

MILFORD HAVEN HYDROGEN PROJECT, PEMBROKESHIRE: HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT



Prepared by Dyfed Archaeological Services
For: InSite Technical Services Ltd.



Heneb

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by

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MILFORD HAVEN HYDROGEN PROJECT, PEMBROKESHIRE:

HISTORIC ENVIRONMENT DESK BASED ASSESSMENT

Client	InSite Technical Services Ltd
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Event Record No 130760

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**MILFORD HAVEN HYDROGEN PROJECT, PEMBROKESHIRE:
HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT**

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MILFORD HAVEN HYDROGEN PROJECT, PEMBROKESHIRE: HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT

EXECUTIVE SUMMARY

Dyfed Archaeological Services was commissioned to prepare a historic environment desk-based assessment for the proposed development of a section of new hydrogen pipeline which connects to the South Hook LNG Terminal, Pembrokeshire (SM 87835 07200).

The assessment has identified a slight to moderate adverse impact upon a general archaeological potential of low to medium importance. Proposals to mitigate the impact upon the archaeological resource are suggested.

CRYNODEB GWEITHREDOL

Gwasanaethau Archeolegol Dyfed i baratoi asesiad desg amgylchedd hanesyddol ar gyfer ailddatblygiad arfaethedig o ran o bibell hydrogen newydd sy'n cysylltu â Therfynell LNG South Hook, Sir Benfro (SM 87835 07200).

Mae'r asesiad wedi nodi effaith andwyol fach i gymedrol ar botensial archeolegol cyffredinol o bwysigrwydd isel i ganolig. Awgrymir hefyd gynigion i liniaru'r effaith ar yr adnodd archeolegol.

1 INTRODUCTION

1.1 Project Proposal and Commission

- 1.1.1 Dyfed Archaeological Services (the contracting arm of Heneb-Dyfed Archaeology) was commissioned by InSite Technical Services Ltd to prepare a historic environment desk-based assessment for the proposed development of a section of new hydrogen pipeline which connects to the South Hook LNG Terminal, Pembrokeshire (centred around NGR SM 87835 07200). The proposed section of new hydrogen pipeline is located c.3.3km northwest of Milford Haven, Pembrokeshire, and will connect the South Hook LNG terminal and Puma Milford Haven terminal.
- 1.1.2 The route is around 1.2km long and follows a former railway line which runs along the edge of a series of fields. Trees and scrub line the edge of the former railway along the entire route. The area is known for its historical and archaeological interest, with prehistoric, medieval, and post-medieval sites within the site's proximity. Archaeological excavations in the locality have uncovered a rich assembly of prehistoric and Roman features and artefacts c.100m west of the proposed pipeline, including a well-preserved middle Bronze Age burnt mound, and further prehistoric activity and possible early medieval settlement and metalworking site c.550m southwest of the pipeline. As a result InSite Technical Services Ltd have requested an historic environment desk-based assessment of the proposed development.
- 1.1.3 The assessment will help inform the design scheme and accompany a subsequent planning application for development. The local planning authority is the Pembrokeshire Coast National Park Authority.
- 1.1.4 This historic environment desk-based assessment is a primarily desk-based study of the site area and provides an indication of the archaeological potential of the development area, highlighting possible issues in relation to the impact of the development on the historic environment.

1.2 Scope of the Project and Methodology

- 1.2.1 A Written Scheme of Investigation (project design) was produced, detailing the methodology by which this assessment would be carried out. The project design was submitted to the archaeological planning officers at Heneb for comment and approval in their capacity as archaeological advisors to the local planning authority.
- 1.2.2 The scope of the assessment follows the *Standard and Guidance for Historic Environment Desk-Based Assessment* as defined by the Chartered Institute for Archaeologists (CIfA 2014). The standard is stated by CIfA as:

Desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area. Desk-based assessment will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of Conduct and other relevant regulations of CIfA. In a development context desk-based assessment will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so), and will enable reasoned proposals and decisions to be made whether to mitigate, offset or accept without further intervention that impact.

- 1.2.3 A desk-based assessment is defined by CIfA as:

.....a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed

research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely historic assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of historic assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate.

- 1.2.4 The desk-based assessment of the area identifies known archaeological sites within the proposed development site and its environs, and assesses the potential for hitherto unknown remains to be present. This helps inform future decision making, design solutions and potential mitigation strategies, including the potential for further archaeological works.
- 1.2.5 The report also includes a brief assessment of the impact on the settings of any surrounding designated historic assets, including scheduled monuments, listed buildings, historic landscape character areas and undesignated archaeological sites. This utilises the best practice guidance in *Setting of Historic Assets in Wales* (Cadw 2017).
- 1.2.6 The report presents relevant information from a number of sources including:
- Regional Historic Environment Record (HER) data and other relevant information;
 - National Monuments Record of Wales information as held by the Royal Commission on Ancient and Historic Monuments of Wales (RCAHMW) in Aberystwyth;
 - Identification of any scheduled monuments, listed buildings, historic parks and gardens, historic landscape character areas, or conservation areas within or in the vicinity of the site area;
 - Accessible bibliographic, cartographic and photographic information held at the National Library of Wales and regional archives;
 - Historic and current aerial photographs, including those held at the Central Register of Aerial Photographs for Wales, Cardiff (CRAPW);
 - Relevant web-based information, including cartographic information, satellite imagery, geological information and LiDAR data;
 - Relevant information held by the landowner/developer;
 - Site visit and walkover survey;
 - Assessment of the archaeological potential of the area; and
 - Assessment of likely impacts on any identified remains (or potential remains) and likely requirements, if any, for further stages of archaeological work.
- 1.2.7 An initial search range of 300m to either side of the pipeline was used to identify sites recorded on the HER and other sources, and was extended to examine the potential impact on the setting of high status, designated, historic assets in the surrounding landscape.
- 1.2.8 For the purposes of planning policy in Wales, the historic environment is defined as:

all the surviving physical elements of previous human activity and illustrates how past generations have shaped the world around us. It is central to Wales's culture and its character, whilst contributing to our sense of place and identity. It enhances our quality of life, adds to regional and local

distinctiveness and is an important economic and social asset (Welsh Government 2024)

Examples of what can constitute an historic asset include (ibid):

- *Listed buildings;*
- *Conservation areas;*
- *Historic assets of special local interest;*
- *Historic parks and gardens;*
- *Townscapes;*
- *Historic Landscapes;*
- *World Heritage Sites; and*
- *Archaeological remains (including scheduled monuments).*

1.3 Abbreviations

- 1.3.1 All sites recorded on the regional Historic Environment Records (HERs) are identified by a Primary Reference Number (PRN) and located by their National Grid Record (NGR).

Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN).

References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

1.4 Illustrations

- 1.4.1 Printed map extracts are not necessarily reproduced to their original scale.

1.5 Timeline

- 1.5.1 The following timeline gives date ranges for the various archaeological periods that may be mentioned within this report.

Table 1: *Archaeological and historical timeline for Wales*

Period	Approximate Date	
Palaeolithic	c.450,000 – 10,000BC	Prehistoric
Mesolithic	c.10,000 – 4400 BC	
Neolithic	c.4400 – 2300 BC	
Bronze Age	c.2300 – 700 BC	
Iron Age	c.700 BC – AD 43	
Roman (Romano-British) period	AD 43 – c. AD 410	Historic
Post-Roman / early medieval period	c.AD 410 – AD 1086	
Medieval period	1086 – 1536	
Post-medieval period ¹	1536 – 1750	
Industrial period	1750 – 1899	
Modern	20th century onwards	

Note: ¹The post-medieval and industrial periods are combined as the post-medieval period on the regional HERs.

2 POLICIES AND GUIDANCE

2.1 The Historic Environment (Wales) Act

2.1.1 The *Ancient Monuments and Archaeological Areas Act 1979* was previously the primary legislation for protecting archaeological remains and scheduled monuments. This has been amended by *The Historic Environment (Wales) Act 2016* which has three main aims as defined by Cadw:

- to give more effective protection to listed buildings and scheduled monuments;
- to improve the sustainable management of the historic environment; and
- to introduce greater transparency and accountability into decisions taken on the historic environment.

2.1.2 The Act also amends the *Planning (Listed Buildings and Conservation Areas) Act 1990* and is supported by a number of planning guidance documents. The Act most specifically provides better safeguards for the protection of scheduled monuments, listed buildings and historic parks and gardens. It also includes further guidance on place names.

2.2 Planning Policy Wales

2.2.1 *Planning Policy Wales* (Ed.12, 2024) sets out the Welsh Government's land use planning policies. Its primary objective is to ensure that the planning system contributes to the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the *Planning (Wales) Act 2015*, the *Well-being of Future Generations (Wales) Act 2015* and other key legislation.

2.2.2 Chapter 6, 'Distinctive and Natural Places', explains how planning systems must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. It also sets out the planning policies for the sustainable management of specific categories of historic environment assets.

2.3 Technical Advice Note 24: The Historic Environment

2.3.1 This technical advice note provides guidance on how the planning system considers the historic environment during development plan preparation and decision making on planning and listed building consent applications. It also provides specific guidance on how the following historic environment assets should be considered:

- Scheduled monuments
- Archaeological remains
- Listed buildings
- Conservation areas
- Historic parks and gardens
- Historic landscapes
- Historic assets of special local interest
- World Heritage Sites

2.3.2 The technical advice note usefully gathers together the selection criteria employed in the designation of scheduled monuments and listed buildings, and the registration of historic parks and gardens and historic landscapes.

2.3.3 Advice and decisions on planning applications affecting nationally significant historic environment features (or designated historic environment assets) is provided by Cadw acting on behalf of the Welsh Government.

2.3.4 This report will also make reference to other guidance documents published by Cadw, namely:

- *Conservation Principles* (March 2011);
- *Heritage Impact Assessment in Wales* (May 2017);
- *Managing Historic Character in Wales* (May 2017); and
- *Setting of Historic Assets in Wales* (May 2017).

2.4 Local Development Plan

2.4.1 The site lies largely within the Pembrokeshire Coast National Park (PCNP). The PCNP Authority Local Development Plan (LDP) was adopted in September 2020 (end date 2031) and sets out the planning development strategy for the area. The LDP policies are set out in line with national policy and guidance outlined above but also set out policies and proposals to meet the long term vision for the park.

2.4.2 The historic environment is seen as a special quality of the national park and the LDP states one of its aims is:

To conserve, enhance and promote the historic environment of the national park, its archaeological resource, historic buildings and landscapes, parks and gardens (Policy 8).

3 LOCATION, TOPOGRAPHY AND GEOLOGY

- 3.1 The proposed development is a linear pipeline that connects the South Hook LNG terminal to the south (SM 8764 2073) with Puma Milford Haven to the north. These sites lie on the north side of the Milford Haven Waterway in southern Pembrokeshire. The town of Milford Haven lies around 2km to the southeast.
- 3.2 The landscape is gently undulating between around 40m-50mOD, cut by small shallow stream valleys. The proposed pipeline largely passes along the route of a dismantled railway, now largely covered in gorse and other vegetation. To the east and west lies enclosed farmland, largely pasture with some arable, enclosed by hedgerows. Milford Haven lies a short distance to the southeast, and the village of Herbrandston lies around 1km to the west, the two connected by a local road that crosses the northern end of the study area.
- 3.3 The local area is dominated by the South Hook LNG site to the south, one of the largest liquified natural gas terminals in Europe. Fencing and embankments enclose the site, with its five large storage tanks being one of the main visual elements of the site. A former oil refinery lies to the north, now owned by Puma Energy, it is used for petroleum storage and distribution.
- 3.4 The underlying geology of the site comprises interbedded argillaceous rocks and sandstone of the Milford Haven Group (BGS viewer 2024).



Figure 1: Location of development area showing the proposed development route in red and 300m radius search area (blue dotted line).

Map data from OpenStreetMap (OSM) <https://www.openstreetmap.org/copyright> 18/04/24

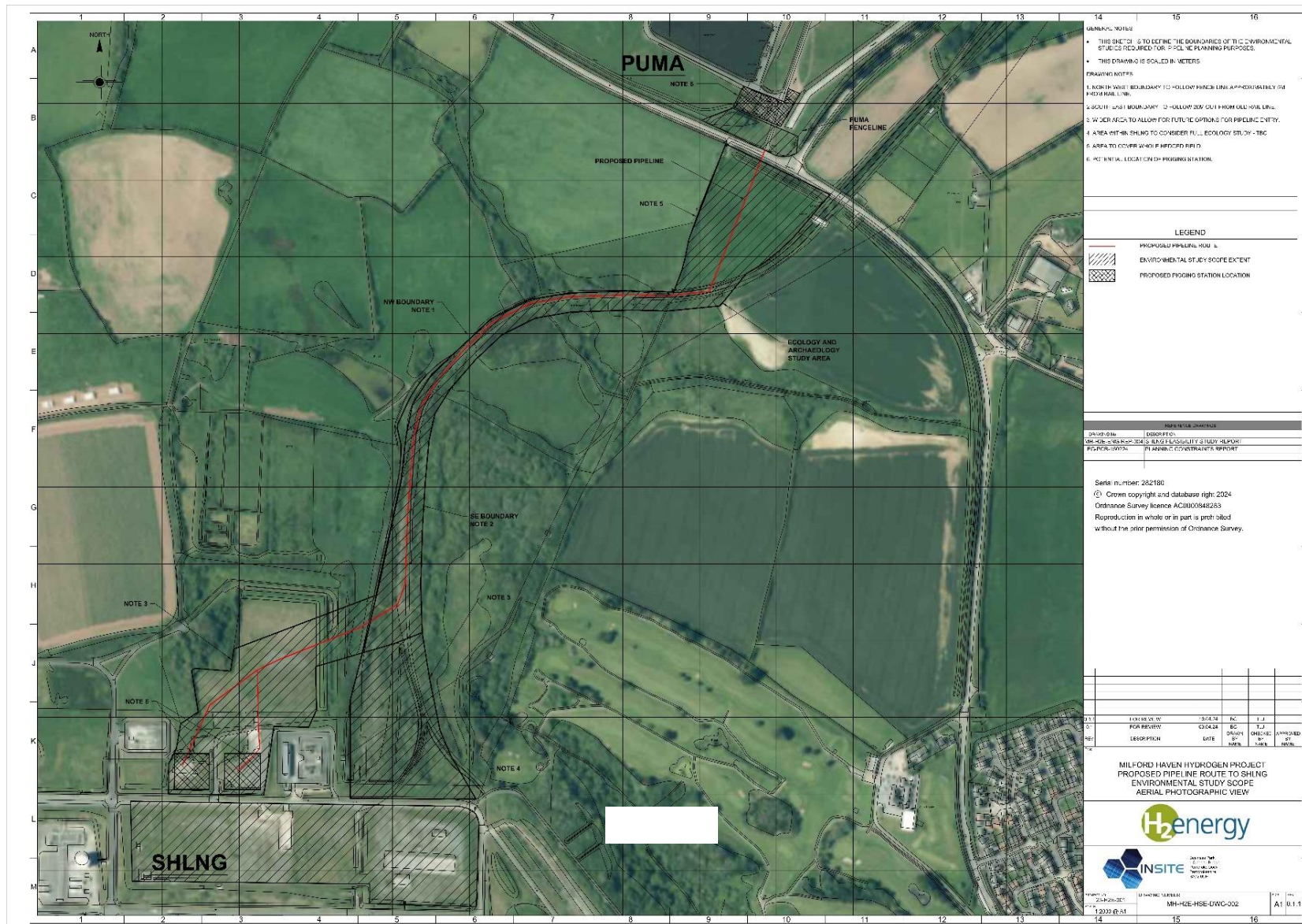


Figure 2: Detailed site and development location plan. Plan provided by the client, not reproduced to original scale.

4 DESIGNATED HISTORIC ASSETS (Fig 3)

4.1 General

- 4.1.1 A search of several databases was made of historic assets within the 300m radius search area. Designated assets beyond this search area were also considered for potential wider-ranging impacts and were reviewed first, as they largely comprise assets with some form of statutory protection.

4.2 Scheduled Monuments

- 4.2.1 Scheduled monuments are historic and archaeological sites considered to be of national importance. They are given legal protection, and the impact of development upon these sites and their settings are considerations of the planning process.
- 4.2.2 There are no scheduled monuments within the 300m radius search area.
- 4.2.3 The closest scheduled monument lies around 1km to the east, comprising **PE135 Long Stone Burial Chamber**. A damaged standing stone is all that remains visible of this site, but it potentially formed part of a neolithic burial chamber.
- 4.2.4 Around 1km to the southwest lies **PE307 South Hook Camp**. This is a small cliff-top enclosure, defended by a single rampart and rock cut ditch, likely dating to the Iron Age. This forms one of many similar sites that occupy coastal and valley promontories across the local landscape.
- 4.2.5 Further scheduled monuments lie in the surrounding landscape, but it is not anticipated that any of the sites would potentially be affected by the proposed development works.

4.3 Listed Buildings

- 4.3.1 Listed buildings are buildings and structures of national importance given legal protection by being placed on a 'List' of Buildings of Special Architectural or Historic Interest. Buildings on the list are given one of three grades which denote their level of importance (Grade I, II* and II), Grade I being the highest. A listed building may not be demolished, extended or altered without special permission from the local planning authority.
- 4.3.2 There are no listed buildings within the 300m radius search area.
- 4.3.3 Just outside the search area to the east lies **12932 Lodge Farmhouse at St Botolph's**. This grade II listed building is situated at the junction of the Milford to Herbrandston Road and a local lane, potentially therefore on or close to the access route to the site, and within 500m of the proposed development. This lodge is an early to mid-19th century farmhouse which was once part of the Saint Botolph's estate.
- 4.3.4 St Botolph's Mansion (12930) itself, along with its associated stable court (12931), both grade II listed, lie around 850m to the northeast of the proposed development but are unlikely to be affected by the proposed development. Other listed buildings in the locality lie in Herbrandston to the west and Milford Haven to the southeast, but these are not thought to be affected by the proposed development.

4.4 Conservation Areas

- 4.4.1 Conservation areas are designated to preserve and enhance the special character of areas of architectural or historic interest. The purpose of designating a conservation area is to provide the planning authority with an additional measure

of control over an area it considers to be of special historic and/or architectural value.

- 4.4.2 No conservation area lie within the 300m radius search area. The closest conservation area incorporates the harbour and historic centre of Milford Haven, around 2.5km to the southeast, but this is not considered to be affected by the proposed development.

4.5 Registered Historic Parks and Gardens

- 4.5.1 Parks and gardens of special historic interest in Wales are included on a Register of Historic Parks and Gardens, designed to provide comprehensive information to assist decision makers help protect and preserve essential features of these parks and gardens, and enable their significance and character to be protected through the planning system.
- 4.5.2 There are no registered historic parks and gardens within the 300m radius search area. The nearest is Plas Castle Hall, an early 19th century garden to the east of Milford Haven, around 4km from the proposed development site and not considered to be affected.

4.6 Registered Historic Landscapes

- 4.6.1 Registered historic landscapes are landscapes of historic interest included on the Register of Landscapes of Historic Interest in Wales (Cadw 1998). The landscape boundaries and associated details have been created as non-statutory advice to assist decision makers and landscape managers ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed.
- 4.6.2 The proposed development area lies within the historic landscape of **Milford Haven Waterway (HLW(D)3)**. The contents and significance of the landscape area is described thus;

The classic ria, drowned river valley and estuary in Wales, with an unsurpassed concentration of remains reflecting maritime conquest, settlement, commerce, fishing, defence and industry spanning the prehistoric to modern periods. The area includes Iron Age promontory forts; Early Christian and Viking placenames; Norman coastal castle-boroughs; medieval castles and later gentry residences; Milford and Pembroke Dock planned settlements; recent and modern quays, jetties and landing places, coal mines, limestone quarries, military and naval fortifications, oil terminals, jetties, refineries and power stations (Cadw 1998).

- 4.6.3 In order to better characterise the historic environment of the historic landscape it has been sub-divided into several historic landscape character areas (HLCA). The proposed development lies within two such HLCA.
- 4.6.4 The northern half of the proposed development lies within **HLCA 345 Herbrandston**. This is an agricultural area composed of dispersed farms (generally large in size) and large regular fields bounded by banks and hedges. The only nucleated settlement is Herbrandston village, which has a core of 19th century houses surrounded by modern development. Many of the present farms and landholdings can be identified with medieval manors, possibly established following the break-up of the Earldom of Pembroke in 1247. Most of Herbrandston Parish, within which the proposed development lies, was a member of the medieval Barony of Walwyn's Castle. The village surrounds the parish church which belonged to the Augustinian Haverfordwest Priory. St Botolph's lay within the Manor of Pill, granted to the Tironian Pill Priory in the mid-13th century. 18th

century maps show the current landscape pattern had already been established by that time.

- 4.6.5 The southern half of the proposed development lies within **HLCA 311 Esso Oil Refinery**. At the time the register was created (1998) this area comprised the dismantled remains of a mid to late 20th century oil refinery, which has now partially been reoccupied by the South Hook LNG site. Prior to construction of the initial refinery in 1957 this was a predominantly agricultural area. During the medieval period it was a member of the Manor of Pill and Roch, with part of the area granted to Pill Priory in the mid-13th century. During the post-medieval period the area first belonged to the Gelliswick Estate, passing to the Barret family in the mid-16th century and then to the Philippses of Picton Castle in the 18th century. In 1859-65 South Hook Fort was built as part of a coastal defence scheme for the Milford Haven Waterway.

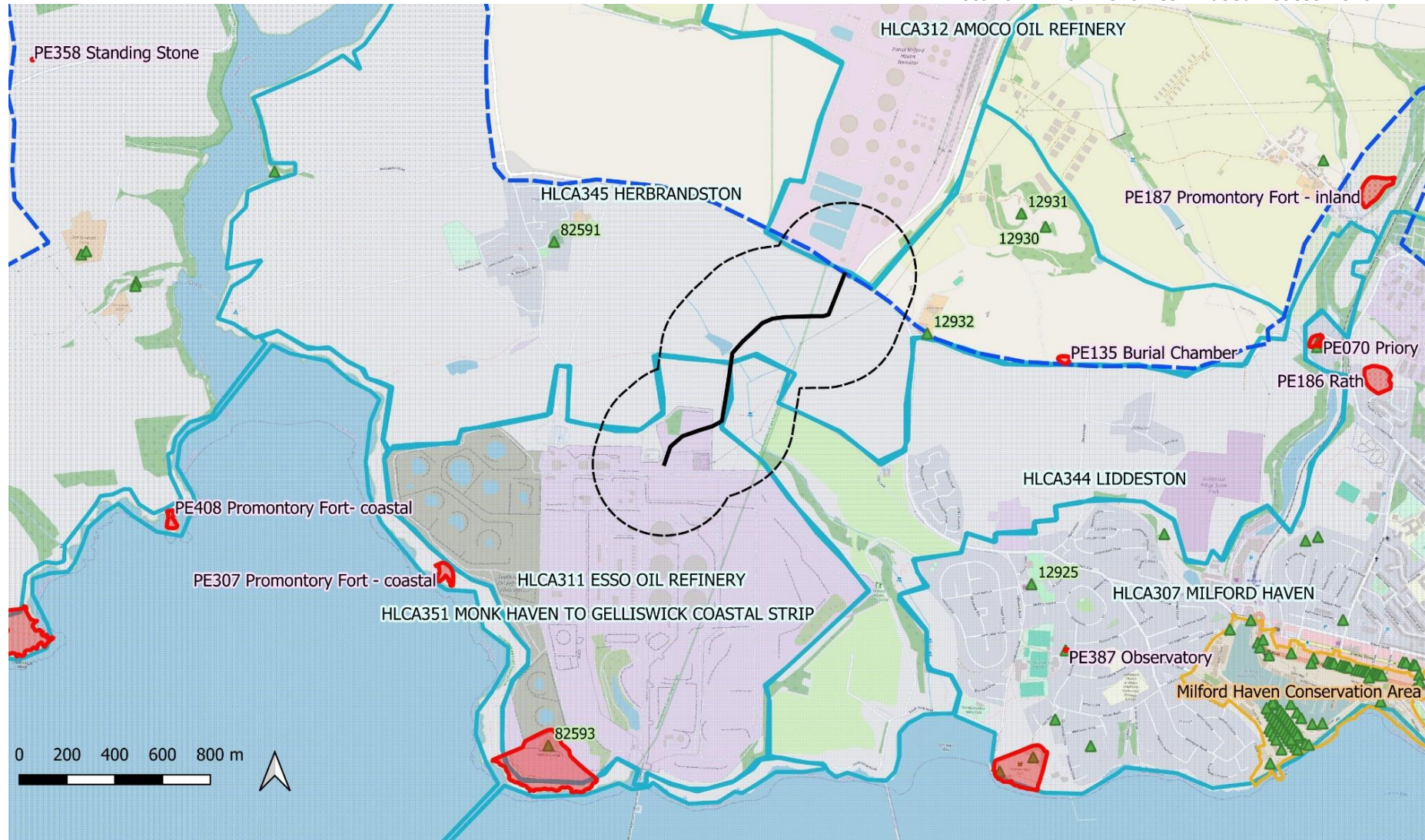


Figure 3: Map showing scheduled monuments (red), listed buildings (green), conservation areas (orange) and historic landscape areas (blue) within the local area. The line of the proposed pipeline lies in the centre, with the 300m radius search area represented by the dotted line.

Map data from OpenStreetMap (OSM) <https://www.openstreetmap.org/copyright> 18/04/24

5 NON-DESIGNATED HISTORIC ASSETS

5.1 General

- 5.1.1 A search of the regional HER and other databases was made within the 300m search area (Table 2 and Fig 4). The HER records 24 historic assets within the search area. One additional historic asset is recorded in the NMR database, held and maintained by the RCAHMW, and one additional artefact is recorded on the National Museum of Wales database. Other additional information includes one wartime military site identified during survey work by Roger Thomas in 1994.
- 5.1.2 The following information is laid out chronologically to provide a brief archaeological and historical background for the development area and its environs for each period, along with the relevant HER entries pertaining to that period.

5.2 Palaeolithic, Mesolithic and Neolithic

- 5.2.1 Sites of a Palaeolithic date are exceptionally rare in the general archaeological record of this area. Palaeolithic activity has been recorded in some sheltered cave sites, such as Catshole Cave and Wogan's Cave in Pembroke, but the general potential in this area is negligible.
- 5.2.2 Excavations at South Hook (Crane 2007) towards the southern end of the study area uncovered an assemblage of 336 fragments of worked stone, mostly flint (PRN 100487). These artefacts have been dated to the late Mesolithic and early Neolithic period and indicate people were travelling across and utilising the coastal areas, likely staying in temporary camps as they processed these flints. A further Mesolithic flint (PRN 106719) was uncovered in excavations towards the northern end of the search area (Barber and Hart 2014). In the wider landscape a relatively large number of these flint working sites have been recorded across the coastal landscape of Milford Haven suggesting relatively widespread activity in the area during this period.
- 5.2.3 The two excavations mentioned above (Crane 2007 and Barber & Hart 2014) also retrieved Neolithic worked flint artefacts, suggesting a continuity of activity into the early Neolithic period (PRNs 106720 and 100488). Excavations towards the northern end of the search area uncovered environmental evidence, pottery and possible archaeological features indicative of a occupation site. In addition, building work on the South Hook LNG site also uncovered a Neolithic stone adze head (PRN 100489). Environmental analysis from the excavations suggest a landscape that was still heavily wooded during the Neolithic, with areas cleared for occupation and grazing, although possibly still on an episodic basis rather than permanent settlements. These discoveries would suggest a heightened potential for Mesolithic and Neolithic archaeological remains within the local area.

5.3 Bronze Age

- 5.3.1 There is strong evidence of activity in the local area during the Bronze Age, once again identified within the two excavations mentioned previously. Within the excavations towards the northern end of the search area (Barber and Hart 2014) pits, postholes and hearths were uncovered (PRN 109227), indicative of a settlement site, and associated with Bronze Age pottery. This activity occurred in the same area as the earlier Neolithic activity but appeared to represent more permanent settlement activity in the early Bronze Age. On the course of a small stream to the west of this settlement the excavations also recorded a burnt mound (PRN 106718), dated to the mid Bronze Age (around 1400-1500 BC) and despite some overlap appearing to largely post-date the settlement activity. The site comprised a mound of charcoal and heat-affected stones, associated with a stone hearth and the rare survival of a wooden trough. The stone and charcoal indicate

water was being heated, but the purpose remains uncertain, with suggestions that it may have been used for bathing, brewing, woodworking or ritual purposes. The site appears to have been used periodically for up to 70 years before being abandoned. Further mounds recorded nearby (PRNs 3031 and 3032) are uninvestigated but lie close to similar water courses and may also represent further burnt mounds in the area.

- 5.3.2 Activity into the late Bronze Age is tentatively suggested by the discovery of a socketed bronze axe discovered close by, recorded on the National Museum of Wales database. The grid reference places this discovery on the line of the proposed pipeline, but this is likely to be an indicative location only. Excavations on the South Hook LNG site (Crane 2007) uncovered fragments of a Bronze Age urn (PRN 100486) along with pits and dating evidence indicating further Bronze Age activity in this area, the nature of which is unclear from the evidence recovered.
- 5.3.3 The excavated evidence suggests a well-used landscape during the Bronze Age period with a strong potential for further archaeological remains of this period, particularly along the local watercourses where sites such as burnt mound appear prevalent, and potentially well-preserved.

5.4 Iron Age

- 5.4.1 In the wider landscape a large number of Iron Age sites are recorded, almost exclusively comprising defended enclosures occupying coastal and valley promontories. These lie within a landscape of multiple individual enclosures, of varying shapes and size, but all enclosed in defensive banks and ditches. These enclosures no doubt performed a variety of functions and would have been connected to a landscape including unenclosed settlements, farms and routeways but often it is only the defended enclosures that have been identified. There is however only one such record within the study area, with early aerial photographs indicating a sub-rectangular enclosure to the north (PRN 12177) since removed by oil refinery development. It is possible however, given evidence from the excavations to the south (Barber and Hart 2014) that this enclosure may be slightly later in date (see below). Despite the prevalence across the wider landscape, the recorded evidence would suggest a reduced potential for Iron Age archaeology within the search area.

5.5 Roman

- 5.5.1 Excavations towards the northern end of the study area (Barber and Hart 2014) recorded several features, largely ditches and pits, but also including a possible grave, that were dated to the Roman period (PRN 109228). The ditches and pits were largely interpreted as field enclosures and associated agricultural activity that were not closely dated, but the ditches had filled up by the late Roman period. Given this context it is possible that the sub-rectangular enclosure identified to the north (PRN 12177) may be associated with a Roman-era farmstead rather than an Iron Age enclosure, but this remains speculative. The possible grave appears poorly preserved and therefore provided little information, but it appears to be an isolated site rather than part of a more extensive cemetery.
- 5.5.2 Associated Roman agricultural activity is likely to extend across the northern part of the study area at least, therefore the potential for associated archaeological remains is relatively high.

5.6 Early Medieval and Medieval

- 5.6.1 Excavations on the South Hook LNG site (Crane 2007) revealed a variety of features suggesting a small settlement site (PRN 99500) that included postholes for at least three timber buildings, and a group of four kilns (PRNs 125618 –

125621). These kilns included corn-drying kilns, along with quern stones indicating grains were processed on the site, but also iron smelting and ironmongering was taking place on the site. Radiocarbon dating from the site suggested occupation at some point between the late 8th and early 12th century.

- 5.6.2 The discovery of early medieval settlement activity of this nature is a relatively rare find and therefore significant. Early medieval archaeology in this area is often based on identified cemetery sites and surviving ecclesiastical sites. Excavations to the north (Barber and Hart 2014) recorded several features that could potentially be early medieval in date, but do not indicate an area of intense activity further north.
- 5.6.3 By the medieval period much of this area lay within the Barony of Walwyn's Castle, and more locally in the Manors of Pill and Roch. In the 13th century part of this area was granted to the Tironian Priory at Pill and a chapel was established at St Botolph's to the northeast.
- 5.6.4 The excavated settlement site at South Hook (Crane 2007) may have been occupied into the medieval period but does not appear to have been occupied long into this period. Many of the surrounding farmsteads have their origins in the medieval period and it would appear likely the study area lay in a largely agricultural landscape. The remains of one possible deserted medieval farmstead, or possible village site, has been identified by the RCAHMW (NPRN 404201) from aerial photographs on the western edge of the study area. The photographs show evidence of enclosures, building platforms and tracks alongside a watercourse, in close proximity to the former farmstead of Neeston (PRN 24110). Neeston itself appears in documentary records, as Neston, as early as the 14th century (Charles 1992;597). The name is probably a derivation of a Middle English phrase for the 'East Farm', possibly a reference to its position in relation to the main nucleated medieval settlement in the area, which would have been Herbrandston to the west.

5.7 Post-Medieval and Modern

- 5.7.1 The agricultural landscape continued throughout most of the post-medieval period. Historic maps record a number of farmsteads in the region (PRNs 15818, 24110, 34483, 119671, 119673, 119674 and 119678). The number of farmsteads suggest a relatively intensely farmed landscape but the majority of these sites, with the exception of Lodge Farm (PRN 15818) to the east, were abandoned and largely destroyed by the development of the oil refineries in the mid-20th century. The site of one farmstead, South Neston (PRN 119674) lies immediately adjacent to the proposed pipeline.
- 5.7.2 Other post-medieval sites in the study area include a scattering of pits revealed in the excavations to the north (PRN 106722) and a milestone (PRN 15816) to the west.
- 5.7.3 During World War II a network of anti-aircraft sites were established throughout the Milford Haven area to protect important naval bases and airfields, as well as existing settlements and industrial sites. Within the search area the remains of a searchlight battery site were recorded during a survey by Roger Thomas in 1994. The remains consisted of concrete hut bases and were plotted from aerial photographs, it is not clear what, if anything, survives of this site.
- 5.7.4 Much of the post-medieval and wartime archaeological remains, along with some earlier archaeological remains, were removed with the development of the major oil refineries from the 1950s onward.

Table 2: Historic assets recorded on the HER and other databases within the 300m radius study area.

PRN / Ref.	Name	Type	Period	NGR
106718		Burnt Mound	Bronze Age	SM8795007450
109227	Neeston	Occupation Site	Bronze Age	SM8810007470
100486	South Hook	Settlement	Bronze Age	SM87220675
99500	South Hook	Settlement	Early Medieval	SM87220675
125618	South Hook	Corn Drying Kiln	Early Medieval	SM87220675
125619	South Hook	Corn Drying Kiln	Early Medieval	SM87220675
125620	South Hook	Corn Drying Kiln	Early Medieval	SM87220675
125621	South Hook	Corn Drying Kiln	Early Medieval	SM87220675
12177	Oil Refinery	Defended Enclosure?	Iron Age; ?Roman	SM884078
125622	South Hook	Corn Drying Kiln	Medieval	SM87220675
106719		Findspot	Mesolithic	SM8810007470
100487	South Hook	Lithic Scatter	Mesolithic	SM87220675
106720		Occupation Site	Neolithic	SM8810007470
100488	South Hook	Lithic Scatter	Neolithic	SM87220675
100489	South Hook	Find	Neolithic	SM87370629
106723		Unassigned	Not Known	SM8810007470
51138	Upper Neeston	Garden	Post Medieval	SM87840781
106722		Pits	Post Medieval	SM8810007470
15816		Milestone	Post Medieval	SM88500799
119673	Big Neston	Farmstead	Post Medieval	SM8755007246
15818	Lodge Farm	Lodge	Post Medieval	SM88630731
59087	Lodge Farmhouse at St.Botolph's	Farmhouse	Post Medieval	SM8863107283

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24110	Neeston	Dwelling	Post Medieval	SM8753207219
34483	Sandy Haven	Farm	Post Medieval	SM87020660
119678	South Hook Farm	Farmstead	Post Medieval	SM8703906516
119674	South Neston	Farmstead	Post Medieval	SM8754206864
119671	Upper Neeston	Farmstead	Post Medieval	SM8778007771
3031	Upper Neeston	Burnt Mound?	Prehistoric	SM87880758
3032	Upper Neeston	Burnt Mound?	Prehistoric	SM87940744
106721		Field System	Roman	SM8810007470
109228	Neeston	Occupation Site	Roman	SM8810007470
12178	Oil Refinery	Cropmark	Unknown	SM884078
NPRN 404201	Neeston	Deserted Settlement	Medieval	SM8758007410
NMW artefact	-	Bronze Socketed Axe	Bronze Age	SM878072
WWII site	Big Neeston	Searchlight Battery	Modern	SM87310688

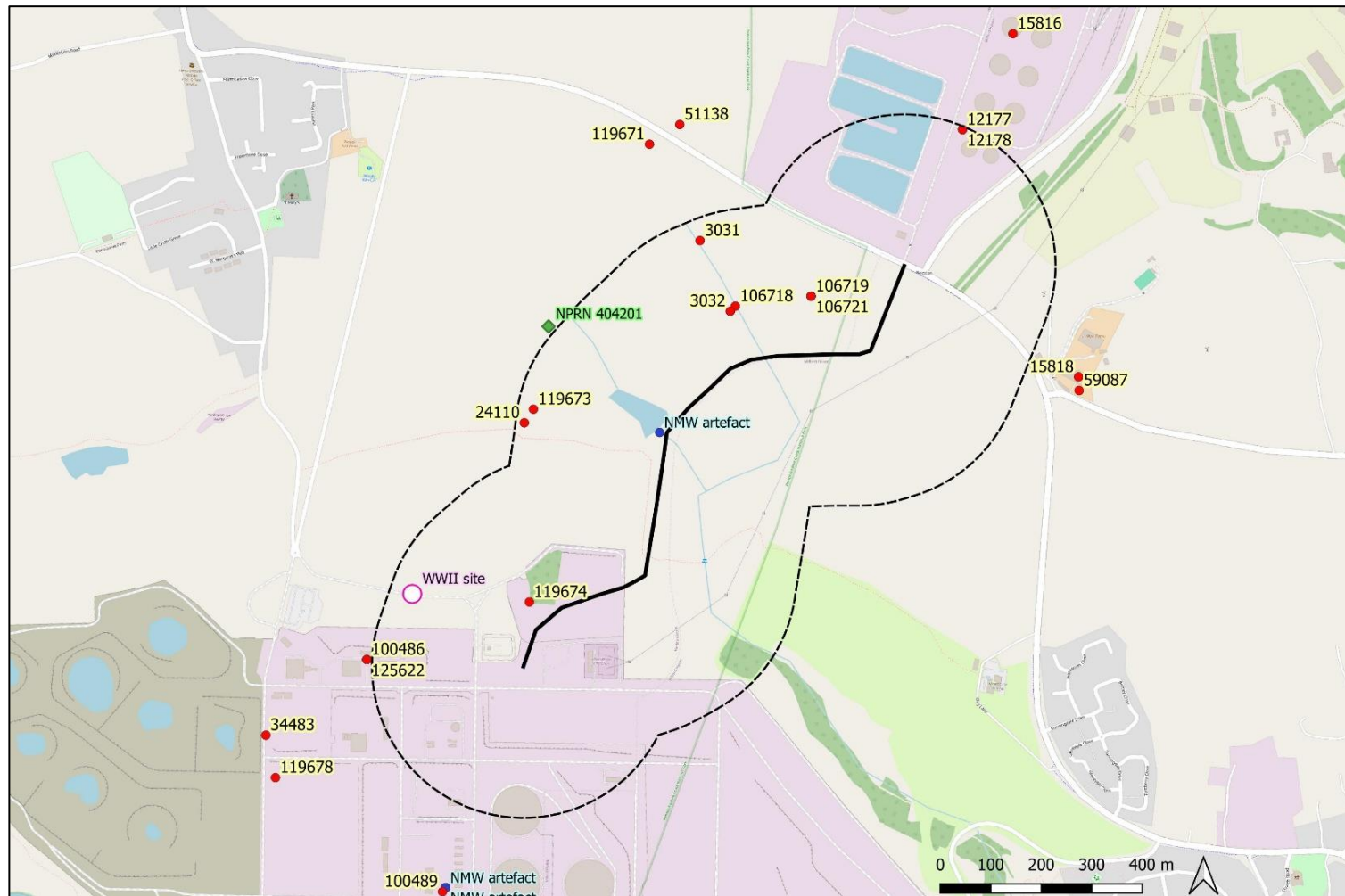


Figure 4: Map showing historic assets recorded in the regional HER (red points), labelled by PRN, and other sites described in Section 5 within the 300m radius search area (black dotted polygon).

NB. PRNs 99500, 100487, 100488 and 125618-21 are all located on the same point as PRNs 100486/125622, and PRNs 106720, 106722, 106723 and 109227-8 are all located on the same point as PRNs 106719/106721.

Map data from OpenStreetMap (OSM) <https://www.openstreetmap.org/copyright> 23/04/24.

6 ASSESSMENT OF EVIDENCE

6.1 General

- 6.1.1 Sections 4 and 5 have described the known archaeological resource for the area, recorded on national and regional databases of historic assets. The following section examines some of the main sources of information that inform or could expand the current understanding of the archaeological resource and highlight any previously unrecorded historic assets.

6.2 Previous Archaeological Work

- 6.2.1 There have been two recorded archaeological excavations within the study area that have provided important evidence of archaeological activity in the locality.
- 6.2.2 To the south excavation in 2007 in advance of the redevelopment of the South Hook LNG site (Crane 2007) revealed evidence of prehistoric activity and several features relating to an early medieval settlement. These features do not lie within the proposed development area but do illustrate the archaeological potential.
- 6.2.3 To the north excavations in 2006 (Barber and Hart 2014) in advance of the installation of the South Wales high pressure gas pipeline revealed evidence of settlement activity from the Neolithic and Bronze Age periods, including the rare survival of timber remains, and evidence of Mesolithic activity, a Roman agricultural landscape, and post-medieval features. The proposed pipeline development crosses the route of these excavations, although no archaeological features were identified at this intersection. It does however highlight the strong potential for archaeological remains within the area, particularly associated with local watercourses.
- 6.2.4 The area has also been included in some regional desk-based assessments, such as the Lower Milford Haven Coastal Survey (Murphy and Allen 1998) and the Milford Haven Waterway Ports and Harbours Project (Poucher 2008), which provide useful background information about the archaeology and history of the area but add little specific detail of relevance to the proposed development.
- 6.2.5 All the archaeological work described above has been added to the regional HER and therefore already included within the background outlined in Section 5.

6.3 Historic Mapping

Estate Maps 18th-19th century

- 6.3.1 Relatively early estate maps show lands in and around Herbrandston in the late 18th century (Morris) and in 1836 (Goode), and around South Hook in 1740 (Willis and Jones). These maps have not been examined during the course of this assessment, but previous examinations of these maps (Poucher 2008) did not identify any new features within the study area.

Thomas Budgen - Ordnance Survey original surveyor's drawing (Milford Haven) 1809

- 6.3.2 Early Ordnance Survey drawings of the Milford Haven area include the search area but shows little detail of note. Neeston farmstead (PRN 24110) is the closest built feature, with the Milford Haven to Herbrandston road also in place by this time. The watercourse that passes through the area is marked, otherwise the proposed development area is featureless.

Herbrandston Parish tithe map 1839 (Fig 5)

- 6.3.3 The parish tithe map of 1839 depicts the site in some detail, marking field boundaries and local structures. The proposed development passes through eight separate fields but the field names are generally descriptive (e.g Horse Park, Kennel Meadow, Orchard Park) and do not reveal any features of note. The fields belong to four farms, which are not named but occupied by William Fields, Thomas Williams, James Greenish and William Greenish (senior). James Greenish would appear to live in Neeston Farm (PRN 24110) and William Greenish in Upper Neeston Farm (PRN 119671), although he is also listed as occupying South Neeston Farm (PRN 119674) as well. The land is owned by three different people, much of it by Hester Jordan, with land along the road to the north owned by William Greenish (senior) and land to the northeast owned by the Honourable Robert Fulke Greville.
- 6.3.4 No features of note are shown within the proposed development area.

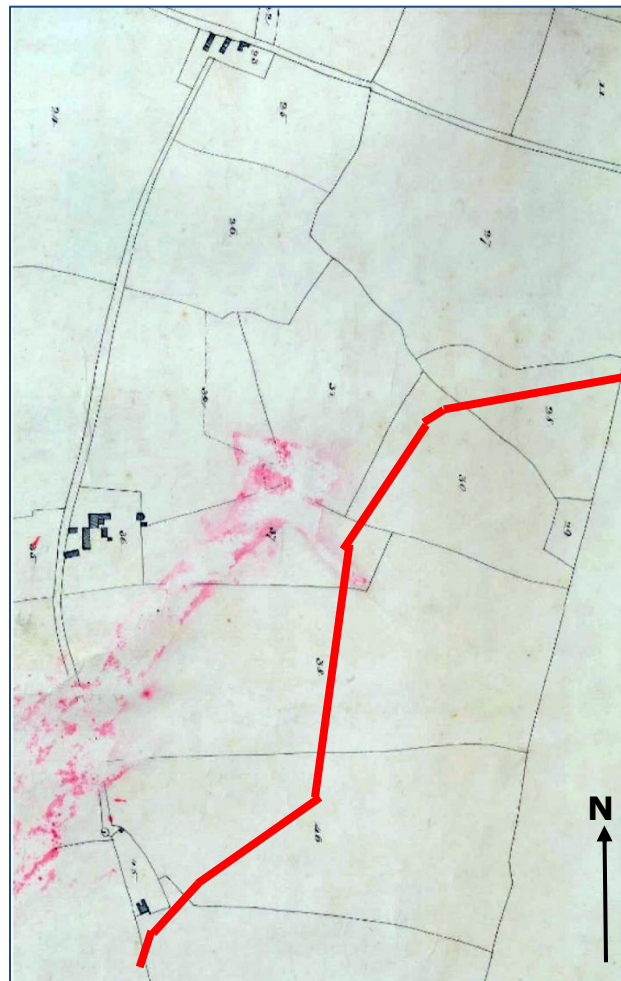


Figure 5: Extract from the 1839 Herbrandston parish tithe map showing the approximate route of the proposed pipeline route (red).

Ordnance Survey 1:2500 map, 1874-6 (Fig 6)

- 6.3.5 First edition Ordnance Survey maps depict the development area in even greater detail. The field layout and settlement pattern is similar to what that depicted on the tithe map. Towards the northern end the route passes through two fields before crossing the parish boundary and then a watercourse. The route then continues southwest where it crosses another watercourse to the east of Neeston, now labelled as 'Big Neeston' (PRN 119673). The banks of the watercourse have been quarried at the point the proposed development route crosses. The route

then passes through generally larger fields to the south, crossing a farm track, before running through the southern part of the small farmstead yard of South Neeston (PRN 119674) towards the southern end of the route.

- 6.3.6 Other than the small stream-side quarry no features of particular note are recorded along the route of the proposed pipeline.

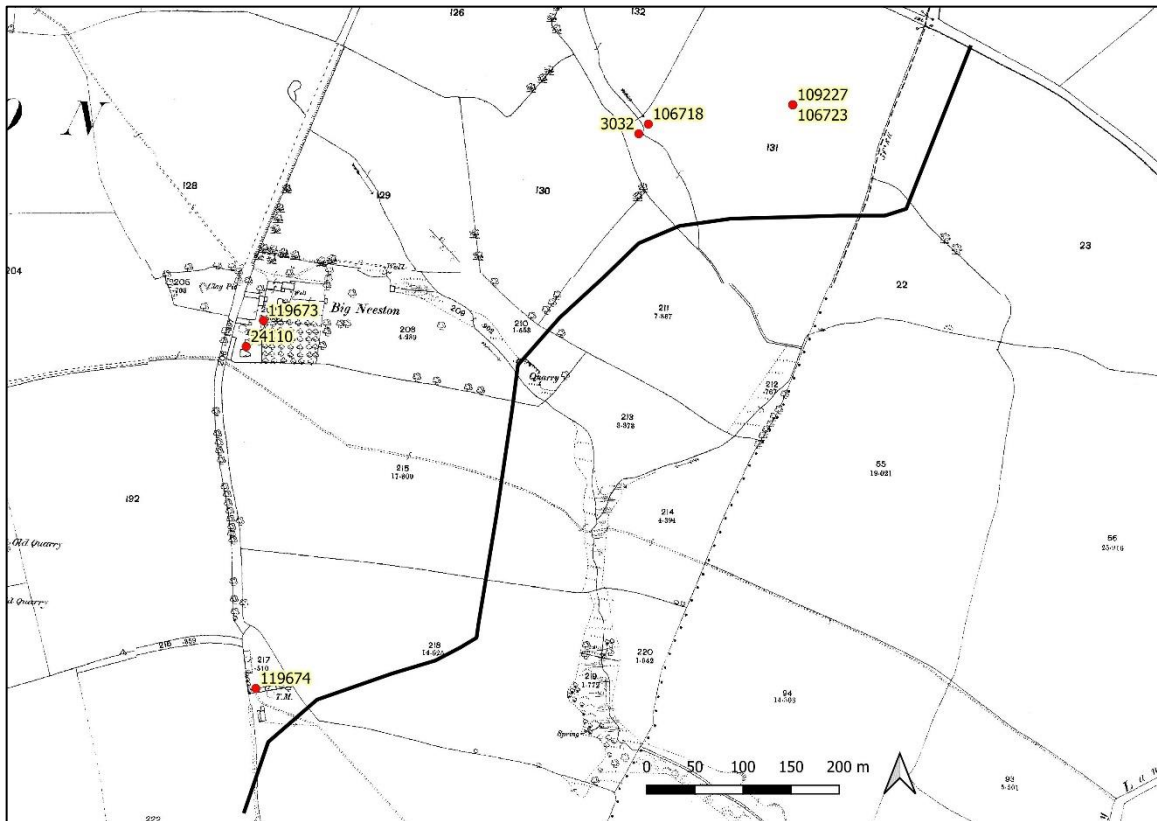


Figure 6: Extract from the first edition Ordnance Survey map of 1874-6. The proposed pipeline route is marked in black, with sites recorded on the HER marked in red.

Ordnance Survey 1:2500 map, 1908 and 1937-9

- 6.3.7 Subsequent Ordnance Survey maps of both 1908 and 1937-9 show no change on the route of the proposed pipeline.

Ordnance Survey 1:10000 map, 1964 (Fig 7)

- 6.3.8 Post-war Ordnance Survey mapping depict the site subsequent to the development of the South Hook LNG site in the late 1950s. One of the earliest maps depicts the site in the mid-1960s with the extensive oil refinery site to the south, but the current Puma Milford Haven site to the north had not yet been established. The general settlement and enclosure pattern to the north of the South Hook LNG site remains relatively intact, with the farmsteads of Neeston (PRN 24110 / 119673) and South Neeston (PRN 119674) still marked. As part of the South Hook LNG development however the refinery had been connected to the rail network. This new railway line runs north from the refinery, curving through the agricultural fields before dropping into a cutting to pass underneath the Milford Haven – Herbrandston road to the north. The proposed development follows the route of this railway.



Figure 7: Extract from the 1964 Ordnance Survey map. The route of the railway, along which the proposed development runs (diverging at the northern end), is marked by the red arrows.

(Reproduced with the permission of the National Library of Scotland).

6.4 Aerial and Historic Photography

- 6.4.1 A search was made of available historic and modern aerial photographs. Aerial photographs taken by the RAF between 1944 and 1952 were examined as they showed the area prior to the development of the oil refineries, together with modern aerial and satellite imagery from the last 20 years.
- 6.4.2 RAF images from the 1940s (Photo 1) and early 1950s show an agricultural landscape with fields in mixed arable and pastoral use. The farmsteads of Neeston (PRN 24110 / 119673) and Neeston South (PRN 119674) are still intact and operational. The water channels are visible following the sloping ground down to the east but otherwise there is no indication of sites of archaeological potential within the development area, although sites of subsequent archaeological discoveries are similarly not identifiable.
- 6.4.3 Modern aerial images from 2006/7 onwards show the area around the time and shortly after the redevelopment of the South Hook LNG site to the south, and excavations for the high pressure gas pipeline to the north (Photo 2). The car park at the southern end of the site was still in use until some point between 2010 and 2013. The route of the railway is clearly disused by 2006 but is still relatively clear, gradually becoming covered in vegetation over the following decade. Towards the northern end the area excavated for the high pressure gas pipeline is still visible on images of 2009 (Photo 2), which suggests a relatively large area was opened up across the field at the north end of the proposed route.
- 6.4.4 No further features of interest are noted within the proposed development area.



Photo 01: Extract from an RAF aerial photograph taken in 1946 prior to the development of the refineries. The proposed pipeline route is marked in red.



Photo 02: Satellite image from 2009 with cropmarks showing the area of high pressure gas pipeline excavations (blue arrows), Proposed pipeline route marked in red.
© Getmapping plc/Google Earth

6.5 LiDAR (Fig 8)

- 6.5.1 LiDAR data at 1mDSM is available for the site area. The route of the former railway, along which the proposed pipeline will run is clearly visible, surrounded by vegetation along much of its route and entering a cutting towards the northern end. Due to the extent of the vegetation cover, there is little clear evidence of potential features of note along the route. On the ground to the west a series of potential earthworks are visible, most notably around the possible deserted

settlement (NPRN 404201) and around the area of burnt mounds (PRNs 3031, 3032 and 106718). These features are ephemeral, and difficult to characterise, but they may fit within the archaeological evidence uncovered in excavations to the north (Barber and Hart 2014) that demonstrated a multi-period landscape. There is no clear indication that these features extend across the proposed development area. Linear features visible running roughly east – west appear to correspond to the high pressure gas pipeline.

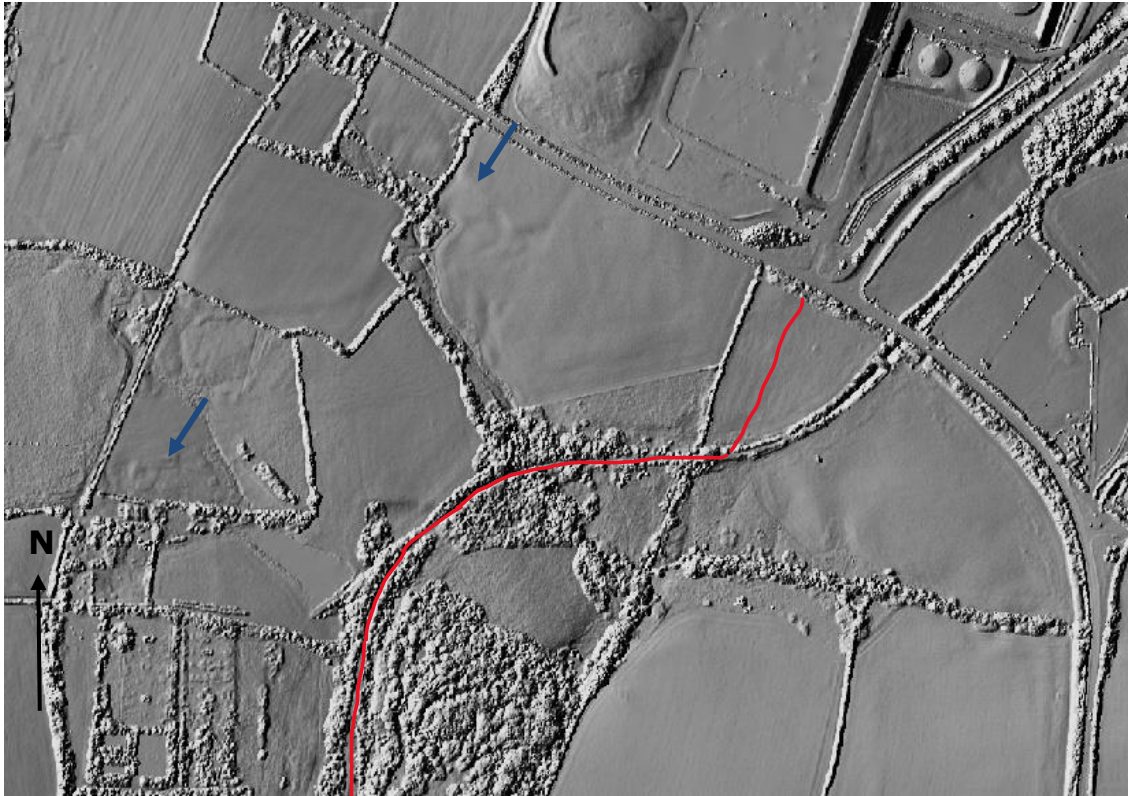


Figure 8: LiDAR data at 1mDSM. The proposed development route is marked in red, the areas of possible earthworks are indicated by the blue arrows.

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6.6 Site Visit (Photos 03-12)

- 6.6.1 A site visit was undertaken on 04 April 2024. The weather conditions were dry with high cloud and good visibility. Access was restricted to the route of the proposed pipeline, which was walked from the outer boundary of the South Hook LNG Terminal (Photo 3) northwards.
- 6.6.2 The southern end of the route crosses a former car park associated with the South Hook LNG site (Photo 4), now covered in low vegetation, but clearly landscaped and developed. This car park has removed all surface trace of the southern part of South Neeston farmstead (PRN 119674), the remainder lying in thick undergrowth and trees.
- 6.6.3 The route of the proposed development then follows the line of the former railway northwards (Photos 5 to 8). The railway, presumably contemporary with the LNG development in the late 1950s, was built on a bank of imported stone that remains with the occasional wooden sleeper visible. The bank is approximately 15m wide, around 1m high. Due to the stone bank, no natural, pre-existing ground was visible along this length, and gorse and some dense scrub has become established along the edge of the route. The vegetation was too dense to determine any features as

the route crossed a water course and former quarry site to the east of Neeston farmstead (PRN 24110/119673). Views towards the farmstead itself were similarly limited by the vegetation, but overgrown ruins (Photo 7) suggest the farmstead has been long abandoned.

- 6.6.4 As the route turns to the east it begins to run along the base of sloping ground with the multiperiod remains revealed by excavations on higher ground to the north (PRNs 106718-23 and 109227-8) (Photo 9). The land to the south levels out and becomes wet, boggy ground (Photo 10). Before the former railway drops into a cutting under the road the proposed pipeline route turns north to cross a field at the northern end (Photo 11). The ground rises to the north, the field has clearly been ploughed and the route of the South Wales high pressure gas pipeline crosses the proposed development route.
- 6.6.5 The proposed development route ends at the Milford Haven to Herbrandston Road. North of the road the area has been redeveloped as part of the Puma Milford Haven site (Photo 12). No features of specific archaeological interest were noted along the proposed pipeline route.



Photo 03: View south showing the South Hook LNG site at the southern end of the proposed pipeline route.



Photo 04: View northeast across the former car park at the southern end of the proposed pipeline route.



Photo 05: View north along the stone railway bank towards the southern end of the proposed pipeline route. 1m scale.



Photo 06: View north along the central section of the proposed pipeline route.



Photo 07: View west from the proposed pipeline route showing the ruins of Neeston farmstead (PRN 24110/119673) in the centre.



Photo 08: View west along the proposed pipeline route towards the northern end of the route.



Photo 09: View southwest from the location of PRNs 106718-23 and 109227-8, looking down towards the proposed pipeline route (running right to left along the dense vegetation in the centre).



Photo 10: View west across the boggy ground to the south of the proposed pipeline route (running along the dense vegetation on the right) at the northern end.



Photo 11: View southwest along the proposed pipeline route as it crosses the field at the northern end.



Photo 12: View east along the Milford Haven to Herbrandston road at the northern end of the proposed development route.

7 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL, IMPORTANCE AND SETTING

Table 3: Site potential definitions

Archaeological Potential	Definition
High	Known archaeological remains of the period within the site area or an abundance of remains of the period within the near vicinity
Medium	A number of archaeological remains of the period are present in the vicinity or wider area and/or the topography or location of the site would be typical for remains of that period
Low	Few sites of a specific period are known in the wider area, or where the topography of the site is unlikely to contain remains of that period, or where no archaeological records of a certain period are present but the location of the site is one that would be considered suitable or typical for remains of that period to exist
Negligible	Where there is no evidence for archaeological remains of a certain period to be present and the location/topography is most unlikely to contain remains of that period or where a site area has already been totally disturbed

Table 4: Site importance definitions

Site Importance (SI)	Definition of Site Category
High	Features of national importance - scheduled monuments, listed buildings Grades I and II*, well preserved historic landscapes, registered parks and gardens and historic battlefields
Medium	Non-scheduled sites of regional or county importance. Listed buildings Grade II, reasonably preserved historic landscapes
Medium / Low	Features of district or local importance but generally common features at a national or regional level
Low	Minor sites or sites so badly damaged that too little now remains to justify their inclusion in a higher grade
Uncertain	Features about which insufficient is known to attribute them to a higher rank or which cannot be sufficiently accurately located to justify their consideration
Negligible	Where a site area has already been totally disturbed by previous development or natural processes

7.1 Potential

- 7.1.1 There are two previously recorded archaeological sites along the route of the proposed pipeline and archaeological potential has been identified in the local area.
- 7.1.2 Towards the southern end of the proposed pipeline route lies the post-medieval farmstead of South Neeston (PRN 119674). This farmstead is visible on historic mapping (section 6.3). The core of the farmstead lies outside the development area, however the farmyard and associated outbuildings extend into the development area. It is clear however from subsequent mapping, ariel photographs and a site visit, that any such remains within the development area would have been cleared and removed when the car park was established by the early 21st century, therefore archaeological potential associated with this site is **negligible**, and the archaeological importance of any remaining features that may survive is also likely to be **negligible**.
- 7.1.3 Midway along the proposed development route the National Museum of Wales database records the finding of a Bronze Age socketed axe. There are no further details about this find however, and no confirmation that it was recovered from within the proposed development area or associated with an archaeological site, therefore as an artefact it is best considered alongside the general archaeological potential outlined below.
- 7.1.4 Archaeological excavation along the route of the South Wales high pressure gas pipeline revealed a multiperiod landscape in close proximity (within 100m) to the proposed pipeline route. The excavation revealed late Mesolithic to early Neolithic activity, an early to mid Bronze Age settlement and burnt mound, and a Roman agricultural landscape. In addition, large quantities of late Mesolithic artefacts have been uncovered close to the south end of the proposed development route, Bronze Age artefacts have also been recovered over a wider area, with further burnt mounds suspected on local water courses, an early medieval settlement was revealed in excavations to the south, medieval settlement is also recorded in the area and post-medieval farmsteads lie in close proximity. This would suggest a **High archaeological potential** throughout the local area.
- 7.1.5 This potential is however reduced by previous development works along the route of the proposed pipeline itself. Both the north and south ends of the proposed development lie in areas that have been cleared, levelled and developed as part of the oil refinery developments in the mid to late 20th century. The development also follows the line of a railway, presumably established along with the South Hook LNG site in the late 1950s. This route is largely represented by a bank of imported stone base, it is assumed the ground below would have been cleared and prepared in some way, but the extent of these works and the potential impact on the original ground surface is unclear, buried archaeological deposits could remain intact below this material. There is an increased potential for Bronze Age burnt mounds associated with local watercourses and the proposed pipeline crosses the route of two such watercourse. Burnt mounds have been identified adjacent to the watercourse towards the northern end of the route, the second watercourse has less potential as the banks have been quarried away prior to the railway development. At the northern end the proposed pipeline leaves the route of the former railway to cross a field. Although potential may increase in this area the field has been ploughed, and the route of the high pressure gas pipeline crosses the field, both impacting upon sub-surface remains across a large area within this field, but also recording no archaeological features within it.
- 7.1.6 Given the archaeology discoveries in the area, but along with subsequent development, there is considered to be **Medium archaeological potential** throughout much of the proposed development area. Excavated features in the

locality would suggest archaeological remains in this area, should they exist, would be of **Medium/Low archaeological importance**.

7.2 Setting

- 7.2.1 *Setting of Historic Assets in Wales* (Cadw 2017a) offers guidance on defining and analysing the setting of designated heritage assets to allow the impact of development to be appropriately assessed. The setting of such assets 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” (Cadw 2017a). As such it often extends beyond the physical boundaries of the monument itself. This may include physical elements in its surroundings such as boundaries and other monuments, relationships with other historic assets and natural features, or associated agricultural, industrial or other surroundings. Less tangible elements are also included such as function, sensory perceptions, historical, artistic, literary and scenic associations.
- 7.2.2 There are no scheduled monuments, listed buildings, historic parks and gardens or conservation areas within the proposed development area.
- 7.2.3 The closest scheduled monument lies around 1km to the east, comprising **Longstone Burial Chamber PE135**, the remains of a Neolithic burial chamber, and around 900m to the southwest, comprising **South Hook Camp PE307**, an Iron Age defended enclosure on a coastal promontory. **PE135** lies at the southern end of field, adjacent to a local road. There are no clear connections to the proposed development area and no inter-visibility between the two, the main views from the monument being to the north. **PE307** occupies a coastal promontory with extensive seaward views but separated from the proposed development area by the oil refinery. No archaeological or other features within the proposed development area would suggest the setting of PE307 extends to this area. No further scheduled monuments share any connections to, or are likely to be affected by, the proposed development.
- 7.2.4 Around 400m to the east of the proposed development lies the grade II listed building of the **Lodge Farmhouse at St Botolph’s (ref.12932)**. This is an early to mid 19th century farmhouse, built as part of the St Botolph’s estate, the centre of which lies to the north. The farmhouse is fronted by associated farm buildings and yard to the west and is located at the junction of the Milford Haven to Herbrandston Road, a local road running east, and a farm track towards St Botolph’s mansion. The building was presumably sited at this junction to act as an entrance to the estate land, which presumably encompass the farmland that largely lies to the north and east. The main Milford Haven to Herbrandston road has since been re-laid slightly to the southwest to smooth out the corner, and as a result the farmhouse and farmstead now stand slightly off the road junction. The ‘front’ of the house faces the farmyard on the west side, with conifers screening the view of the oil refinery. The ‘rear’ looks over a garden area and fields to the east. No further listed buildings share any connections to, or are likely to be affected by, the proposed development.
- 7.2.5 The proposed development area lies within the historic landscapes of Milford Haven Waterway (HLW(D)3). This area is subdivided into Historic Landscape Character Areas (HLCA), with the proposed development passing through **HLCA 311 Esso Oil Refinery** to the south, and **HLCA 345 Herbrandston** to the north, both of which are described in more detail in section 4.6.
- 7.2.6 HLCA 311 is drawn around the site of the mid-20th century oil refinery, now partially reoccupied by the South Hook LNG site. The oil refinery forms the main

characteristic component, prior which the area was predominantly agricultural in character with a mid-19th century coastal fortification at South Hook.

- 7.2.7 HLCA 345 is an agricultural area composed of large farms and large regular fields bounded by banks and hedges. The only nucleated settlement is that of Herbrandston village. Much of the agricultural landscape would appear to have its origins in the medieval period, with the current pattern established by the 18th century.

8 IMPACT ASSESSMENT

8.1 Development Proposals

- 8.1.1 The development proposals include the installation of new hydrogen pipeline. The route largely follows that of a former mid to late 20th century railway associated with the oil refinery site to the south. Final construction details have yet to be established but the provisional route is illustrated on Figure 2. The trench excavated for the pipe would need to be approximately 1m deep and 0.5m wide, with around 2m of clearance to either side. Machinery access for construction would likely be confined to this route, and once installed no further access would be required.
- 8.1.2 Generally, any of the following activities typically associated with a development of this type could have a physical impact upon historic assets by potentially exposing, damaging or destroying archaeological remains:
- Clearance, landscaping and terracing works;
 - Enabling works, such as the construction of compounds, parking and storage areas, associated services;
 - Surface stripping and levelling;
 - Pipeline trench excavation;
 - Any other ground disturbing works
- 8.1.3 Physical impacts of the development are discussed in section 8.3. Development in this area may have the potential to generate indirect impacts upon historic assets by altering elements of the setting. This is discussed in section 8.4.

8.2 Impact Assessment Criteria

- 8.2.1 The criteria for the assessment of impacts, both direct and indirect, on historic assets is based on The Department for Transport's '*Transport Analysis Guidance*' (TAG), Unit A3 '*Environmental Impact Appraisal: Section 8 Impacts on the Historic Environment*', of May 2019, with additional information based on professional judgement. In addition however, the guidance offered in the Setting of Historic Assets in Wales (Cadw 2017a) has been utilised.
- 8.2.2 The TAG criteria divides the impacts into seven categories:
- Large Adverse (negative)
 - Moderate Adverse (negative)
 - Slight Adverse (negative)
 - Neutral
 - Slight Beneficial (positive)
 - Moderate Beneficial (positive)
 - Large Beneficial (positive)

8.3 Physical Impacts upon the Historic Assets

- 8.3.1 There are considered to be negligible remains of **South Neeston farmstead PRN 119674** within the proposed development area. Development therefore is likely to have a **Neutral impact** on this site.
- 8.3.2 There is considered to be a **medium potential for archaeological remains** within the proposed development area. There is therefore the potential for any such archaeological remains to be disturbed through groundworks associated with the development. Given the location of the route along a former modern railway line the physical impacts may be reduced as access routes and adjacent clearance works may largely impact modern material associated with the railway construction. Trench excavations are relatively confined in scale but could still extend beyond modern deposits associated with the railway and impact on sub-surface deposits, and any potential archaeological remains they contain, below. The impacts may increase if the railway material proves problematical requiring more extensive clearance and ground preparation works, therefore the impact is considered to be **Slight to Moderate Adverse** on the general archaeological potential.

8.4 Impacts to the Settings of Surrounding Designated Features

- 8.4.1 The definition of setting, how it contributes to the significance of a historic asset, and why it is important are outlined in *Setting of Historic Assets in Wales* (Welsh Government 2017a; available online) as follows:
- 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. Elements of a setting may make a positive, negative or neutral contribution to the significance of an asset.*
- 8.4.2 As illustrated in Section 7.2 the proposed development does not appear to affect the settings of any scheduled monuments. The nearest sites, PE135 and PE307 have no tangible links to the proposed development area and no elements of their visibility will be affected. No further scheduled sites have been identified that may be affected. The impact of the development upon scheduled monuments is therefore considered to be **Neutral**.
- 8.4.3 The grade II listed Lodge Farmhouse at St Botolph's (ref.12932) has been highlighted in the locality. However its setting, which includes its associated farm building range, its roadside location and its links to St Botolph's mansion to the north will remain unaffected by the proposed development. The impact to the listed building is therefore considered to be **Neutral**.
- 8.4.4 The site lies within the Historic Landscape Area of Milford Haven Waterway (HLW(D)3), and more specifically split between the character areas of HLCA 311 Esso Oil Refinery and HLCA 345 Herbrandston. The main characteristic of HLCA 311 is the modern oil refinery development, a characteristic that will remain unaffected by the proposed development. HLCA 345 is a more rural area, characterised by fields and farmsteads. Again, other than a temporary impact to one field at the northern end during construction, the proposed development will leave these characteristic elements unaffected. Overall the impact upon the historic landscape area is considered to be **Neutral**.

9 CONCLUSIONS

9.1 Archaeological Potential and Impact Assessment

- 9.1.1 Part of a post-medieval farmstead PRN 119674 has previously been recorded in the site area but there is considered to be negligible potential for remains to exist within the proposed development area, which will therefore have a neutral impact.
- 9.1.2 A medium potential for archaeological remains has been identified across the local area, spanning multiple periods from the Mesolithic through to the post-medieval, with a particular potential for Bronze Age activity along local watercourses. These remains are considered to be of potential low/medium archaeological importance and a possible slight to moderate adverse impact upon them has been identified. Impacts may be limited by previous development and the scale of groundworks, but the potential remains for groundworks to disturb archaeological remains along the route, with a particular area of potential around a watercourse at the northern end.
- 9.1.3 No impacts to the setting of surrounding designated historic assets (scheduled monuments, listed buildings, historic parks and gardens, conservation areas) have been identified.
- 9.1.4 The proposed development lies within the Historic Landscape Area of Milford Haven Waterway (HLW(D)3), but the impact on this area is considered to be neutral.
- 9.1.5 No other significant impacts have been identified.

Table 5: Assessment of impacts

Site	Ref. No.	Potential	Value	Site Status	Physical Impact	Setting Impact
Sputh Neeston post-medieval farmstead	PRN 119674	Negligible	Negligible	-	Neutral	-
General archaeological potential	-	Medium	Low/ Medium	-	Slight / Moderate Adverse	-
Milford Haven Waterway Historic Landscape	HLW(D) 3	High	High	Registered historic landscape-	Neutral	Neutral

9.2 Mitigation

- 9.2.1 There is the potential for groundworks associated with the development to adversely impact below-ground archaeological remains, given the general archaeological potential in the area. Based on current understanding, the likely value of these remains are unlikely to be of a significance requiring preservation *in situ*, however preservation through record of any such remains would still be desirable, which would require some archaeological mitigation.

- 9.2.2 Given the extent of archaeological remains uncovered through excavation in the local area it may be desirable to gain a greater understanding of the archaeological potential of the proposed development route and its significance through targeted archaeological evaluation. An archaeological evaluation is a limited programme of intrusive fieldwork, comprising trenches opened under archaeological supervision and the suitable investigation and recording of those trenches, which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area. If such archaeological remains are present the evaluation defines their character, extent, quality and preservation, and enables an assessment of their significance and determines if further archaeological mitigation is necessary.
- 9.2.3 Alternative, or subsequent, mitigation could take the form of archaeological monitoring during groundworks associated with development. This would require the presence of an archaeologist as groundworks are undertaken, with the opportunity and resources included within the development programme to allow any archaeological remains identified during this process to be sufficiently investigated and recorded. Provision should also be made in the possible but unlikely event that significant archaeological remains are uncovered requiring additional mitigation, such as additional time and resources.
- 9.2.4 These mitigation measures are suggestions only. Any recommendations for archaeological mitigation rests with the archaeological advisors to the local planning authority.

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