepted, although the impact on the setting of two designated historic assets (FL088 and FL089) should be assessed.
Flintshire County Council	17/04/2024- EIA Scoping response	The approach set out within the Scoping Report (see <b>Appendix 1-1, Document Reference: PW.3.3.1.1</b> ) for Cultural Heritage is broadly accepted. However, FCC did not believe that impacts upon designated historic assets within the study areas should be scoped out at this stage. The advisor agrees the scope of the EIA.
Heneb – Clwyd-Powys Archaeology	17/04/2024- EIA Scoping response	They recommended that a desk-based assessment and geophysical survey of the development area maps any features that may be impacted by the Padeswood Spur Pipeline Proposed Development. Which will then be followed up, as necessary, by further pre-determination ground investigations (e.g., geophysical survey, targeted trial trenching or detailed earthwork survey) if the evaluation identifies sites that may be impacted. All contractors used should be ClfA registered.
Heneb – Clwyd-Powys Archaeology	03/09/2024- Online meeting with Heneb staff to discuss initial results of geophysical survey and further archaeological evaluation	Heneb was presented with the preliminary results of the geophysical surveys and made suggestions for further evaluation in the form of trial trenching within the boundary of the Padeswood Spur Pipeline Proposed Development. Staff from Heneb agreed that any trenching strategy should be targeted on known features, along with targeted blank areas focussed on areas of high archaeological potential. It was confirmed that any areas of trenched crossing in the projected location of Wat’s Dyke will be targeted by trial trenching. It was also confirmed that any areas which were not subject to geophysical survey or trial trenching due to access restrictions, may require archaeological monitoring during construction.

**8.4. SCOPE OF THE ASSESSMENT**

- 8.4.1. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5: EIA Methodology (Document Reference: PW.3.2.5)** of this ES.
- 8.4.2. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

- 8.4.3. The elements shown in **Table 8-2** are not considered to give rise to likely significant effects as a result of the Padeswood Spur Pipeline Proposed Development and have therefore not been considered within this assessment.

**Table 8.2 - Elements Scoped Out of the Assessment**

Element Scoped Out	Justification
Impacts on designated historic assets during construction and operation, including World Heritage Sites, and conservation areas.	None of these designated historic asset types are present within the Site. No significant impacts are anticipated on conservation areas due to the distance from the Red Line Boundary.
Impacts on previously recorded non-designated, historic assets within the Red Line Boundary during Operation Stage.	Ground disturbance would have occurred during the Operation Stage, the Padeswood Spur Pipeline Proposed Development is not anticipated to result in additional ground disturbance and therefore direct effects would not arise during these Stages.
Physical impacts on designated historic assets during the Construction Stage	There are no designated assets within the Red Line Boundary which will be impacted by the construction of the Padeswood Spur Pipeline Proposed Development

Element Scoped Out	Justification
Operation Stage effects for the pipeline	The proposals will result in no permanent change to the setting of any historic assets as the construction is below ground.
Decommissioning Stage effects	Decommissioning activities would not be expected to result in any notable additional ground disturbance, although this will depend on the location of any on-site temporary compounds. As a result of this decommissioning period effects are not assessed.

#### ELEMENTS SCOPED INTO THE ASSESSMENT

##### Construction Stage

8.4.4. The following elements have been scoped into the assessment:

- physical impacts to buried historic assets in areas where ground disturbance is proposed; and
- temporary impacts on setting of designated historic assets during the Construction Stage.

##### Operation Stage

8.4.5. Impacts caused by changes in the setting of designated historic assets in the Operation Stage of the Above Ground Installation (AGI)s are scoped into the assessment.

##### Decommissioning Stage

8.4.6. No decommissioning effects are scoped in.

## **8.5. ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA**

### STUDY AREA

8.5.1. As detailed in the Scoping Report (**Appendix 1-1, Document Reference: PW.3.3.1.1**) a 500m buffer around the Red Line Boundary has been assessed.

8.5.2. A 1km buffer around the Padeswood Red Line Boundary has been assessed to identify any historic assets that could be impacted by the Padeswood Spur Pipeline Proposed Development through a change to

setting, although this will be limited to areas of permanent above ground infrastructure.

- 8.5.3. The Study Areas were determined using professional judgement and through consultation and agreement with Cadw and Heneb – Clwyd-Powys Archaeology via the scoping process.
- 8.5.4. Figure 8.1 – Designated Historic Assets and Figure 8.2 – Non-Designated Historic Assets (Document Reference: PW.3.4.8.1 and PW.3.4.8.2) show the location of designated and non-designated historic assets within the Red Line Boundary and associated Study Areas. These have been identified from the sources below, during the site visit, or through the course of research for this assessment.

## METHOD OF BASELINE DATA COLLECTION

### Desk Study

#### Heritage Environment Desk Based Assessment (HEDBA)

- 8.5.5. **Appendix 8-1 – Cultural Heritage Baseline Report (Document Reference:PW.3.3.8.1)** comprises a desk-based study and review of available information to determine the baseline conditions within the Red Line Boundary and surrounding Study Areas. This assessment consists of an analysis of existing written, graphic, photographic and electronic information, and a site walkover, to identify the likely historic assets and determine their significance. The following data sources were reviewed;

- Cadw designated historic assets records;
- CPAT Historic Environment Record (HER);
- Local authority data sources;
- Cartographic sources and other documentary research from North-East Wales Archives, Hawarden;
- North-East Wales archives LiDAR from Lle Geo-Portal;
- Aerial photography from Royal Commission on the Ancient and Historical Monuments of Wales (Coflein); and
- British Geological Survey data and available geotechnical and topographical survey data.

### Site Visits and Surveys

- 8.5.6. A walkover survey was undertaken by WSP staff between 21 May 2024 and 24 May 2024. The objective of the walkover survey was to observe previously recorded historic assets where visible, to identify any

previously unrecorded historic assets within the Padeswood Spur Pipeline Proposed Development boundary, and to observe long range views from the Padeswood Spur Pipeline Proposed Development towards designated historic assets where possible.

- 8.5.7. No previously unrecorded archaeological or built historic assets were observed during the walkover survey.
- 8.5.8. A geophysical survey (as reported in **Appendix 8-3, (Document Reference:PW.3.3.8.3)**) was undertaken across areas of the proposed Red Line Boundary where previous land use made geophysical survey a viable prospection technique and where access was allowed. The purpose of the geophysical survey was:
- to determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices; and
  - to inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

#### IMPACT ASSESSMENT METHODOLOGY

- 8.5.9. The assessment of potential effects of the Padeswood Spur Pipeline Proposed Development on Cultural Heritage will be undertaken using the methodology set out below.

#### SIGNIFICANCE CRITERIA

- 8.5.10. The Conservation Principles, as detailed in Planning Policy Wales (Government, 2021) and Technical Advice Note (Welsh Government , 2017) defines the heritage value of historic assets according to evidential, historical, aesthetic, and communal values. The determination of the heritage value is based on statutory designation, professional judgement against these values, and as the result of consultation.
- 8.5.11. Each historic asset is evaluated against the range of values listed below on a case-by-case basis, in accordance with the criteria listed in **Table 8-3**. This also considers regional variations and individual qualities, where applicable.
- 8.5.12. Unless the nature and exact extent of archaeological remains within any given area has been determined through prior investigation, their heritage value can be uncertain, and a judgement will be made based on existing knowledge.

8.5.13. The assessment considers the contribution which setting makes to the significance of relevant historic assets.

**Table 8.3 - Heritage Value of historic assets**

Asset value	Description
High	World Heritage Sites Scheduled Monuments Grade I Listed Buildings Grade II* Listed Buildings Grade II Listed Buildings with exceptional qualities in fabric, historical association, and/or association/group value with historic assets of high significance Registered Battlefield Conservation Areas containing very important (Grade I/II*) listed buildings Grade I and II* Registered Parks and Gardens Protected Heritage Landscapes Burial grounds Non-designated historic assets (above ground structures, landscape, townscape, buried remains) of national importance.
Medium	Grade II Listed Buildings which can be shown to have qualities in their fabric or historical association of regional importance only Conservation Areas containing primarily Grade II listed or Locally Listed Buildings Grade II Registered Parks and Gardens Locally Listed Buildings Non-designated historic assets (above ground structures, landscape, townscape, buried remains) of regional importance.
Low	Non-designated historic assets (above ground structures, landscape, townscape, buried remains) of local importance.
Negligible	Item with no significant heritage value or interest

Asset value	Description
Uncertain	Historic assets that have a clear potential, but for which current knowledge is insufficient to allow significance to be determined.

8.5.14. Determination of magnitude of change upon known or potential historic assets is based on the severity of the likely impact (e.g. physical effects on built historic assets or the permanent presence of new structures that result in changes to the contribution of setting to the heritage value of a built historic asset). **Table 8-4** describes the criteria used in this assessment to determine the magnitude of change.

**Table 8.4 - Magnitude of Change**

Magnitude of Change	Description of Change
High	Change to most or all key archaeological materials or key historic building elements, such that the resource is totally altered. Comprehensive changes to setting.
Medium	Changes to many key archaeological materials or key historic building elements, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset.
Low	Changes to key archaeological materials or key historic building elements, such that the asset is slightly altered. Slight changes to setting.
Negligible	Very minor changes to archaeological materials or historic building elements or setting.

8.5.15. The assessment of likely significant effects considers all stages of the Padeswood Spur Pipeline Proposed Development. The significance of effect will be assessed based on the heritage value of the affected historic asset and the magnitude of change (impact) due to the Padeswood Spur Pipeline Proposed Development.

The significance of effect criteria is outlined in **Table 8-5** below.

**Table 8.5 - Magnitude of Change**

		Sensitivity of Receptor / Receiving Environment to Change			
		High	Medium	Low	Negligible
Magnitude of Change	High	Major	Major / Moderate	Moderate / Minor	Minor / Negligible
	Medium	Major / Moderate	Moderate	Minor	Minor / Negligible
	Low	Moderate / Minor	Minor to Moderate	Minor	Negligible
	Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

ASSUMPTIONS AND LIMITATIONS

- 8.5.16. It has been assumed that all areas within the Site will be subject to ground-breaking works during construction, and that any known historic assets or previously unrecorded sub-surface archaeological remains will be physically impacted by these works and wholly removed.
- 8.5.17. No difficulties or uncertainties were encountered in the preparation of this assessment.

**8.6. BASELINE CONDITIONS**

EXISTING BASELINE

- 8.6.1. The Baseline Historic Environment thematic overview (including topography and geology) is contained within **Appendix 8-1: Cultural Heritage Baseline Report (Document Reference: PW.3.3.8.1)** along with the **Historic Environment Gazetteer** in **Annex C** of Appendix 8.1 (which lists the detailed descriptions of all known Historic Environment features).
- 8.6.2. The following is a high-level overview of the historic environmental baseline and the surrounding Study Area. Asset numbers referenced in this section refer to the gazetteer in **Annex C** of **Appendix 8.1: Cultural Heritage Baseline Report (Document Reference: PW.3.3.8.1)**

## Archaeological and historical background

### **Prehistoric (800,000 BC–AD 43)**

- 8.6.3. There are no historic assets dating to the prehistoric period within the Red Line Boundary.
- 8.6.4. The earliest evidence of prehistoric activity within the study area dates to the Bronze Age. Due to the lack of earlier evidence, it is unlikely that the area was used for more than intermittent activity, perhaps for hunting and gathering. The site of two standing stones (A131) was located in the study area but these are described as having been ‘blown up’ in 1936, and no further information is available. These could be earlier prehistoric in date, but this remains uncertain.
- 8.6.5. Also dating to the Bronze Age are six round barrows (A47, A77, A98, A130, A132 & A173), suggesting that the Padeswood Spur Pipeline Proposed Development is located within a landscape used for ritual activity and funerary rites. A scatter of Bronze Age flints (A175) found close to Watt’s Dyke are the only indication of other activity in the study area.
- 8.6.6. There have also been nine mounds identified through analysis of LiDAR data within the study area, which have the potential to be Bronze Age barrows.
- 8.6.7. Dating to the Iron Age there are two sites recorded within the study area of the Padeswood Spur Pipeline Proposed Development. The most important of these is the cropmark of an enclosure (A102) which may have been a defended location, while the other is a cropmark of a probable field boundary (A103), which also may be associated with the enclosure.

### **Roman (AD 43–410)**

- 8.6.8. There is only one Roman historic asset across the Padeswood Spur Pipeline Proposed Development, meaning that evidence for this period in the area is limited. This site is a ford (A31) across the River Alyn. The site indicates that the area was being used in the Roman period but based on the location of known settlements and the lack of recorded evidence, it appears that this area was used primarily as a transit route from the fort at Chester into North Wales.

### **Early Medieval (AD410 – 1066)**

- 8.6.9. There is one Early Medieval historic asset located within the Red Line Boundary, the site of a 'llys' (a native royal court) of the princes of Gwynedd near Bistre (A41).
- 8.6.10. Other assets of early medieval date consist of two sections of Wat's Dyke (A26 & A119), although one section is incorrectly identified as a section of Offa's Dyke on the HER (A119). Other sections of Wat's Dyke have been identified through LiDAR data (L17 & L18), and sections are also scheduled (FL088 and FL089, part of A26). Wat's Dyke is an 8th century linear earthen bank and ditch structure. The area around the dyke holds a high potential for associated previously unrecorded archaeological remains.

### **Medieval (AD1066 – 1540)**

- 8.6.11. There are no recorded Medieval historic assets located with the Red Line Boundary of the Padeswood Spur Pipeline Proposed Development. However, there are 11 historic assets with evidence dating to the medieval period in the study area. These include two scheduled monuments, Spon Chapel (A25) and Tyddyn Castle Mound (A27), and two listed buildings that likely incorporate evidence of medieval date (A8 & A22). There is also place-name evidence for a medieval motte, 'Erw Mount' (A72), which means 'acre of the mount' (Clwyd-Powys Archaeological Trust, 2024), a ditch feature, and a possible field boundary or lane/footpath aligned towards Spon Chapel identified through LiDAR data (L53).
- 8.6.12. Activity within the study area in the medieval period is most likely to be form agricultural activity, with evidence of ridge and furrow (A61, A137 & A177), the record of a stone row quillet (A161), and the find spot of a medieval weight (A107).

### **Post-medieval (AD1540 – 1901)**

- 8.6.13. There are 306 post-medieval historic assets across the study area. The area through which the Padeswood Spur Pipeline Proposed Development passes had a large post-medieval community which were reliant on farming and the extractive industries. There are several assets related to extraction of coal and lead across the study area, including extraction pits and remains of larger collieries. The railways in the study area were in locations that allowed for the transportation of coal and lead.
- 8.6.14. There is one scheduled monument, Taylors Pottery (A28), one Grade I listed building, the Parish Church of St Mary (A6), two Grade II\* buildings,

Northop Hall Farm (A8) and Bethesda Welsh Presbyterian Chapel and Schoolroom (A19), and 20 Grade II listed buildings, including farms, churches and halls. There are also two Registered Historic Parks and Gardens, the Grade II\* Soughton Hall (A30) and the Grade II Pentrehobyn (A29), and Mold Conservation Area (A11).

- 8.6.15. Many of the historic assets and sites recorded from analysis of Ordnance Survey (OS) mapping and LiDAR data are related to the agricultural use of the area and include farms (e.g. A32, A43, A55, A58, A78, A82, A106 & A168, along with many others), a field barn (A92), ridge and furrow (A96, A117, A137, L04, L05, L08, L16, L28, L34 & L35) and a field bank (A32). There are also numerous ponds and wells recorded on OS mapping, which will have supported the agricultural activity.

#### Modern (1901 – present)

- 8.6.16. There are 35 modern historic assets across the study area of the whole site. Of these, 29 have been identified by historic map analysis, of which most are ponds or marl pits. Beyond historical map identified assets, the modern historic assets across the study areas are largely related to the World Wars, either memorials (e.g. A76 & A115) or the defence of the area (e.g. A174). The site of an air crash in 1942 (A84) is located 415 m south of the Padeswood Spur Pipeline Proposed Development which is a protected military remains site.

#### Geophysical Survey

- 8.6.17. A geophysical survey was undertaken across accessible and suitable sections of Padeswood Spur Pipeline Proposed Development (**Appendix 8-3, Document Reference: PW.3.3.8.3**). At the south-eastern end of the survey area, archaeological features were identified as the probable continuation of Wat's Dyke on an east-west trajectory through the survey area. Elsewhere, weak linear trends were highlighted in the probable location of another segment of this linear earthwork, between Bryn-y-bâl and New Brighton.
- 8.6.18. A group of possible archaeological features were identified just north of the site of the former Argoed Hall colliery, overlooking the River Alyn to the south, adjacent to but just outside the Red Line Boundary. A second group of possible features were also identified south of Mount Pleasant Farm, in the northern part of the survey area, outside of the Red Line Boundary. Both of these groups consist of discontinuous linear and curvilinear anomalies that suggest enclosures or boundaries, with possible associated discrete anomalies interpreted as pits. Given the discontinuous nature of the anomalies and their isolation from further

anomalies of interest, it was not possible to suggest dates or functions for these groups of features though.

- 8.6.19. The southern half of the survey area was more affected by magnetic disturbance from the geology, and the central area by disturbance from services. Whilst it is possible there are weaker or more ephemeral anomalies associated with archaeological remains that have not been recognised in these areas; generally speaking, mapped former boundaries and other features depicted within the survey areas were identified within the results. This suggests that if substantial archaeological remains with magnetic contrasts are present within the area, then they will have been detected and recognised in the results. Several anomalies related to either mapped or inferred mining infrastructure were also identified within the results. These align with the baseline archaeological understanding of the survey area. This indicated a largely rural environment with field boundaries remaining generally unchanged and the overall pattern of landscape organisation matching that depicted on the First Edition OS maps of the area, dating to the late 19th century. Mine working, scattered across the landscape, has come and gone, with the mining areas largely restored to pasture, or overtaken by later industry, as in the case of the cement works at Padeswood Colliery.

#### FUTURE BASELINE

- 8.6.20. The future baseline scenario has considered the Padeswood Cement Works Carbon Capture and Storage (CCS) Project as developed prior to the Padeswood Spur Pipeline Proposed Development commencing.
- 8.6.21. A review of information from **Chapter 7 (Climate Resilience (Document Reference:PW.3.2.7))** has also been undertaken to confirm a Future Baseline and assess any impacts within the context of climate change.
- 8.6.22. For buried historic assets the future baseline is expected to be the same as the present. Such remains are a static resource, which have reached equilibrium with their environment and do not change (i.e. decay or grow) unless their environment changes as a result of human or natural intervention.

## **8.7. DESIGN DEVELOPMENT, IMPACT AVOIDANCE AND EMBEDDED MITIGATION**

- 8.7.1. The majority of the Padeswood Spur Pipeline Proposed Development will be buried below ground. The pipeline will typically be installed by open-cut trenching. A number of trenchless crossings will be used

which will reduce the potential impact on buried archaeology, most notably in the area where remains of Wat's Dyke are expected to extend within the Red Line Boundary (trenchless crossing TRX-04).

## **8.8. PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS**

8.8.1. This section details the preliminary assessment of predicted impacts and effects for the Padeswood Spur Pipeline Proposed Development during the Construction, Operational and Decommissioning Stages.

### **CONSTRUCTION STAGE**

8.8.2. The likely significant effects for Cultural Heritage associated with the Construction Stage are set out below.

8.8.3. All ground-breaking activities associated with the construction of the Padeswood Spur Pipeline Proposed Development have the potential to directly impact upon historic assets. Such activities include, but are not limited to, trenching, excavation of pits and shafts, groundworks, topsoil stripping, ground compaction, access, drainage, stockpiling, and storage.

8.8.4. The below construction related activities could lead to the following impacts:

- permanent complete or partial loss of buried archaeological remains as a result of ground excavation within the construction swathe or compound locations.

8.8.5. There will be no significant effects in relation to above ground cultural heritage during the Construction Stage of the Padeswood Spur Pipeline Proposed Development. Non-significant effects are discussed in **Appendix 8-4 (Document Reference: PW.3.3.8.4)**.

### **OPERATION STAGE**

8.8.6. There are no historic assets that will be affected by the AGI locations during operation.

## **8.9. MITIGATION AND ENHANCEMENT MEASURES**

8.9.1. This section sets out the preliminary avoidance, mitigation and compensation measures which are likely to be required to address the effects as assessed in **Section 8-9** and in **Appendix 8-3**.

8.9.2. Mitigation strategies will be developed following further archaeological evaluation across the Padeswood Spur Pipeline Proposed Development.

The results of archaeological trial trenching will determine if any mitigation measures will be required to protect, or record below ground archaeology. This may include protection measures, archaeological excavation, or strip, map, and record to ensure the preservation by record of any historic assets physically affected by the Padeswood Spur Pipeline Proposed Development. Any archaeological mitigation will be agreed with the Local Planning Authority's archaeological advisors and be completed under an approved Written Scheme of Investigation. In locations where geophysical survey and trenching has not been possible (e.g. due to lack of land access) an archaeological watching brief will be required during construction.

## **8.10. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS**

- 8.10.1. This section details the assessment of significant effects taking account of the secondary and tertiary mitigation detailed in **Section 8.10** above.
- 8.10.2. There are no significant effects identified.

## **8.11. MONITORING**

- 8.11.1. Any requirement for monitoring during the Construction Stage will be determined by the Archaeological Advisor to the LPA following further archaeological evaluation as discussed in consultation.

## **8.12. RESIDUAL EFFECTS**

**Table 8-6** below summarises the residual effects associated with the Padeswood Spur Pipeline Proposed Development during the Construction Stage.

**Table 8.6 - Summary of Residual Effects**

Receptor	Pre-mitigation significance of effects	Mitigation measure	Residual effect
<b>Construction</b>			
Llwyn Offa Farm (A4) – temporary effects caused by changes in setting due to presence of construction machinery	Minor adverse (not significant)	None required	Minor adverse (not significant)
Wat's Dyke (A26) – temporary effects caused by changes in setting due to presence of construction machinery	Minor adverse (not significant)	None required	Minor adverse (not significant)
Wat's Dyke (A26) – permanent effects caused by physical impacts	Minor adverse (not significant)	Mitigation to be agreed with the Local Planning Authority's archaeological advisors	Minor adverse (not significant)
Bryn Faigas Farm Building (A52) – permanent effects caused by physical impacts	Minor adverse (not significant)	Mitigation to be agreed with the Local Planning Authority's archaeological advisors	Minor adverse (not significant)
Limekiln Field (A88) – permanent effects caused by physical impacts	Minor adverse (not significant)	Mitigation to be agreed with the Local Planning Authority's archaeological advisors	Negligible adverse (not significant)

Nant Mawr Coal Pit (A111) – permanent effects caused by physical impacts	Minor adverse (not significant)	Mitigation to be agreed with the Local Planning Authority's archaeological advisors.	Negligible adverse (not significant)
Pont Pentre Bridge (A146) – permanent effects caused by physical impacts	Negligible adverse (not significant)	None required	Negligible adverse (not significant)
Historic hedgerows and former field boundaries – permanent effects caused by physical impacts	Negligible adverse (not significant)	None required	Negligible adverse (not significant)

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