

Technical Note

Project title	Rhymney Great Wharf Habitat Restoration Polders Enhancement Project
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cc	
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Date	7 March 2024
Subject	Supplementary Archaeological Note

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1. Introduction

Natural Resources Wales (NRW) commissioned Ove Arup and Partners (Arup) to assist in the Project aiming to restore and enhance saltmarsh habitats along the Rhymney Great Wharf, located within the Severn Estuary. This technical note provides supplementary information on the known and potential archaeology which could be impacted by the Rhymney Polders project, as well as giving an overview of those potential impacts and proposed mitigation. It should be read in conjunction with the Project Environmental Report.

The archaeological sites and artefact findspots referred to in this note are shown in relation to the proposed polder structures on the following figures:

- Figure 1: Heritage assets
- Figure 2: Types of heritage assets within the site

The site is located within the Gwent Levels Registered Historic Landscape (Cadw: HLW (Gt) 2) and is immediately to the south of the 'Relict seawall on Rumney Great Wharf' scheduled monument (Cadw: GM474). Consultation with Cadw has established there would not be any harm to the scheduled monument from the construction and operation of the polders to the south of the scheduled area. This technical note, therefore, focuses on the registered landscape and the archaeological features which are integral to it.

2. The Gwent Levels

The Gwent Levels designation as a registered landscape of outstanding historic interest reflects the presence of a landscape with thousands of years of evidence for human activity. The landscape of the levels was created through successive generations of land reclamation, itself overlaid onto a prehistoric marshland landscape where ground surfaces from different periods are sealed within in the clays and peats. Across the area there is high potential for archaeological and paleoenvironmental remains which, due to waterlogging, often have extremely high levels of

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preservation. Cadw describe the levels as ‘a uniquely rich archaeological and historical resource in Wales, and certainly of international importance and significance’¹.

Within the levels, different geological, environmental and human processes have led to a range of environments which is reflected in their archaeological potential. Mesolithic remains have been discovered underlying peat deposits, which formed later in the prehistoric era. Higher ‘islands’ within the marshes which formed are known for evidence of Late Bronze Age and Iron Age activity, but they became inundated with salt water after this period. The Romans carried out work to reclaim the salt marshes, constructing a sea wall and building drainage systems. The landscape continued to be managed as a wetland through the medieval period, with marshland used for pasture alongside some areas of land reclamation and drainage. More intensive drainage was undertaken in the post-medieval period, which led to the formation of the landscape as it is today.

The site is located in the intertidal zone, where processes of coastal erosion effectively make it an open archaeological site, with features of all periods emerging and disappearing within the mud flats as they are uncovered, eroded or recovered by the shifting foreshore material. Due to the changing coastline in the past, the layers and features located here are not necessarily coastal in origin, as the landscape would have been drier and further away from the coast at various points in the past.

The registered landscape has been divided into Historic Landscape Character Areas (HLCA), which reflect different patterns of historic land use which are distinct from one another in terms of their settlement, drainage systems, agriculture and archaeological potential. The western part of the site is within the Rumney HLCA while the eastern part of the site, south of Newton and beyond, is within the Peterstone HLCA. Assessment of these two areas, undertaken by GGAT, indicates that the landscapes south and east of Newton were laid out in the Roman period, with the drainage probably created by Roman legionaries based at Caerleon. The area was resettled in the medieval period. The GGAT assessment states that, “as a surviving example of large-scale Roman reclamation, it is certainly unique in Wales, if not north-west Europe”². The Rumney HLCA, which the western part of the site is located within, is more typical of piecemeal medieval land reclamation and there are few records associated with the coastline, the main ones being the setting back of the sea wall at Newton in the late sixteenth century – the remains of the wall are now scheduled and are located immediately north of the site (Figure 1).

3. Previously identified archaeology

In addition to its national designation as part of the Gwent Levels Registered Historic Landscape, the site is located within the Archaeologically Sensitive Area of the Wentloog Levels, an area defined as needing special consideration within local planning policy³. Council guidance on the area

¹ Cadw (2001) Gwent Levels. Available online at: [https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=&id=HLW%20\(Gt\)%202](https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=&id=HLW%20(Gt)%202)

² GGAT (no date) Nodweddion Tirwedd Hanesyddol; Historic Landscape Characterisation; The Gwent Levels: Gwastadeddau Gwent. Available online at: [Gwent Levels Main \(ggat.org.uk\)](http://Gwent Levels Main (ggat.org.uk))

³ Cardiff Council (2006) Archaeologically Sensitive Areas: Supplementary Planning Guidance. Available online at: [Archaeologically Sensitive Areas \(cardiff.gov.uk\)](http://Archaeologically Sensitive Areas (cardiff.gov.uk))

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states that there is exceptional preservation of organic material, including timber and leather, within the area due to its waterlogged nature. This means that, when sites are located, they are often nationally important.

A number of previous archaeological investigations within the site, as well as chance finds recorded within the Historic Environment Record (HER), have identified archaeological features, artefacts and artefact scatters, as well as palaeochannels which may be an indication of the location of further remains (Figure 1 and 2). These remains will be discussed in this section, but it should be noted that, due to the ongoing processes of coastal erosion, it is unlikely that these specific remains survive. However, they are strong indication of the kind of further remains which could be present.

The GGAT HER includes 47 records of archaeological features or finds within the site. Of these, 20 are of prehistoric date, and include:

- Two features interpreted of hearths within the peat layers, thought to be of Mesolithic date.
- Two Neolithic artefacts, including a flint knife and arrowhead.
- An assemblage of Bronze Age artefacts found together, which included over 60 sherds of pottery along with bone and fire-cracked stone.
- A possible Bronze Age round house.
- An Iron Age hearth.
- Several other structures, made of wood preserved within the waterlogged deposits, which are not as closely dated but are believed to be prehistoric and may be fencing or further round houses, as well as many other artefacts.

A particularly identifiable area of Bronze Age artefacts and features is centred on NGR: ST 23904 77917 and includes structures likely associated with a prehistoric trackway. In preserved layers of the mud there are prehistoric cattle footprints.

There are also 18 records of features or artefacts of Roman date. These include:

- Occupation layers – buried Roman land surface from which artefacts such as burnt bone, iron slag and pottery were found.
- An iron working site.
- Drainage ditches.

The Roman features are most notably concentrated at the eastern end of the site, with a cluster of finds indicating a possible Romano-British occupation site centred approximately on NGR: ST 24443 78291.

The remaining records are of post-medieval, modern or unknown date and include ditches, a paleochannel, wooden structures, sea defences and pits.

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In addition to the GGAT HER data, RCAHMW's National Monument Record of Wales (NMRW) dataset was consulted. The majority of the NMRW datapoints are duplicates of those in the HER data, with additional points indicating that the place name evidence ('Rhymney Great Wharf') suggests that it was a historic landing point and another collating a series of features included in the HER data into one point showing the presence of a prehistoric landscape.

4. Potential impact

4.1 Proposed works

The project seeks to re-establish and protect priority saltmarsh habitats along the Rhymney Great Wharf by installing polders and extending the polder system to the west. Polders are fences constructed of brushwood materials (e.g., willow (*Salix sp*) branches) inserted between chestnut (*Castanea sp*) fence posts in a rectangular pattern across the mudflat at an appropriate height to facilitate accretion of sediment (c.3m below Mean High Water Springs – MHWS). Tidal currents are slowed by the fences, and wave movements reduced, so that sediment can more easily settle out of the water column and encourage accretion that supports saltmarsh regeneration. Openings in the fences are required at existing creeks / channels to allow drainage on receding tides and allow suspended sediment to settle and support accretion of the mudflat shoreward of the polders. This will seek to provide a multitude of outcomes and benefits, including for biodiversity, flood protection and carbon sequestration.

An outline construction methodology has been developed to inform this assessment; a summary is provided below.

- The scheme will be constructed using specialist plant operating on the foreshore. This will be a combination of low ground pressure tracked and amphibious plant, selected to suit the soft underlying ground. Specialist plant means that effects to intertidal habitat (saltmarsh, intertidal mudflat) will be minimal, and recovery is anticipated within a short time frame.
- Plant will access the site area using the existing access routes from Wentlooge Avenue, subject to agreement with third party landowners. Minor works may be required to widen accesses through fences or to create passing places.
- A new temporary access ramp onto the foreshore will be required, crossing the existing revetment. This will be constructed from stone and would be removed following construction to allow for habitat recovery; saltmarsh, mudflat and grassland habitat may be impacted.
- Temporary access onto the foreshore will be required for the installation of wooden stakes to form the polders, utilising specialist tracked vehicles. Where possible, polder openings will align with existing naturally occurring channels to minimise disturbance to the sediment and work with natural processes.
- To limit harm to the ecological and archaeological sensitivity of the foreshore, methods will be agreed with NRW for minimising harm through the use of bog mats or aluminium trackways over the mudflats.

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- A temporary construction compound will be required – the site of a previous compound used for works to the long sea sewage outfall – will be reused to avoid any new disturbance.

4.2 Potential impacts

Potential impacts to the historic environment could arise from the construction and operation of the scheme, including:

- Physical removal of archaeological remains during construction, either through compaction or other disturbance from the movement of vehicles accessing the site or from the installation of the fencing itself.
- Harm to buried features due to changes in below-ground conditions, such as dewatering.
- Impact to heritage assets which are sensitive to harm resulting from change to their settings due to the visual or other experience of the construction or operation of the scheme.
- Beneficial impacts from the preservation of archaeological remains resulting from the protection that the polders, and the salt marsh and mudflats they will encourage, provide from coastal erosion.

4.3 Physical impacts

As discussed in sections 2 and 3, the site is in an archaeologically sensitive area and numerous artefacts and structures have been recorded along the foreshore at this point in the past, although those specific remains are unlikely to survive.

The construction of the scheme, including the movement of plant and the installation of the polder fencing, has the potential to remove or damage archaeological remains within the footprint of the area disturbed. While this has been minimised through the use of specialised plant, a previously established construction compound and existing access routes across the land to the rear of the shore, there will likely still be localised direct impacts.

It is unlikely, however, that there will be any indirect adverse impacts, resulting from changes to preservation conditions. This is because the polders, once operation, should encourage the formation of healthy salt marsh and mud flats, maintaining rather than undermining the below ground anaerobic conditions which create the high levels of archaeological preservation in the Gwent Levels. This is likely to be a beneficial impact. Further beneficial impact would arise from the protective action of the salt marsh and mud flats on coastal erosion along the foreshore – reducing the loss of features through exposure to the elements.

4.4 Impacts arising from change to setting

It is unlikely that there would be any permanent impacts to heritage assets beyond the immediate area of the works and the access to them as the polders, once constructed, are light structures in natural materials which will visually blend into the surrounding landscape and encourage natural saltmarsh and mud flat development. As a result, no impacts relating to the setting of heritage assets is likely to occur. Consultation with Cadw has confirmed that they believe the scheme is unlikely to result in significant harm to the adjacent scheduled monument through changes in its setting.

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5. Proposed mitigation

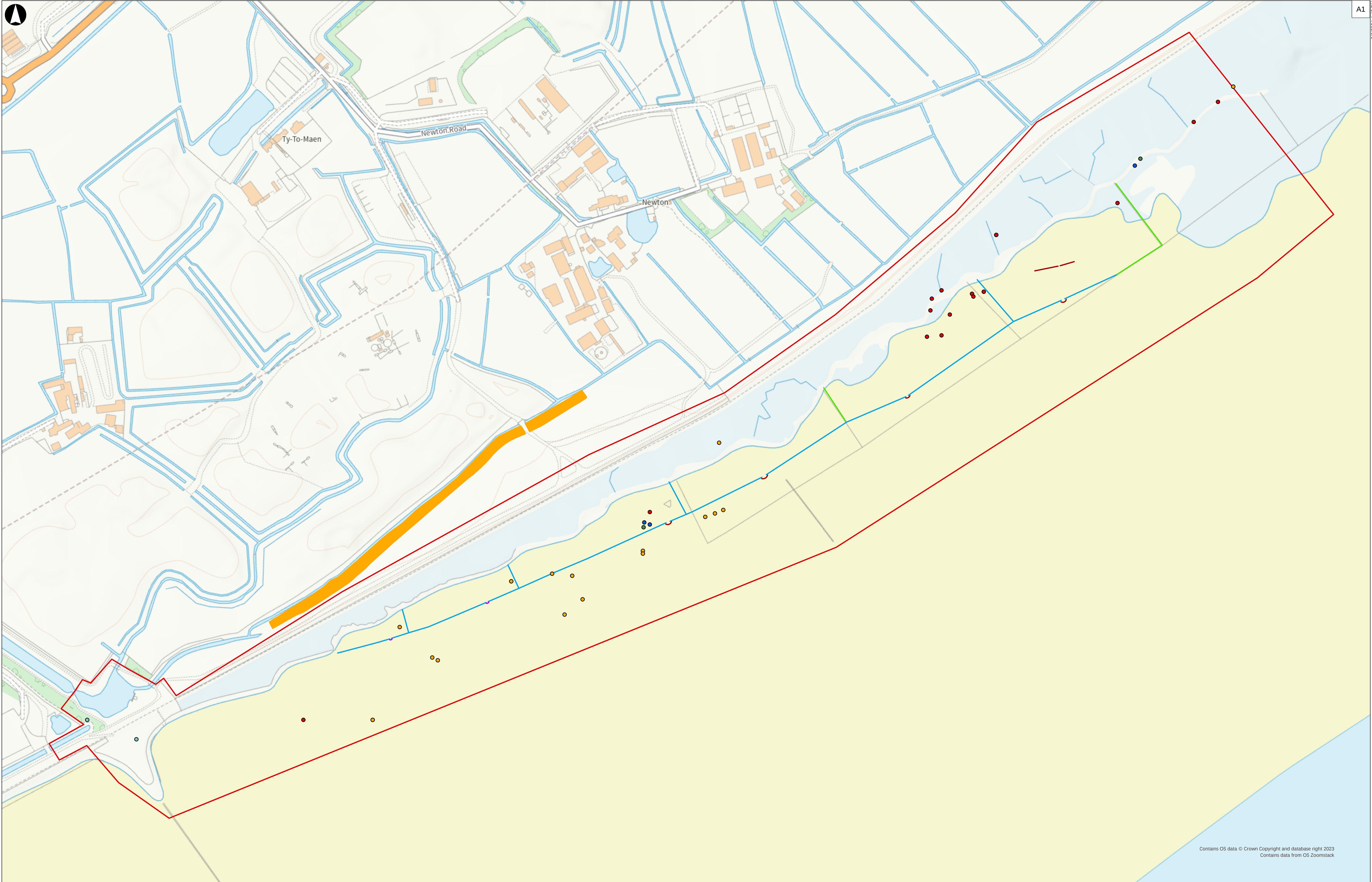
Following consultation with the RCAHMW Senior Investigator (Maritime) the following measures are proposed to avoid harm to archaeological features or mitigate that harm through recording if it is not possible/appropriate to do so:

1. Undertake walkover survey of the areas which would be affected by the construction of the polders, particularly including the routes which would be used for access. Where safety or biodiversity protection issues prevent walkover of areas, alternative methods, such as binoculars, will be used.
2. If features are identified which should be preserved, exclusion areas will be set up to protect them from damage by vehicles accessing the site.
3. A protocol for archaeological discovery should be put in place to provide a reporting mechanism of finds to GGAT and RCAHMW, including basic photographic and location records.

It is anticipated that these measures will be required by condition.

DOCUMENT CHECKING

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Signature			



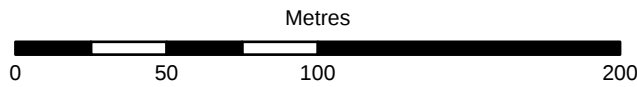
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Legend

- Survey boundary
- Proposed tidal opening protection
- Proposed baffles
- Proposed fenceline
- Repair of existing polder
- Scheduled Monuments

Heritage Assets by Period

- Prehistoric
- Roman
- Post-medieval
- Modern
- Unknown
- Palaeochannel
- Relict Reens



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Client

Cyfoeth Naturiol Cymru
Natural Resources Wales

Project Name

RHYMNEY GREAT WHARF
HABITAT RESTORATION
POLDERS ENHANCEMENT
PROJECT

Drawing Title

Heritage Assets

Scale at A1

1:2,500

Role

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Suitability

S2

Project Number

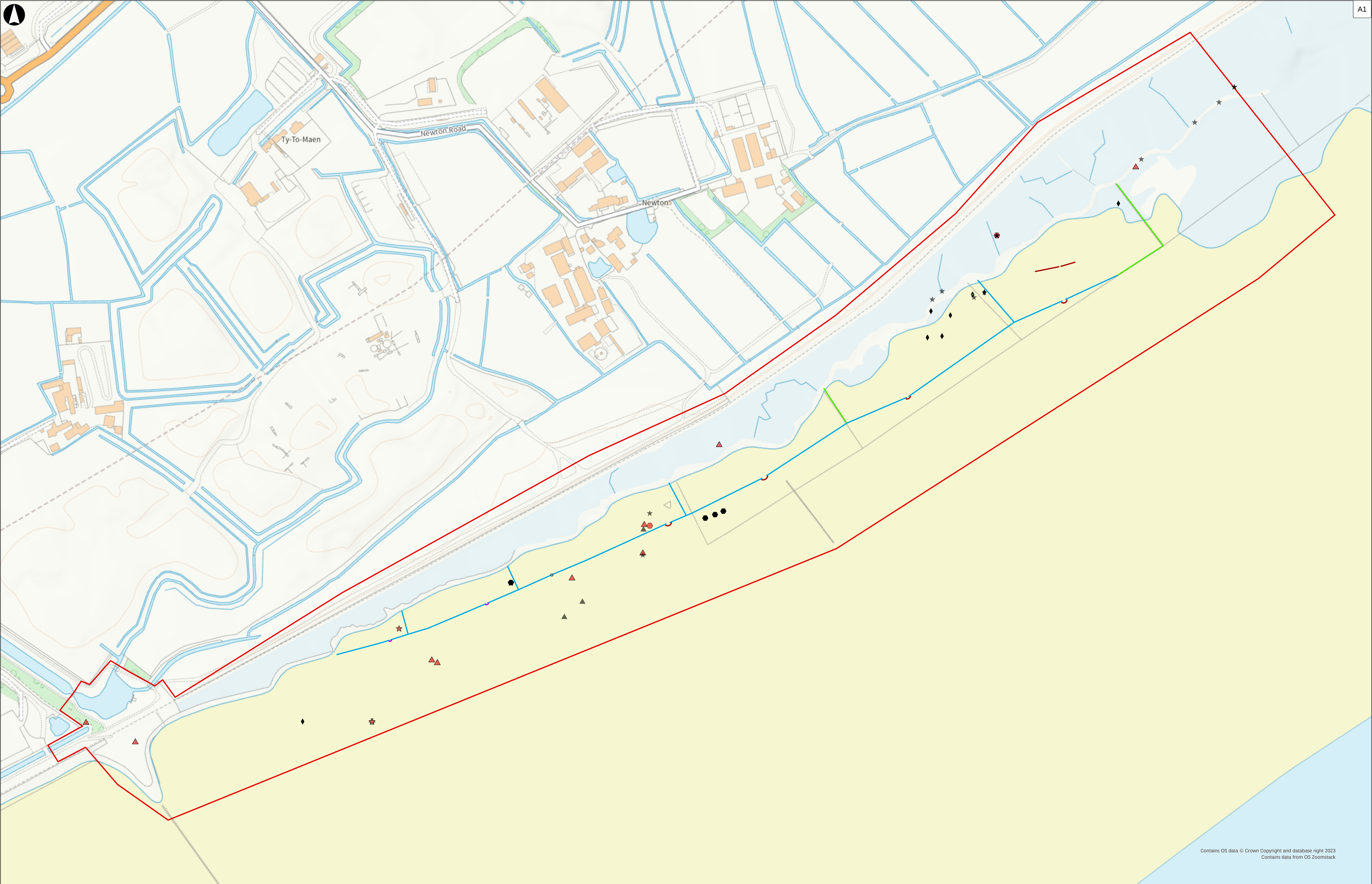
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Drawing Name

290063-ARP-XX-RP-DR-ZX-0009

Rev

P01



Legend

Survey boundary

Proposed tidal opening protection

Proposed baffles

Proposed fenceline

Repair of existing polder

Heritage Asset by Type

★

Artefact Scatter

◆

Ditch

★

Findspot

●

Footprint

●

Hearth

●

Iron working site

●

Palaeochannel

●

Pit

●

Relict Reens

▲

Structure

▲

Structure (poss)

⊕

Trackway

0

50

100

200

Metres

Coordinate System: British National Grid

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Client

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Natural Resources Wales

Project Name

RHYMNEY GREAT WHARF

HABITAT RESTORATION

POLDERS ENHANCEMENT

PROJECT

Drawing Title

Types of Heritage Assets within the site

Scale at A1

1:2,500

Role

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Suitability

S2

Project Number

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Drawing Name

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Rev

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