

Flood Defences, Afon Rhymney, Cardiff

Archaeological desk-based assessment

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A report for JBA Consulting
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Summary

The Projects Department of the Glamorgan-Gwent Archaeological Trust (GGAT Projects) have been commissioned by JBA Consulting to carry out an archaeological desk-based assessment in preparation for the modification and refurbishment of sea defences near the estuary of the Afon Rhymney, Cardiff. The desk based assessment reviewed information held by the Regional Historic Environment Record (HER), the National Monuments Record (NMR), Scheduled Ancient Monument and Listed Building information, as well as examining aerial photographs, cartographic and documentary sources.

A total of 22 sites of archaeological interest were identified within 100m of the development. It is considered that the proposed development will have a direct effect on 17 sites of archaeological interest. A 'Major' effect is envisaged on 13 sites: 02324s (Drainage Ditch), 02787s (Sea Defences), 02788s (Medieval Mill), 02821s (Sea Defences, Splott Moors), 02889s, 519320 (Finds at Trowbridge), 03990s (Slipway), RE001 (Pil Melyn Gout), RE002 (Earthworks, Lamby Fach), RE003 (Stone), RE004 (Sluice), RE005 (Building), RE008 (Structure) and RE009 (Limekiln). A 'Minor' effect is envisaged on 4 further sites: 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall), 05090s (Peat Deposits), 506654 (Rumney Wharf (West) and RE007 (Anti-invasion defences). A 'Slight' indirect impact is also envisaged on 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall). No effects are envisaged on the remaining 5 sites.

The proposed mitigation entails an archaeological watching brief on all intrusive groundworks associated with the development, focusing particularly on the easternmost bank of the estuary. Previous excavation less than 100m from the proposed development has found significant evidence of Prehistoric and Roman activity – therefore, in addition to the disturbance of known features, there is deemed to be a significant possibility of finding previously unknown sites of archaeological interest. Consultation with Cadw should also be sought if any works are intended to 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall) or in its immediate vicinity.

The work has been undertaken to the professional standards of the Chartered Institute for Archaeologists and is intended to meet the Standards and Guidance For Historic Environment Desk-based Assessments (2014).

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Abbreviations

CRAPW: Central Register of Air Photography for Wales

Flood Defences, Afon Rhymney, Cardiff: archaeological desk-based assessment

EXXXXXX:	Event of archaeological significance recorded in the HER
GGAT:	Glamorgan-Gwent Archaeological Trust
HER:	Historic Environment Record (curated by GGAT Curatorial)
HLCA:	Historic Landscape Characterisation Area (in Cadw and Icomos 1998).
LB:	Listed Building
LPA:	Local Planning Authority
NGR:	National Grid Reference
NLW:	National Library of Wales
NMR:	National Monuments Record (curated by RCAHMW)
NPRN:	National Primary Record Number (in NMR)
PGW:	Registered Park and Garden in Wales (Cadw and ICOMOS UK 1998)
PRN:	Primary Record Number (in HER - indicated by a letter suffix, in this case 's')
RCAHMW:	Royal Commission on the Ancient and Historical Monuments of Wales
SAM:	Scheduled Ancient Monument (prefixed by the letters GM)
REXXX:	A new site of archaeological interest discovered during the desk-based assessment

Introduction

Planning history

The Projects Department of the Glamorgan-Gwent Archaeological Trust (GGAT Projects) have been commissioned by JBA Consulting to carry out an archaeological desk-based assessment in preparation for the modification and refurbishment of sea defences near the estuary of the Afon Rhymney, Cardiff. The desk based assessment reviewed information held by the Regional Historic Environment Record (HER), the National Monuments Record (NMR), Scheduled Ancient Monument and Listed Building information, as well as examining aerial photographs, cartographic and documentary sources.

Specification and methodology for study

The desk-based assessment comprises a review of existing information about the archaeological resource within a study area comprising the proposed development area and a 100m buffer zone. The proposed development stretches along the coast from NGR ST 21535 77589 to NGR ST 22707 78001 (outlined in Figure 1). The assessment is intended to conform to the Chartered Institute for Archaeologists' *Standards in British Archaeology: Archaeological desk-based assessments* (1994, amended 1999, 2001, 2008, 2012 and 2014).

Information recorded on the regional Historic Environment Record (HER) (Enquiry Reference: 456) and National Monuments Record (NMR – Curated by the Royal Commission on the Ancient and Historical Monuments of Wales) (Enquiry Reference: RC16 - 0683) was assessed. Cartographic and documentary sources were studied, along with relevant published information. Current Listed Building data and information on Scheduled Ancient Monuments and Registered landscapes was obtained from Cadw. Collections of aerial photographs held by the Central Register of Air Photography for Wales (CRAPW) were examined (Enquiry Reference: W-AP-PR 16-254).

Detailed advice on archaeology in the planning process is contained in Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology. Works affecting an ancient monument and its setting are protected through implementation of the Ancient Monument and Archaeological Areas Act 1979 and The Historic Environment (Wales) Act 2016. Detailed advice on Environmental Impact Assessment is contained within Welsh Office Circular 11/99 Environmental Impact Assessment, which forms part of the wider Archaeology Planning Policy Wales (PPW). This document sets out the land use planning policies of the Welsh Assembly Government. Planning Policy Wales is supplemented by a series of TANs, and together with the Welsh Office Circulars comprise the National Planning Policy.

The Ancient Monument and Archaeological Areas Act 1979 and The Historic Environment (Wales) Act 2016 sets out a presumption in favour of preservation in-situ concerning sites and monuments of national importance (scheduled), and there exists in the current Planning Policy Wales (Chapter 6) a presumption in favour of preservation in-situ of all types of archaeological sites and monuments.

Assessment criteria

Direct effects (Monuments)

The archaeological sites within the study area are categorised in accordance with the only available criteria that are nationally agreed; these values are set out in the Department of

Transport/Welsh Office/Scottish Office *Design Manual for Roads and Bridges* paragraph 3.4 Vol. 11 Section 3 Part 2 (HA 208/07 Cultural Heritage).

- Category A: national importance
- Category B: regional importance
- Category C: local importance
- Category D: low importance

To these an additional category has been added

- Category U: unknown

The assessment of the importance of individual sites is essentially a subjective exercise based upon the experience of the project team. The importance of certain sites will be implied by their status within the statutory framework. Scheduled Ancient Monuments will always be of national importance; Listed Buildings will be of at least regional importance. **Values** assigned to other sites are given both in relation to their individual importance and to their context within the wider landscape.

The **condition** of individual sites and the general overall condition of surviving remains has bearing on the value of the sites themselves and on the value that they impart within a wider landscape context. The condition of sites is recorded following the system used by the GGAT HER, using the following criteria:

- Intact: the site is intact
- Near intact: the site is nearly intact
- Damaged: the site has been moderately damaged
- Near destroyed: the site has nearly been destroyed
- Destroyed: the site has been destroyed
- Restored: the site has been restored
- Moved: the site has been moved (usually finds)
- Not known: the condition of the site is not known

For the purposes of desk-based assessments, **rarity** is assessed at regional level only. The following criteria are used:

- High: very few sites of this type are known
- Medium: the site is not unusual, but cannot be considered common
- Low: the site is quite common

Group association is where a connection between sites within the landscape can be demonstrated. These will usually be of the same period, but may include groups where the presence of an earlier site or sites has led to the formation of a later complex, or where an earlier site or sites can be shown to have acquired importance as part of a later complex. The criteria are as follows:

- High: the site forms part of an interconnected complex occupying a clearly definable landscape where little or no fragmentation has occurred

- Medium: the site is part of an interconnected complex, which is either limited in scope or badly fragmented
- Low: there are few or no other sites, which are associated

Historical association is where there is a link between the site and known historical or cultural persons or events. Prehistoric sites, which are by definition before historical evidence, cannot have any contemporary historical association, but they may acquire later associations. For the Roman and Early-medieval periods, where survival of historical evidence is poor and patchy, any contemporary documentation at all will be important. Two classifications are given for historical association, one reflecting the certainty of the identification, and the other its importance. Only sites with certain or possible association can be assessed for importance, and historical association can only increase the importance of a site; the absence of it will never decrease its importance.

Historical association- identification

- Certain
- Possible
- Unknown

Historical association- importance

- High
- Medium
- Low

The assignment of values to identified interests requires consideration of the reliability and accuracy of the source data, ranging from fully-recorded features seen in open excavation to antiquarian comments on finds of note from a poorly-defined location. The **confidence** with which the values have been assigned is noted, using the following criteria:

- High: existing information is reliable and detailed
- Medium: existing information is apparently reliable but limited in detail
- Low: existing information is too limited to allow its reliability to be assessed

The **effect** of the proposal on the archaeological resource has been assessed using the following criteria:

- Severe: total loss
- Major: significant loss, likely to result in a reduction of value of the surviving site
- Minor: loss unlikely to result in a reduction of value of the surviving site
- None: no identifiable effect
- Beneficial: development will protect, preserve or enhance the site better than if the development did not occur

Indirect Effects (Monument and Landscape settings)

Indirect effects identified for the archaeological resource include those of visibility and setting issues. Only monuments of National and Regional importance with a direct visual significance will be assessed for indirect effects. If the development is situated within (or sometimes in close proximity to) a Registered Historic Landscape then an ASIDOHL2 (Assessment of the Significance of the Impact of Development on Historic Landscape) assessment is usually required. Although the current development is not located within a Registered Historic Landscape, part of the development on Sudbrook Road borders the Gwent Levels (HLW (Gt) 2). It is thus considered important to assess the potential indirect impact of the development upon the archaeological resource of the area.

The following indirect visual assessment does not conform to the full ASIDOHL2 methodology. However, in order to ensure a thorough evaluation, indirect effects have been assessed employing the *principles* of ASIDOHL2.

Indirect effects to category A and B sites will be measured against criteria for the assessment of indirect, visual impacts based upon the ASIDOHL2 methodology in *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process* (2nd Edition 2007). The grading for the assessment is as follows:

- **Very severe:** the setting of, key views and/or essential lines of sight to and from the monument are dominated or obscured by the development. The form, scale and appearance, including motion, of the development, compromise the cultural integrity of the monument and its setting resulting in severance of historical links and/or degradation of an unaltered setting.
- **Severe:** the setting of, key views and/or essential lines of sight to and from the monument are interrupted by the development. The form, scale and appearance, including motion, of the development, largely affects the cultural value of the monument and its setting resulting in possible severance of historical links and/or uncharacteristic change to a largely unaltered setting.
- **Considerable:** the development is significantly visible in or interrupts the setting of, key views and/or essential lines of sight to and from the monument. The form and appearance, including motion of the development results in discordance with the monument and change to a largely unaltered setting.
- **Moderate:** the development is visible in key views and/or essential lines of sight to and from the monument and its setting. The form and appearance, including motion of the development results in discordance with the monument and/or alteration to its setting.
- **Slight:** the development is noticeable in key views and/or essential lines of sight to and from the monument and its setting. The form and appearance, including motion of the development is noticeable and results in minor alteration to the setting of the monument.
- **Very slight:** the development is barely noticeable within the setting of, key views and/or essential lines of sight to and from the monument. The setting is already largely altered and unsympathetic and/or the form and appearance, including motion of the development is barely noticeable and results in little discernible change to the setting.
- **None:** the development is not noticeable within the setting of, key views and/or essential lines of sight to and from the monument. The setting is already altered and unsympathetic and/or the form and appearance, including motion of the development is not noticeable and results in no discernible change to the setting.

The assessment of individual sites is essentially a subjective exercise based upon the experience of the project team. The following aspects will be considered when determining the results of the assessment.

- Any potential impacts that the development may have on the relationships of the monument to its surrounding landscape, including other monuments.
- The nature, extent and intrinsic value of the monument's setting, including its role in relation to the monument; the impact to both the immediate, essential setting and the wider setting is considered.
- Interference with the inter-visibility between the monument and other related monuments or particular landscape elements, impact to key viewpoints, vistas and lines of sight.

The purpose of the monument and significance of views to and from it will be considered in terms of visual intention. Whilst the location, construction and function of some monuments were specifically chosen to afford views of a particular area or monument(s), others may instead have been the targets of observation. The visual impact of the development in terms of form, scale, appearance and the effect of movement of constituent parts as well as the extent of encroachment of the development into the setting (both immediate and wider) of the monument should be considered.

Impacts to the direct lines of sight as well as impacts upon wider views of monuments will be determined and graded using the categories described above (very severe down to very slight).

Hedgerow Regulations

The Environment Act 1995 (section 95) allowed regulations to be drawn up to protect important hedgerows from activities that were not subject to planning consent. The *Environment Act 1995 Hedgerow Regulations 1997* were specifically intended to provide objective criteria of importance which could be applied consistently across England and Wales. Thus although administered by the local planning authorities, the opportunity to develop local criteria for protection was restricted to designation as a key landscape characteristic for development control purposes (Section 7b ii) by the relevant date (April 1997). The regulations permit the removal of any hedgerow (including any stretch of hedgerow) for 'carrying out development for which planning permission has been granted' on the basis that the development control process provides a framework for weighing up the loss of hedgerows against the benefits of a proposal. Thus in such a context the significance of surviving hedgerows needs to be considered.

The regulations were the subject of a review by the Department of the Environment, Transport and the Regions, *Review of the Hedgerow Regulations 1997* (1998), which suggested a simplified set of criteria, notably to include all pre-1845 or pre-1800 hedgerows where the field system is substantially complete. The Government noted the proposed changes but has not endorsed them (*The Government's response to the Environment, Transport and Regional Affairs Committee's Report 'The Protection of Field Boundaries' 1999*). The 1997 criteria therefore remain in force. Judicial Review of the application of the regulations (*Flintshire County Council v NAW and Mr J T Morris*) has clarified the interpretation of some of the criteria.

The criteria of historic importance in *The Hedgerow Regulations 1997* can be summarised as:

- marking a parish or township boundary

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- incorporating or associated with a Scheduled Ancient Monument or site on the SMR at the relevant date
- marking a pre-1600 AD manor or estate boundary, or related to a building of such a manor or estate
- part of a field system pre-dating 1845 shown on a map in a Record Office
- part of a pre-1845 field system that is substantially complete
- part of a pre-1845 field system where the pattern was identified in 1997 as a key landscape characteristic

There are other criteria relating to rights of way and ecology.

Background

Location, Topography and Geology

The proposed development extends from NGR ST 21535 77589 to NGR ST 22707 78001 (Figure 1). It is situated on the Gwent Levels, between sea level and 9m OD. North and west of the development lies the city of Cardiff and its suburbs, the closest of which is Rumney, further upriver, while to the northeast lies the village of Newton. Sea defences already exist in the area on both sides of the river and adjoining coastline. On the eastern bank of the river behind these existing defences is the Lamby Landfill site. West of the river, the land is utilised as a public highway and has an industrial use.

The underlying geology consists of Mudstone bedrock of the Mercian Mudstone Group, overlain Tidal Flat Deposits of clay, silt and sand (BGS 2016).

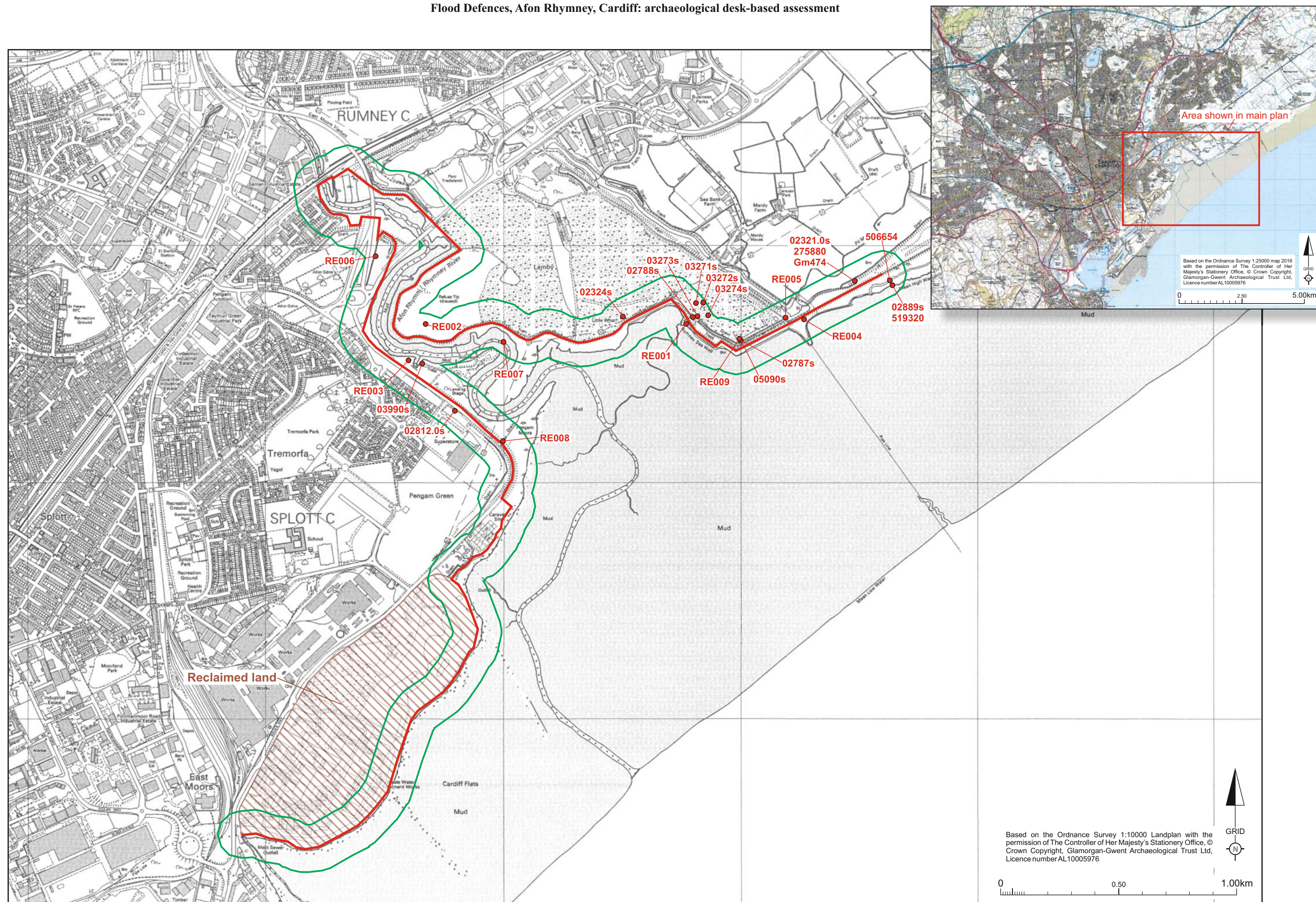


Figure 1. Location of site showing route of sea defence (red) and 100 metre buffer zone (green) with sites of archaeological interest shown in red.

Historical and archaeological background

The eastern area of the proposed development lies on the Wentlooge Level, one of the Gwent Levels which together form a Landscape of Outstanding Historic Interest (HLCA (Gt) 2) (Cadw and Icomos 1998). The area itself forms part of HLCA 018 within the Levels (Rumney: http://www.ggat.org.uk/cadw/historic_landscape/Gwent%20Levels/English/GL_18.htm). The area is very rich in evidence of past human activity from the prehistoric period onwards, which has been well studied, notably by Rippon (1996) and Bell (2013). Indeed, the Levels can be considered to be of international importance:

‘Because of the recurrent phases of inundation and alluviation, there is also a proven, and possibly quite vast, potential for extensive, buried, waterlogged, archaeological and environmental deposits belonging to earlier landscapes, including within the area of the intertidal mudflats beyond the sea walls and banks’ (Cadw and Icomos 1998).

Prehistoric activity is well evidenced within the area, often particularly well preserved due to the historically marshy environment. For examples, tree stumps discovered on the foreshore of Rhymney Great Wharf have been radiocarbon dated to between 6000 and 8000 years BP, and suggest a forest later inundated by rising sea levels (Neal et al. 2005, 12 - 15). An aurochs – a now extinct type of wild cattle - discovered in the intertidal zone on the eastern side of the Rhymney estuary, yielded radiocarbon dates of 2875 – 2464 BC (02322s), although it probably strayed into a paleochannel and drowned. Although these do not relate directly to human activity, they do indicate the high possibility of recovering well preserved prehistoric material.

There is also significant evidence of Bronze Age occupation on the eastern side of the Rhymney estuary, with a roundhouse and hearth, (02381s, 519318; 03244s), the former radiocarbon dated to 1453 – 1211 cal BC (Bell 2013), together with other timber structures (01983s, 02895s) a side looped spearhead (02882s), a sherd of coarse pottery and cattle bone (02888s, 02889s). A number of other wooden structures in the area are thought to be prehistoric but have not been securely dated (02890s, 02893s, 02894s) (Maynard 1995). They together form part of a well-defined prehistoric landscape which lies immediately to the east of the development. In addition to dwellings, some of the wooden structures have been variously interpreted as fish traps, animal pens or shelters (Bell 2013, 295-99). Additionally, a number of deposits of peat were identified during a borehole survey in 1997 (Roberts 1997a), which, although natural, was deposited in this area between the late Neolithic and early Bronze Ages (05085s, 05090s). Later prehistoric activity is also indicated by a single Iron Age pottery sherd found on Rumney Great Wharf (02889s, 519320).

Also at Rumney Great Wharf, Roman activity is suggested by a number of drainage ditches (519317; 05214s), filled with Roman pottery, daub, bone and iron slag (00817s, 02395s, 02900s, 02901s, 02904s, 05215s – 05223s) (Allen and Fulford 1986). These ditches were discovered in the intertidal zone east of the development, and seemed to be datable to between the late 2nd century and early 4th century AD (Allen and Fulford 1986, 114). Their existence suggests that some sort of Roman settlement may have existed on the Levels, perhaps including ironworking alongside agriculture, and certainly suggests that land reclamation was taking place during this period, to convert the saltmarshes to more productive farming land (Allen and Fulford 1986). These ditches were also found during work to the sea defences in 2004 (Tuck, 2004). Allen also suggests that some of the extant drainage ditches may be of Romano-British origin, though this remains uncertain (Allen 1988, 135 – 140). It is possible that a Roman seawall may have existed to defend these newly reclaimed lands (Allen and Fulford 1986, 112),

although the Roman coastline was as much as 1km further south and the sea defences have probably been destroyed by coastal erosion (Neal et al. 2005, 23). Land reclamation and the construction of sea defences are recurring themes on the Levels throughout history.

Very little evidence so far exists for Early Medieval activity on the Levels, although this may be due to the fact that Wales was largely aceramic (without pottery) during this period. Archaeological evidence suggests a period of flooding, presumably following the failure of the Roman sea defences (Rippon 1996, 38). A number of fish traps on the Caldicot Levels have been dendrochronologically dated to the early medieval period, and it is possible that similar activity could have taken place along the Levels, although the only fish trap near the development is a late 19th century example near the tremorfa works (02830s, 519313): this activity seems to have had a long occurrence on the Levels. The placename Lamby, it has also been suggested, may be Scandinavian in origin, although it is first attested in 1401 (Rippon 1996). It has also been hypothesised that the placenames 'The Luggs' and 'Kesja' (the former of which falls within the Study Area – see Plate 5) may also be Scandinavian in origin although this is purely speculative (Neal et al. 2005, 26-7).

During the medieval period, the area formed part of the manor of Rumney, which in turn formed part of the Lordship of Wentloog (originally Gwynllŵg in Welsh) (Bradney 1993). The place name appears in various forms in documentary sources: Rompney, Romney, Remni, Remne, Rempney, Rumney, Rhymney and the Welsh Tredelerch all appear (Neal et al. 2005, 1). While the centre of the manor lay upriver at Rumney, northwest of the development area, some activity seems to have occurred near the coast. Two mills are recorded in the manorial records of 1466 – Rumney mill and New Mill, and while their locations are uncertain, it has been suggested that one (02788s) may have existed at the mouth of the Pil Melyn stream – 'Melin' equating to mill (Maynard 1995; Rippon 1996), at NGR ST2280 7769. Rippon (1996), also identifies a medieval sea defence along the eastern side of the Rhymney Estuary, although its course remains uncertain.

From the early Post-medieval period, the manor was held by the Morgan family of Tredegar. In 1590 - 91, the Court of Augmentations noted that the existing sea wall in the manor was in a poor state of repair, and commissioned the construction of a new sea wall slightly further inland (Maynard 1995). This has been identified as the relict sea wall (02321.0s, 275880, GM474) which survives as a Scheduled Ancient Monument today.

The parish of Rumney, in which the eastern half of the development lies, formed part of Monmouthshire until 1974, though Roath parish, on the west side of the estuary, lay in Glamorgan. Until the 20th century expansion of Cardiff, the parish was relatively sparsely populated, with a population of just 235 in 1801, which had grown to 540 by 1891 (Bradney 1993). The farm of Maendy, which lies 300m north of the development, may be 17th century in origin.

A large number of shipwrecks were located around the Bristol Channel, though few signs of these are visible today. One unnamed wreck is known to be located in the general area of the development (02884s), situated directly off the estuary, 500m from the modern coastline.

More recently, an aerodrome (04245s) was set up in 1931 at Pengam Moor (originally called Splott), just to the west of the development. By 1936 it was known as Cardiff Municipal Airport, and consisted of wooden huts around a grass airstrip. With the outbreak of the Second

World War in 1939, Pengam Moor was requisitioned by the Air Ministry and became RAF Cardiff, mainly flying transport and communication aircraft. A concrete runway was installed in 1942, and the airfield returned to civilian operations in 1946. The airfield became redundant when aircraft began flying from Rhoose in 1954 (Huckfield 2012). A heavy anti-aircraft emplacement (04480s) was located across the river to the northeast.

A search of the regional Historic Environment Record (Enquiry Reference 456) revealed 11 sites of interest. These are included, along with sites identified by the RCAHMW and Cadw in a gazetteer in Appendix IV.

Previous Investigations

No fewer than 20 events of archaeological significance have taken place within the study area, although this number includes five individual boreholes (E000988 – E000992), which were excavated as part of the same project in November 1996 (E002381). This comprised 25 boreholes on the eastern side of the river. No archaeological finds or features were discovered (Roberts 1997a).

Two previous desk-based assessments have been carried out in the area: the first was commissioned in March 1993 following proposed improvements to the sea defences between Cardiff and Sudbrook (Locock 1993). A second desk-based assessment was carried out in May 1993 on the area of the Lamby Way Tip, following proposals to expand the landfill area (Wilkinson 1993). Neither identified sites of significant interest

An evaluation was carried out on an extension to the Lamby Way Tip in 1997, to try and locate the remains of the medieval mill thought to exist there, or remains of earlier sea defences. No archaeological features were discovered; the report suggests that any former sea defences either followed the line of the present-day defences, or were located further seaward (Roberts 1997b).

A watching brief (E005343) was carried out on the installation of water pipes in 2005, which again discovered no features of archaeological importance (Schlee 2005).

Review of Documentary, Cartographic and Aerial Resources:

Cartographic (Appendix I)

178- A Map of Lands in Rumney

This map shows landholdings in the manor of Rumney during the 1780's, showing several disparate parts of the parish. One of these is located on the eastern side of the Rhymney estuary, and shows the land holdings next to the coast. The field patterns are very similar to those encountered today, suggesting that very little change has taken place recently. To seaward of the fields, a continuous pencilled line is shown, following the line of the defences shown on later maps, which are probably the sea defences. No further detail of the construction is shown.

1790 – By West. NLW Reference: Tredegar 714 (Plate 1)

A small sketch map of lands adjoining the sea wall to the east of the development area along Rhymney Great Wharf. It shows the landowners approximately 200m east of the development, and thus outside our Study Area. However, it also indicates that the sea wall was in existence at this time, although its construction – whether a stone wall or earthen bank – is not clear. The document is concerned with a small piece of land behind the sea wall called 'By West' – according to the creator the best piece of land on the level.

1823 Survey of the Sea Walls and Banks in the Level of the Hundred of Wentllwg in the County of Monmouth from Rumney Bridge to Newport, by Thomas Wakeman, Surveyor. (Plates 2 and 3)

This survey comprises a series of plans with an accompanying volume, which details the state of the sea defences at this time, covering the eastern side of the Rhymney estuary. In places (notably the eastern end of the study area), the map shows the 1823 defences as following the course of the modern ones. However, further upriver, the course of the defences in 1823 was much further inland than today. Most of the structure at this time was simply an earthen bank, particularly along the river bank. However, around the outlet of the Pil Melyn stream, it was constructed at least partly of stone, a method of construction which continued southeast along the coast to become an earth bank, approximately at the eastern terminus of the development. It seems likely that this section may have been prone to more erosion than that further upstream. However, the area immediately around the Pil Melyn stream was split into very short sections, no more than 13 feet long, some of which were constructed of stakes. Why this was so is unclear, although it is possible that they represent damaged areas of the defences. A gout, or outlet to allow water to drain, was shown here (RE001). While the village and surrounding farmhouses are shown, no structures are indicated in close proximity to the sea defences.

1840 Tithe Map of the Parish of Roath

The 1840 Tithe map covers the area west of the river, and shows very little. Most importantly, the coastline was shown as radically different from modern maps, as much as 400m further inland than it is today: the line followed by the modern sea defences was at this time either shown as mudflats, covered at high tide, or out in the Bristol Channel itself. Only along the riverside is the shape of the land similar, although even here the course has since changed somewhat. Those parts of the river which were not mudflats were used as meadow or pasture, although it seems likely that they were marshy in nature.

1846 Tithe Map of the Parish of Rumney (Plates 4 and 5)

The 1846 tithe map shows that by 1846, the sea defences east of the estuary appeared to follow their modern course. The field system shown on this map closely corresponds to the modern fields. Few manmade features are shown in the vicinity of the development, with the exception of the sea defences, a system of drainage ditches, and two gouts – Bars Croft Gout and Pill Melin Gout (RE001) – where the drainage passed through the sea defences. Only the latter of the two lie within the Study Area as the course of the defences further north has since changed.

The areas of land lying between the flood defences and the river – such as The Island, The Luggs, Lamby Fawr and Lamby Fach, are all described as pasture.

However, comparison with modern maps also shows that a significant amount of coastal erosion has taken place since 1846, with the loss of a significant amount of salt marsh seaward of the sea defences.

First Edition (1880 - 1886) Ordnance Survey map (Figures 1 and 2)

The First Edition Ordnance Survey Map shows little difference when compared with the tithe maps. The eastern side of the estuary remained a mixture of agricultural land (on the landward side of the sea defences) and saltings (on the seaward side of these defences). The defences themselves are shown as a bank, and the gouts on the earlier tithe maps are shown as sluices. The course of the river and the line of the coast appears similar to that in the earlier tithe maps, approximately 400m further northeast than today.

Additionally, on the eastern bank of the Rhymney, on the area of marsh labelled Lamby Vach, an earthen bank, and three small oval or rectangular earthworks or structures are visible (RE002).

A single stone is marked on the western side of the estuary at approximately NGR ST2160177513 (RE003). The age and function of this stone is uncertain without further information and could range from the Prehistoric to Post-medieval periods.

The only other significant difference is the addition of the Great Western Railway, passing through the extreme north of the Study Area: it remains as the modern railway.

Second edition (1900 - 1901) Ordnance Survey map (Figures 1 and 3)

Very little change had taken place by the turn of the twentieth century. Stone (RE003) had vanished and new railway sidings had appeared alongside the main GWR railway at the sidings at north end: although their function is not stated, just to the north of the study area were a number of brickworks, and it seems likely that the two were related. The only other new structure was a sluice (RE004), near the eastern terminus of the development.

The only other feature of note is that, southwest of the river, the coastline appears to have further retreated. To the northeast, in the area of Rumney Great Wharf, there also appeared to have been some coastal erosion to the exposed saltmarsh, although it appears to have been much less pronounced here.

Third edition (1919) Ordnance Survey map (Figures 1 and 4)

The third edition OS Map (1919) again shows few differences within the Study Area. The sluice which had appeared on the Second Edition (RE004) had already disappeared, although a small building (RE005) had since appeared in the same area, and the great western railway

had widened. Otherwise, the only other event of note was the further retreat of the coastline, southwest of the river.

Fourth edition Ordnance Survey map (1941-51) (Figures 1 and 5)

The most significant difference by 1941 was the creation of sea defences on the western side of the River Rhymney, which approximately followed the line of the modern Rover Way along the riverbank, although further southwest, the sea defences were set back from the coast. The line of Rover Way here approximately follows the coastline (here the edge of the exposed saltmarsh) which had retreated still further: Comparisons between this map and the First Edition suggests a retreat of up to 100m during this short time: hence the construction of sea defences. East of the river, the mapping between 1880 and 1921 suggests the loss of 50m of saltmarsh (the coverage of the Fourth Edition 1:2500 series did not extend to the whole Study Area, omitting the eastern quarter, although the 1:10560 suggests further coastal erosion by 1951). Outside the Study Area to the west large numbers of houses were being constructed, although RAF Pengam Moor (Cardiff's civilian airport in the inter-war years), was understandably not shown on this wartime map. Between Pengam Moor and the railway allotment gardens (RE006) had been planted west of the river.

Aerial Photography (Appendix III)

The earliest examined aerial photographic coverage of the area dated from 1941 (4102 HLA/134). This corresponded to the Fourth edition Ordnance Survey mapping, with the sea defences on the western side of the estuary. Unlike the cartographic evidence, however, the photographs also show the airfield – at this time RAF Pengam Moor, indicating that it consisted of a grass airstrip with a cluster of buildings to the northwest of the study area, some just encroaching upon it. The sea defences are also clearly visible on the eastern side of the river, following the same line visible on the mapping since 1823 (Plate 6). The difference in land use either side of the sea defences is particularly evident on the aerial photographs: on the landward side, agricultural land with regular drainage ditches and plough marks clearly visible; to seaward, saltmarsh, interlaced with numerous irregular small watercourses. On the eastern side of the river outside the flood defences, on the area now occupied by the Lamby Tip, several intersecting lines of dots – perhaps posts or poles – are possible anti-invasion defences (probably anti-glider), or possibly a decoy used to divert air attacks from the nearby airfield (RE007).

The features (RE002), which appear on all first four editions of the Ordnance Survey mapping, are also visible on this 1941 photograph: they may be ruined buildings, enclosures or banks – though they later appear full of water, it is possible that they also had functions related to drainage.

Later aerial photography from 1948 (4822 CPE UK 2520) shows greater detail. The anti-invasion defences (RE007) were still in place. The airfield (once again a civilian airport) now had a concrete runway and a perimeter road, which passed just inside the sea defences in this area. A structure was also located immediately to the seaward of the defences (RE008), on the edge of the marsh near the sea – this could possibly be a wartime defence, although it is possible that it relates to drainage, as a drainage channel is observed nearby. Another structure on the mudflats south of the airfield, obviously had drainage functions.

Photographs of the 1950's (5022 541 RAF 527, 5024 541 RAF 540, 5129 58 RAF 690) show that the anti-invasion defences (RE007) had been removed by this time. Otherwise, little significant change and no new archaeological features are visible on these photographs, although those of 1952 (5211 58 RAF 5098) show the sea defences east of the estuary in some

detail, particularly the stone revetted bank east of Pil Melyn: This form of the feature appears little different to the 1823 map, suggesting that the bank was probably still the same visible on this earlier cartographic evidence. Additionally, waste materials from the steelworks were slowly being piled up on the mudflats at the southwest end of the study area, beginning the process of land reclamation in this area.

From 1952 there is a gap in the photographic record until 1960 (6008 543 RAF 950). During this time, significant changes had occurred, including small changes to the course of the river at the northern end of the Study Area, and small amounts of construction work in this area. To the southwest, waste continued to be piled up. By 1962 (6211 58 RAF 5154, 6213 58 RAF 5502), this area of newly formed land had expanded to approximately the same form of today. Changes in the form of the sea defences on this western side of the estuary had also occurred, for the construction of the road that is today known as Rover Way. A new bank is also visible on the eastern side immediately behind the existing sea defences, presumably to heighten or reinforce the existing defences here.

The only significant event on the later aerial photographs relates to the changing course of the sea defences, beginning with the construction of a new sea wall at the extreme east side of the development, in front of the existing one (the latter now scheduled), between 1968 and 1971. Building RE005, visible on the 1963 photograph (6310 OS 63 074), had gone by this time. Deposition of waste on the saltmarshes at Lamby on the eastern side of the estuary in 1978 also resulted in a modification to the line of the sea defences. Within ten years, the tip had expanded again, resulting in further change to the line of the defences to their present course, along the riverbank. This expansion swallowed up features RE002. Additions were also made to the sea defences east of the development on Rhymney Great Wharf between 1991 and 1999 (9138, 9943 OS 99 349).

Documentary

A number of documentary sources survive in the National Library of Wales which relate to the area. The earliest examined is a *Survey of the Sea Wall of Wentlloog level*, dating to 1737. This survey lists the proprietors for each stretch of sea wall from the Rumney Bridge (presumably upriver of the current development), and Newport Bridge. The most notable proprietor was the lord of the manor (of Rumney), who certainly had responsibility for the Pil Melyn Gout and the surrounding sections (Tredegar 97/235).

This survey, however, does not include a map or plan of the sea defences, limiting its usefulness. The earliest detailed plan is dated to the 1780's (see above).

A more detailed account of the sea defences exists in a later document dating to the 1770's (Tredegar ANI/1). This document includes an account of payments made relating to the sea walls in St Brides, Bassaleg and Rumney between 1772 and 1776, and includes information on the materials used for construction and repair at this time. Firstly, during 1772 and 1773 large numbers of stakes were being made, notably by one David Joseph, although the number varied considerably. For example, in May 1772, David Joseph made 800 stakes, while in June he made two batches totaling 1727 stakes. These stakes were being used for 'cribbs' - a construction method involving interlocking timbers, the space between filled with stone, to create a wall - and the document contains many references to stone used for this purpose. Several references also exist to the use of lime, perhaps in mortar or repair work, although it is unclear whether sections of the wall were entirely masonry at this period (Plate 7).

Lime was evidently very important (perhaps suggesting a more permanent masonry construction was at least partly underway), and is especially mentioned in relation to Rumney Parish. In august-September 1772 a limekiln (RE009) was constructed at Rumney, with recurring mentions of lime burning and the lime kiln from then on.

It is also evident that much of the stone used for the sea defences was quarried at Lavernock, as there are frequent references to both the transport of stone, and of visits (presumably by Thomas Prosser, the author) to Lavernock to 'View the Quarry'. Occasional references to Penarth and Portishead suggest that lesser amounts of stone was sourced from these locations.

Among the many references to construction in Rumney at this time, there are none in the document referring to repair in this area (although there are many references to repair in St Brides). It is possible that this may indicate a period of reconstruction. The maintenance of the sea defences was a continuing job. The cost of the construction and repair across Rumney, St Brides and Bassaleg mentioned in the document between 1772 and 1776 totaled £732.15s 6d.

A later document, dating to 1811 (Tredegar 68/108), also makes reference to the sea defences, this time mentioning the employment of masons to repair sections of sea wall in Rumney, perhaps that noted in the 1770's. There is also reference to thatching at 'the Lime Kiln at Rumney Sea Wall', suggesting that a lime kiln – quite possibly that mentioned in 1772 (RE009) – was located near the sea wall and that lime burning was ongoing at this period (Plate 8). One Philip Robert was noted as hauling no fewer than 180 tons of stone 'from the Pill to the sea wall at Rumney'.

Walkover Survey

A walkover survey was conducted on 09/01/2017 and 10/01/2017, during which the development area was photographed, along with key sites from the study area. The weather on the first day of the survey was heavy rain; on the second day it was cloud.

Although the survey discovered no new sites of archaeological interest, sites previously identified from a search of the regional Historic Environment Record (HER) and National Monuments Record (NMR) were visited in order to assess their current condition. The study area on the landward side of the flood defences around the Lamby Tip was not easily accessible, and thus the walkover here was confined to the line of the defences and the study area on the seaward side.

No surviving above ground traces of the majority of these sites was visible during the walkover survey, with the exception of the relict sea wall (02321.0s, 275880, GM474), the Pil Melyn Gout (RE001 – although now much altered) and building RE008. The surviving remains of the latter was surveyed, the details of which are given in Appendix IV, although the presence of a doorway and possibly a window may suggest that purely drainage functions are unlikely: thus RE008 is perhaps more likely to be a wartime feature related to the airfield.

Across the foreshore on both banks of the Rhymney, in those areas where erosion was visible, many circular grey features could be discerned in the brown clay. All varied in size and did not form any particular pattern – although potentially geological, it is possible that they may represent ancient vegetation (such as tree stumps). As these covered a wide area at the point where the river entered the sea, they have not been included as a specific site requiring mitigation.

Two possible paleochannels, or perhaps old silted up drainage ditches, were identified on the spit of land protruding from the west bank at the mouth of the river, although as these lie outside the Study Area, they lie beyond the scope of this work. Nevertheless, their existence further highlights the possibility of encountering similar features within the study area.

During the course of the visit, Rhymney Great Wharf was visited to assess the condition of the Roman ditches observed in 2004: this area had largely silted up in response to the sea defences, and no features of Prehistoric, Roman or Medieval date could be discerned.

A sample of photographs (Plates 9 – 24) illustrating the current condition of the sites of archaeological interest can be seen in Appendix II). The plates are in geographical order, from the eastern terminus of the development to the western terminus.

Archaeological Interests

A total of 22 sites of archaeological interest have been identified within a 100m radius of the development (see Figure 1 and Table 1), although four of these are records of archaeological work which has taken place in the vicinity, rather than specific sites.

Five digit numbers with a letter suffix (s) are Primary Record Numbers (PRNs) recorded in the regional HER. Five or six figure numbers without a letter suffix are National Primary Record Numbers (NPRNs) of the NMR, as supplied to the HER under the ENDEX agreement. Numbers preceded by the letters 'LB' are Listed Building numbers, whilst those prefixed by the letters 'GM' are Scheduled Ancient Monuments. Numbers with an 'RE' prefix ('Rhymney Estuary') were identified during the present assessment.

Table 1: Identified archaeological interests within Study Area

ID	Site Name	NGR	Type	Period	Status
02321.0s, 275880, GM474	Rumney Great Wharf Relict Seawall	ST23487785	Sea Defences	Post-medieval	GM474
02324s	Drainage Ditch	ST225777	Drainage Ditch	Unknown	-
02787s	Sea Defences	ST230776	Sea Defences	Unknown	-
02788s	Medieval Mill	ST228777	Mill	Medieval	-
02812.0s	Sea Defences, Splott Moors	ST218773	Sea Defences	Unknown	-
02889s, 519320	Findings at Trowbridge	ST2363977834	Pottery Sherd	Iron Age	-
03271s	Event Record	ST22817776	Event Record	-	-
03272s	Event Record	ST22847776	Event Record	-	-
03273s	Event Record	ST22817770	Event Record	-	-
03274s	Event Record	ST22867771	Event Record	-	-
03990s	Slipway	ST2166077502	Slipway	Modern	-
05090s	Peat Deposits	ST23007760	Peat Deposit	Not Applicable	-
506654	Rumney Wharf (West)	ST2362877852	Landing Point	Post-medieval	-
RE001	Pil Melyn Gout	ST2277077670	Sluice	Post-medieval	-
RE002	Earthworks, Lamby Fach	ST2167377668	Earthwork	Unknown	-
RE003	Stone	ST2160077515	Stone	Unknown	-
RE004	Sluice	ST2325977672	Sluice	Modern	-
RE005	Building	ST2318877700	Building	Modern	-

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RE006	Allotment Gardens	ST2146377957	Allotments	Modern	-
RE007	Anti-invasion Defences/ Decoy site	ST2200077600	Anti-Invasion or Decoy	Modern	-
RE008	Structure	ST21997718	Airfield Structure?	Modern	-
RE009	Limekiln	ST323776	Limekiln	Post-medieval	-

Assessment

Effect of the development on archaeological sites

It is considered that the proposed development will have a direct effect on 17 sites of archaeological interest. A ‘Major’ effect is envisaged on 13 sites: 02324s (Drainage Ditch), 02787s (Sea Defences), 02788s (Medieval Mill), 02821s (Sea Defences, Splott Moors), 02889s, 519320 (Finds at Trowbridge), 03990s (Slipway), RE001 (Pil Melyn Gout), RE002 (Earthworks, Lamby Fach), RE003 (Stone), RE004 (Sluice), RE005 (Building), RE008 (Structure) and RE009 (Limekiln). A ‘Minor’ effect is envisaged on 4 further sites: 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall), 05090s (Peat Deposits), 506654 (Rumney Wharf (West) and RE007 (Anti-invasion defences). No effects are envisaged on the remaining 5 sites: 03271s, 03272s, 03273s, 03274s (Event Records), and RE006 (Allotments).

Table 2: Direct effects of the development on archaeological interests, showing sites within 100m of the development

ID	Site Name	Type	Period	Condition	Status	Value	Rarity	Group Association	Historical Association	Confidence	Effect
02321.0s, 275880, GM474	Rumney Great Wharf Relict Seawall	Sea Defences	Post-medieval	Restored	GM474	A	Medium	Medium	Possible - Low	Medium	Minor
02324s	Drainage Ditch	Drainage Ditch	Unknown	Not known	-	C	Low	Medium	Unknown	Low	Major
02787s	Sea Defences	Sea Defences	Unknown	Not Known	-	C	Medium	Medium	Certain - Low	Medium	Major
02788s	Medieval Mill	Mill	Medieval	Not Known	-	C	Medium	Low	Possible - Low	Low	Major
02812.0s	Sea Defences, Splott Moors	Sea Defences	Unknown	Not known	-	D	Medium	Low	None	Medium	Major
02889s, 519320	Finds at Trowbridge	Sherd	Iron Age	Not Known	-	B	Medium	Medium	Unknown	Medium	Major
03990s	Slipway	Slipway	Modern	Damaged	-	D	Low	Low	Unknown	Medium	Major
05090s	Peat Deposits	Peat Deposit	Not Applicable	Not applicable	-	C	Low	Medium	Unknown	Low	Minor
506654	Rumney Wharf (West)	Landing Point	Post-medieval	Not Known	-	D	Low	Low	Unknown	Low	Minor
RE001	Pil Melyn Gout	Sluice	Post-medieval	Not Known	-	D	Low	Medium	Unknown	High	Major
RE002	Earthworks, Lamby Fach	Earthwork	Unknown	Not Known	-	C	Low	Low	Unknown	Low	Major

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RE003	Stone	Stone	Unknown	Not Known	-	C	Low	Low	Unknown	Low	Major
RE004	Sluice	Sluice	Modern	Not known	-	D	Low	Medium	Unknown	Medium	Major
RE005	Building	Building	Modern	Not Known	-	D	Low	Low	Unknown	Medium	Major
RE007	Anti-invasion Defences/ Decoy site	Anti-Invasion or Decoy	Modern	Not Known	-	C	Medium	Medium	Certain - Low	Medium	Minor
RE008	Structure	Airfield Structure?	Modern	Near Destroyed	-	C	Low	Medium	Unknown	Low	Major
RE009	Limekiln	Limekiln	Post-medieval	Not known	-	C	Low	Medium	Certain - Low	Medium	Major

Justification of assessment

It is considered that the proposed development will have a direct effect on 17 sites of archaeological interest. A ‘Major’ effect is envisaged on 13 sites: 02324s (Drainage Ditch), 02787s (Sea Defences), 02788s (Medieval Mill), 02821s (Sea Defences, Splott Moors), 02889s, 519320 (Finds at Trowbridge), 03990s (Slipway), RE001 (Pil Melyn Gout), RE002 (Earthworks, Lamby Fach), RE003 (Stone), RE004 (Sluice), RE005 (Building), RE008 (Structure) and RE009 (Limekiln). A ‘Minor’ effect is envisaged on 4 further sites: 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall), 05090s (Peat Deposits), 506654 (Rumney Wharf (West) and RE007 (Anti-invasion defences). No effects are envisaged on the remaining 5 sites: 03271s, 03272s, 03273s, 03274s (Event Records), and RE006 (Allotments).

As the proposed works are currently at a pre-planning stage, the precise nature of the works to the sea defences has yet to be established – hence it is not possible to provide a comprehensive assessment of the effect on the archaeological resource. For the purposes of this assessment, therefore, it has been presumed that significant work will be undertaken as part of the development that will significantly alter the character of the current sea defences – hence the ‘Major’ effect envisaged on the sea defences.

As the footprint of the development and depth of any necessary excavations are also unclear, it has been assumed for the purposes of this assessment that the works would have the potential to affect the entirety of the study area. Therefore, a ‘Major’ effect has been considered on the other sites located within the study area, including 02889s and 519320 – although the finds themselves are likely to have been removed, the possibility of encountering associated finds remains.

It has been considered that the effect on sites which extend beyond the study area is likely to be ‘Minor’: this includes 02321.0s, 275880, GM474 (Rumney Great Wharf Relict Seawall), the majority of which is located to the east, outside the development, the Peat Deposits (05090s), Rumney Wharf (West) (506654) and Anti-invasion defences (RE007) are all known to extend beyond the bounds of the Study Area: hence the ‘minor’ impact envisaged.

No effect is envisaged on the remaining five sites, as these include event records recorded on the HER, whilst the Allotment Gardens (RE006) survive today (albeit in a reduced form) at a distance from the development.

Indirect effect of the development on archaeological sites and landscapes

It is also necessary to consider the potential indirect effects on the nearby Scheduled Ancient Monuments and Listed Buildings. Only one site is located within 100m of the Study Area – the Rumney Great Wharf Relict Seawall (02321.0s, 275880, GM474). However, works have already taken place to the more recent sea wall situated directly in front of the old, including the placement of large rocks, while works behind have involved the dumping of large amounts of spoil: As such, the setting is already largely altered. A ‘Slight’ indirect impact is therefore envisaged on this monument.

ID	Name	NGR	Period	Value	Effect	Distance from Development
02321.0s, 275880, GM474	Rumney Great Wharf Relict Sea Wall,	ST23487785	Post-medieval	A	Slight	>10m

Mitigation

The proposed mitigation entails an archaeological watching brief, to be carried out on all ground intrusive works associated with the development. The known existence of prehistoric and Roman activity immediately to the east of the development, documentary references to a medieval mill, and the possible existence of sea defences in some form from the Roman period onwards, suggests that the possibility of finding archaeological remains is significant. The close proximity of these sites also suggests the possibility of finding previously unknown archaeological remains, and a watching brief would also mitigate the impact on these sites.

An archaeological watching brief would more specifically mitigate any excavation in the vicinity of the Scheduled Ancient Monument GM474, although any works to (or in the immediate vicinity of) this monument would require Scheduled Monument Consent. Cadw should therefore be consulted if any such works are proposed. Consultation with Cadw would also mitigate the ‘slight’ indirect effect envisaged on this monument.

The majority of sites are located on the eastern bank of the Rhymney, while much of the western bank is constructed on made up ground (see Figure 1), only reclaimed from the sea during the later 20th century. Therefore, the watching brief should focus mainly on the eastern half of the site, unless changes to the foreshore in the western side of the site are envisaged, which would naturally have greater scope to impact on any archaeology extant on the mudflats.

Table 3: Recommended archaeological mitigation

ID	Site Name	Effect	Mitigation
02321.0s, 275880, GM474	Rumney Great Wharf Relict Seawall	Minor/ Slight	Archaeological Watching Brief on all ground intrusive works associated with the development. Consultation with Cadw over any proposed work to this monument.
02324s	Drainage Ditch	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
02787s	Sea Defences	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
02788s	Medieval Mill	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
02812.0s	Sea Defences, Splott Moors	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
02889s, 519320	Finds at Trowbridge	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
03990s	Slipway	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
05090s	Peat Deposits	Minor	Archaeological Watching Brief on all ground intrusive works associated with the development.
506654	Rumney Wharf (West)	Minor	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE001	Pil Melyn Gout	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE002	Earthworks, Lamby Fach	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE003	Stone	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE004	Sluice	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE005	Building	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.

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RE007	Anti-invasion Defences/ Decoy site	Minor	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE008	Structure	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.
RE009	Limekiln	Major	Archaeological Watching Brief on all ground intrusive works associated with the development.

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- 1840 Tithe Map of the Parish of Roath
- 1846 Tithe Map of the Parish of Rumney

1880 First Edition Ordnance Survey, 1:2500 Sheet XLIII.16
1881 First Edition Ordnance Survey, 1:2500 Sheet XLIII.12
1882 First Edition Ordnance Survey, 1:2500 Sheets XXXVIII.9 and XLIII.8
1886 First Edition Ordnance Survey, 1:10560: Sheet XXXVIII and XLIII
1900 Second Edition Ordnance Survey, 1:2500: Sheet XXXVIII.9
1901 Second Edition Ordnance Survey, 1:2500: Sheets XLIII.8, XLIII.12 and XLIII.16
1901 Second Edition Ordnance Survey, 1:10560: Sheets XXXVIII and XLIII
1919 Third Edition Ordnance Survey, 1:2500 Sheets XXXVIII.9, XLIII.8, XLIII.12 and XLIII.16
1941 Fourth Edition Ordnance Survey, 1:2500 Sheet XLIII.8
1942 Fourth Edition Ordnance Survey, 1:2500 Sheets XLIII.12 and XLIII.16
1947-51 Fourth Edition Ordnance Survey, 1:10560 Sheets XXXVIII and XLIII
1972 Ordnance Survey 1:10000 Sheet 27 NW

Documentary Sources

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‘Payments made to the following persons for work done at Tredegar &c. from 9th Aug. To 3rd Sept 1811’ NLW Reference: Tredegar 68/108

‘Survey of the Sea Walls and Banks in the Level of the Hundred of Wentllwg in the County of Monmouth from Rumney Bridge to Newport, by Thomas Wakeman, Surveyor.’ 1823. Gwent Archives Reference D695.101

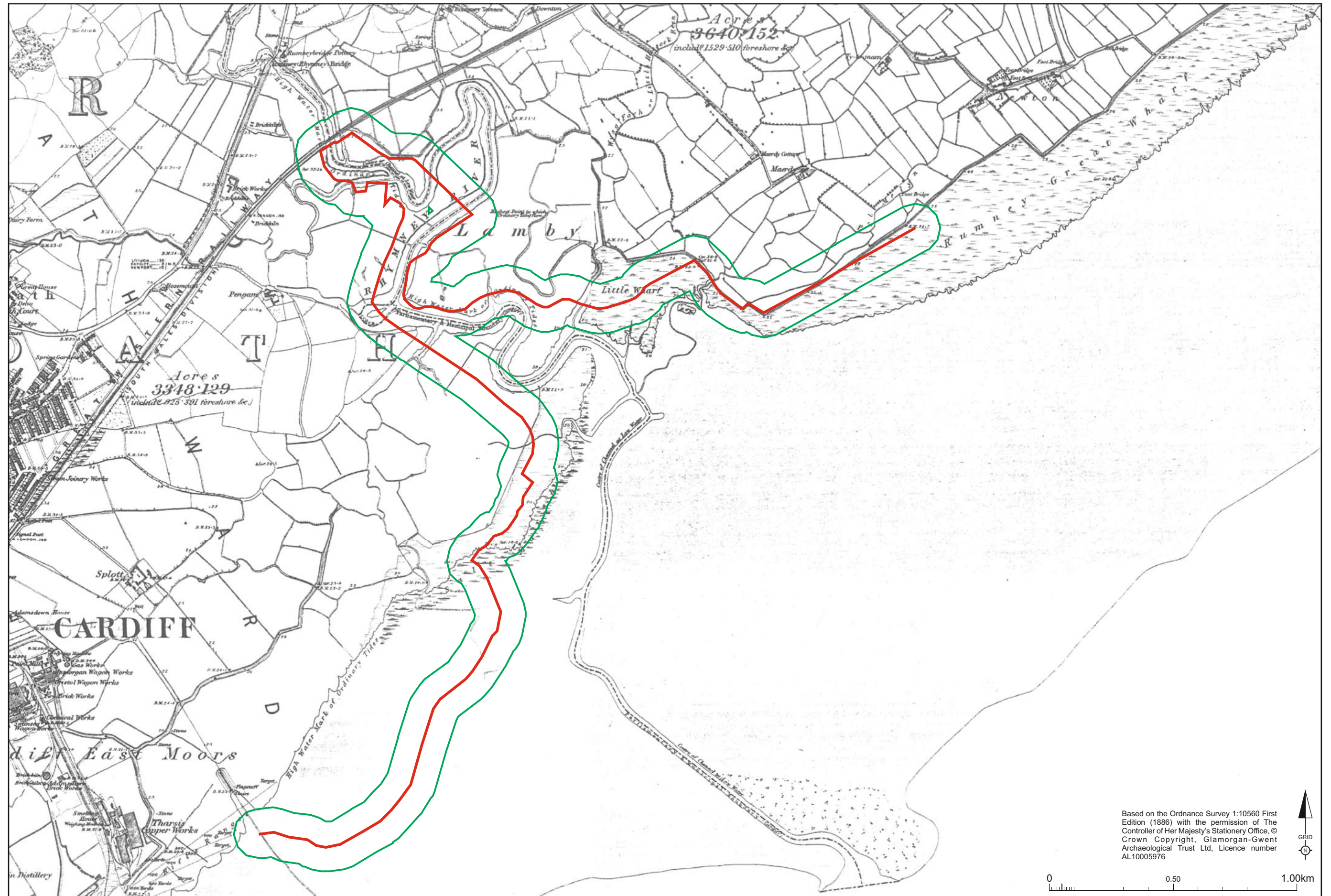


Figure 2. First Edition (1886) Ordnance Survey map (1:10560) showing sea defence route (red) and 100 metre buffer zone (green).

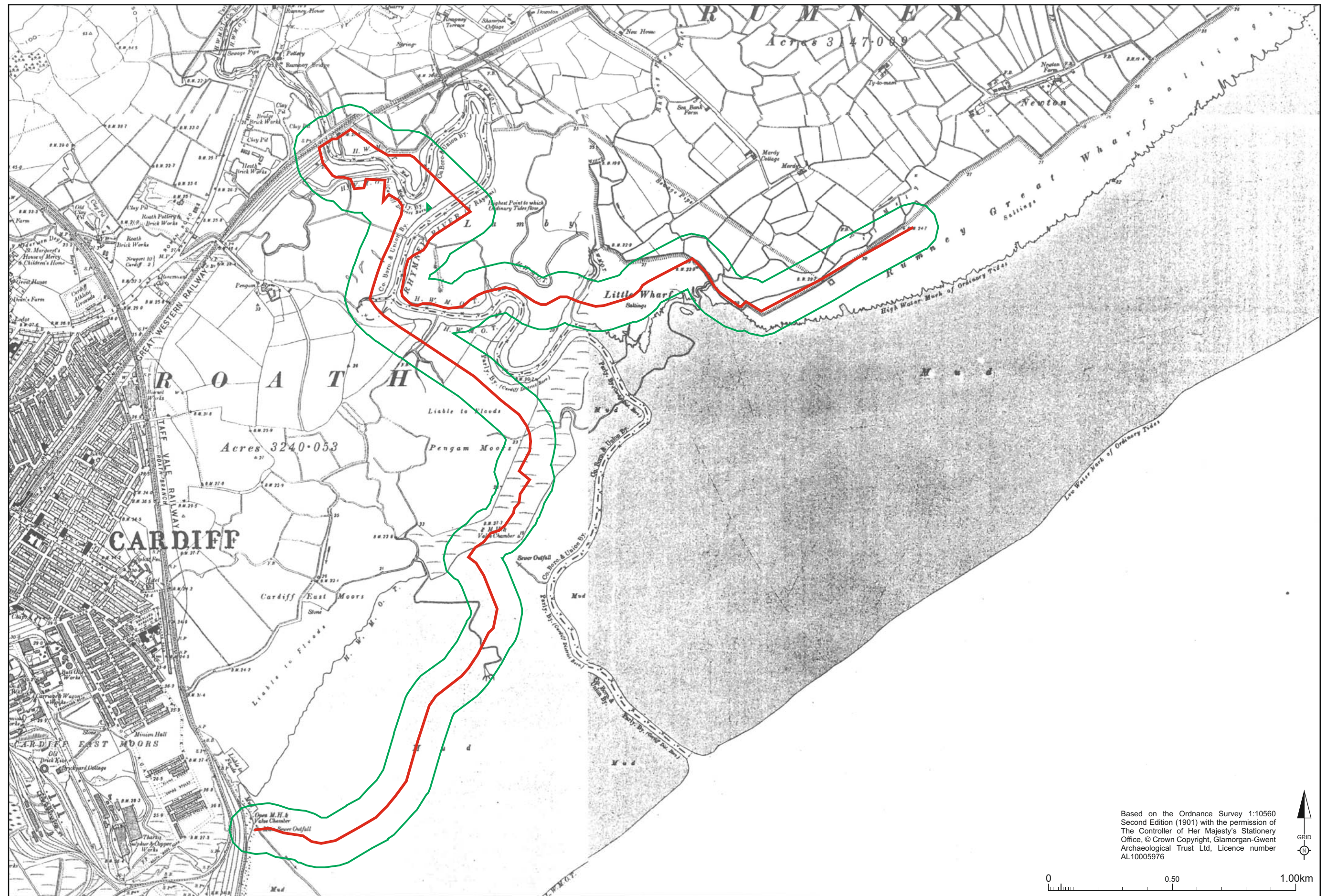


Figure 3. Second Edition (1901) Ordnance Survey map (1:10560) showing sea defence route (red) and 100 metre buffer zone (green).

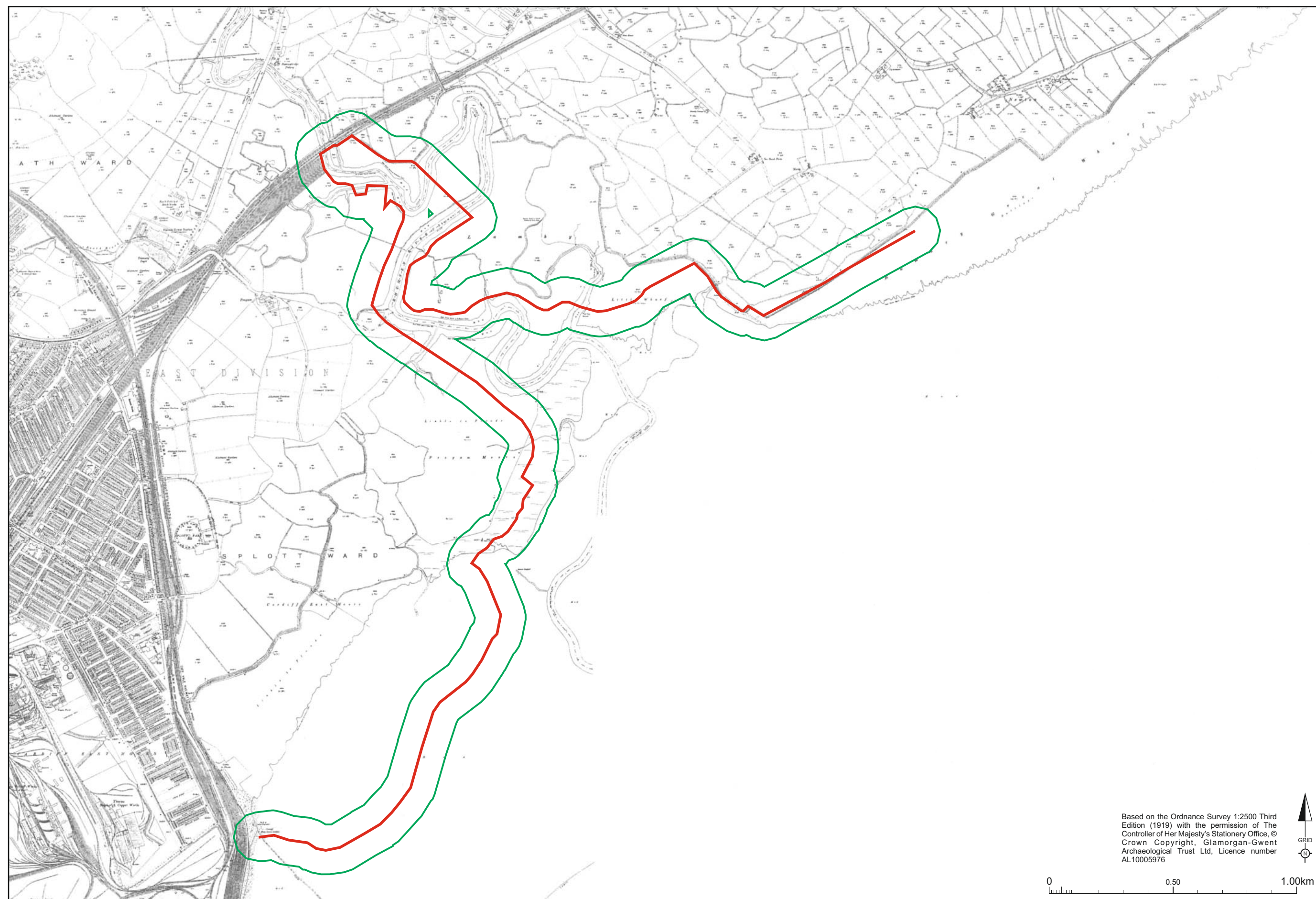


Figure 4. Third Edition (1919) Ordnance Survey map (1:2500) showing sea defence route (red) and 100 metre buffer zone (green).

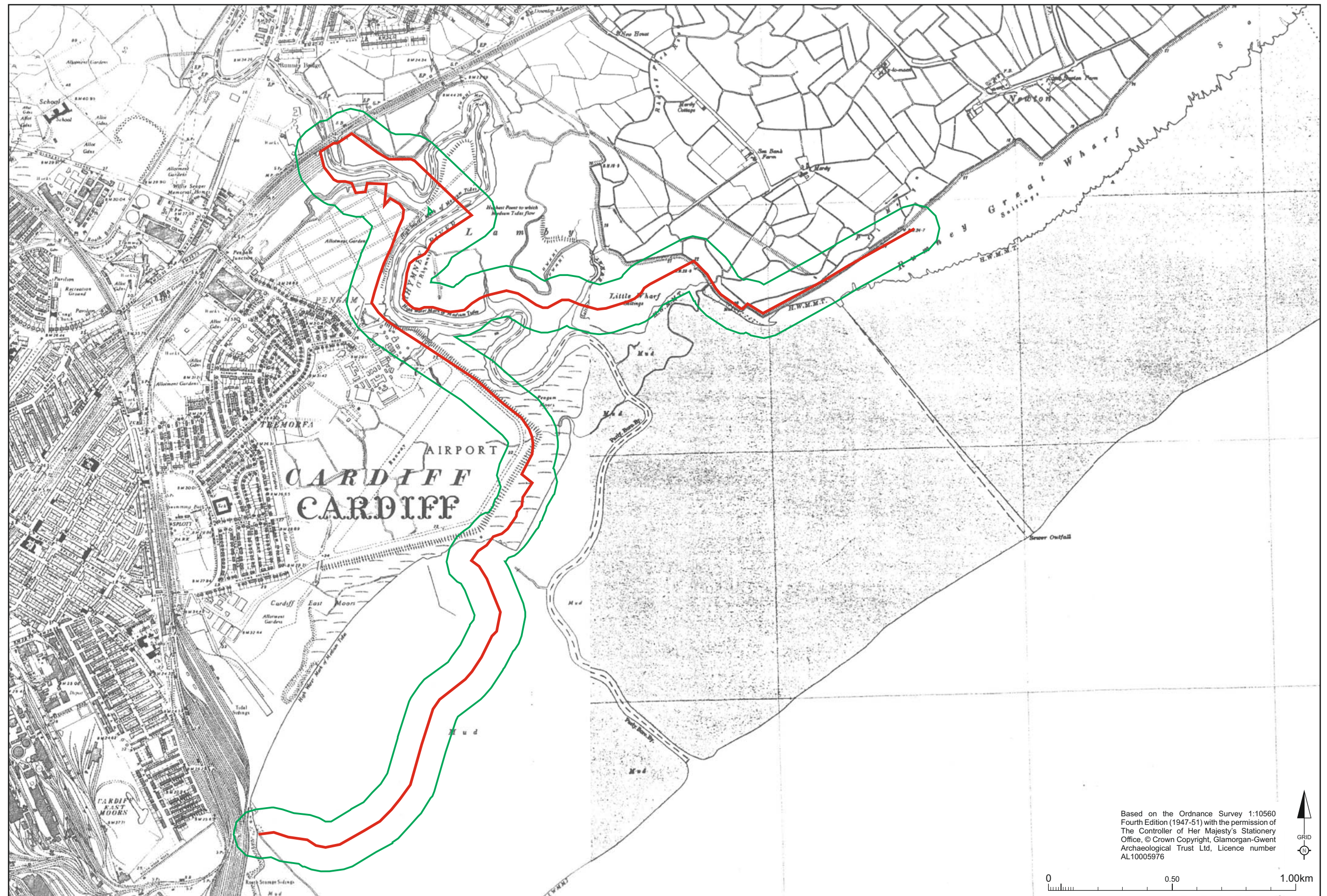


Figure 5. Fourth Edition (1947-51) Ordnance Survey map (1:10560) showing sea defence route (red) and 100 metre buffer zone (green).

Appendix II: Plates

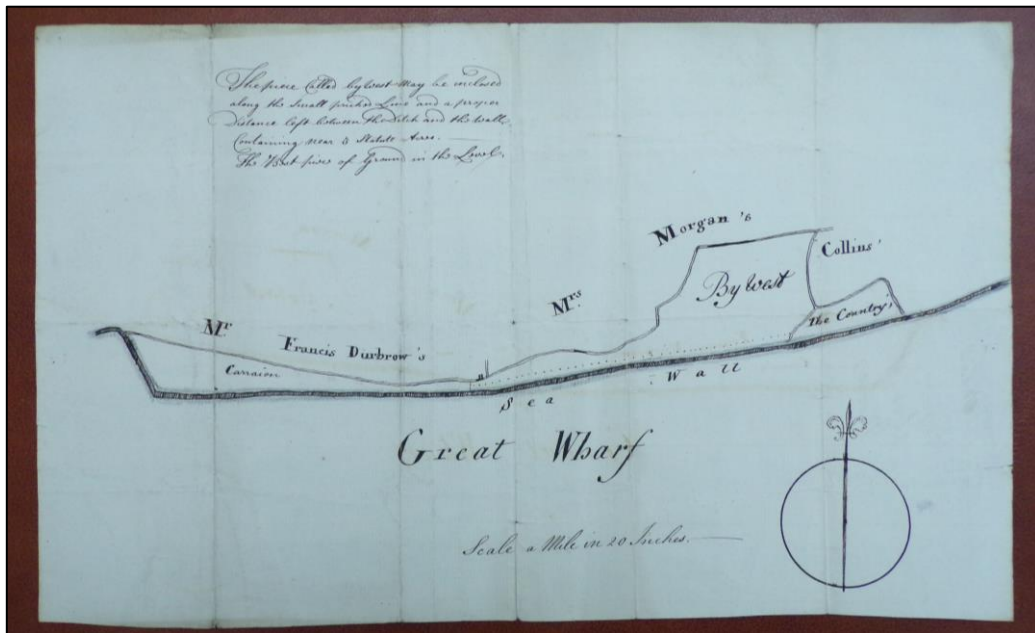


Plate 1: 'By West', a map of 1790 by Robert Snell, showing part of Rhymney Great Wharf east of the development area.

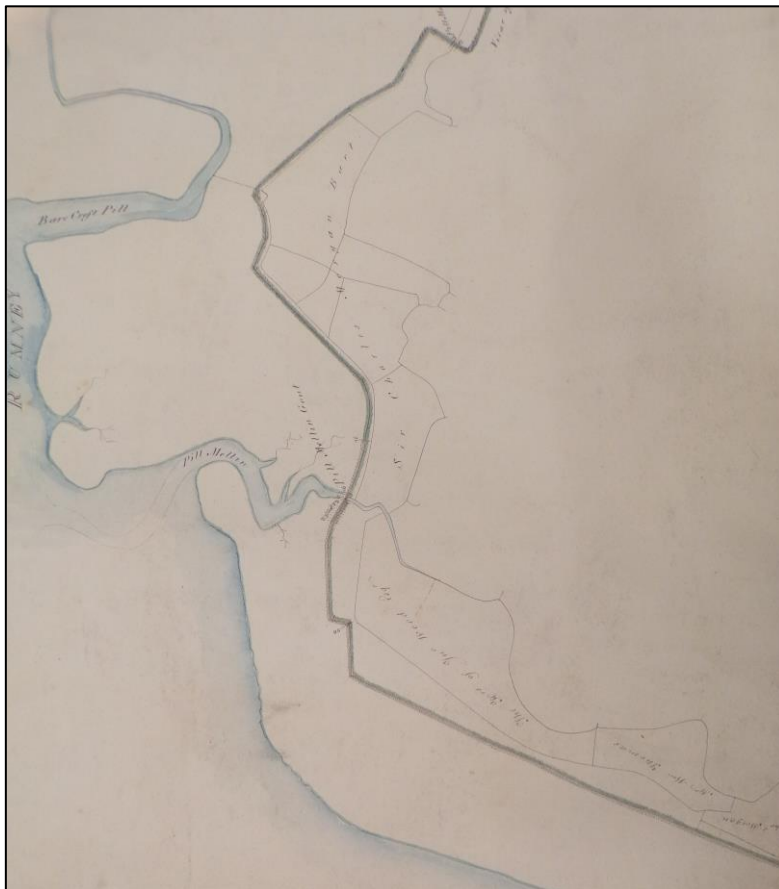


Plate 2: Part of an 1823 survey of the sea walls in Rumney Manor. See also Plate 3.



Plate 3: Detail from the 1823 survey of the sea walls in the manor of Rumney. Note that the defences at the bottom of the map (approximately southeast) are shown to be a bank revetted with stone. To the north, it is largely an earthen bank.



Plate 4: Detail from the Tithe Map of the Parish of Rumney, 1846, showing the sea defences and Rumney Great Wharf.

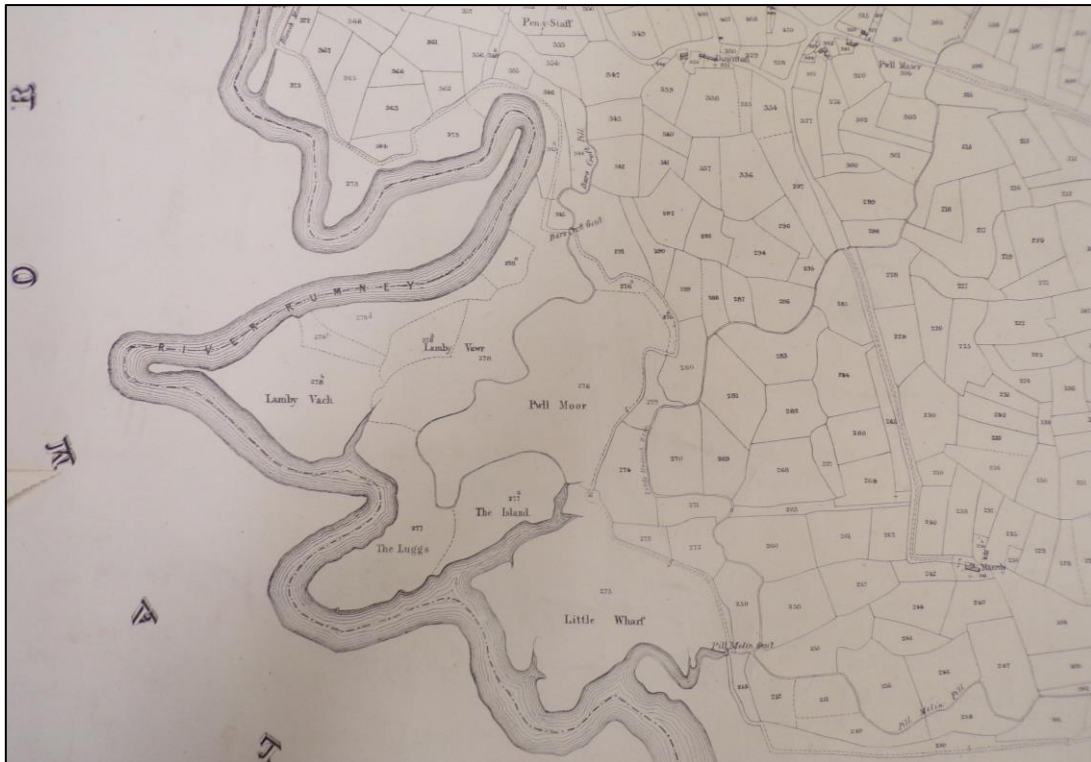


Plate 5: Detail from the Tithe Map of the Parish of Rumney, 1846, showing the sea defences and the areas used as pasture on the seaward side.



Plate 6: 1941 Aerial photograph, clearly showing the flood defences on the eastern bank of the river (bottom), Allotments (upper right) and RAF Pengam Moor (top left).

1772	1772
Aug ¹ 3 Paid Masons & Labourers on the Sea Wall in Rhydney from July 1 st to July 17 th inclusive } 3 0 9	Sept 11 Paid Masons & Labourers on the Sea Wall in Rhydney from Aug ¹ 29 th to this last inclusive } 3 19
20 Paid Henry Lewis & Partners for carrying off the old Sea Wall in Rhydney } 10	21 Paid Lab ^r carrying stones at Llanwrach for Rhydney } 6 9
Aug ¹ 3 Paid Masons & Labourers on the Sea Wall in Rhydney from July 18 th to the 25 th inclusive } 4 7 0	25 Paid Masons & Lab ^r on Rhydney Sea Wall from Sept 1 st to this last inclusive } 7 12 0
20 Paid Lab ^r carrying stones for quays in Rhydney & Rhydydd from 1 st to the 21 st inclusive } 5 4 10	Oct 5 Paid Lab ^r carrying stones at Llanwrach for Rhydney } 3 12 6
20 Paid Masons & Labourers at the Sea Wall in Rhydney from July 27 th to the 31 st inclusive } 3 0 10	9 Paid Masons & Lab ^r on Rhydney Sea Wall from Sept 26 th to this last inclusive } 9 1 2
16 Paid D ^r W. on the Sea Wall in Rhydney from Aug ¹ 1 st to this last inclusive } 1 10 9	23 Paid D ^r G. on the Sea Wall in Rhydney from Oct 10 th to the 23 rd inclusive } 0 4 5
20 Paid Lab ^r carrying stones for quays in Rhydney & Rhydydd from 1 st to the 21 st inclusive } 3 12 0	26 Paid W. Thos. on the Sea Wall in Rhydney from Oct 23 rd to this last inclusive } 1 1 1/2
20 Paid Masons & Labourers at the Sea Wall in Rhydney from 1 st to the 21 st inclusive } 1 12 6	26 Paid for 100 lbs for carrying stones to Rhydney Sea Wall } 7 2
21 Paid W ^m Jones for 100 lbs of stones to Rhydney } 5 12 6	Nov 6 Paid Lab ^r carrying stones for quays in Rhydney from Oct 24 th to this last inclusive } 1 5 10
29 Paid a Mason & Lab ^r repairing the Sea Wall in Rhydney } 1 11 6	20 Paid Masons & Lab ^r at Rhydney Sea Wall from 1 st to this last inclusive } 13 9 0 1/2
20 Paid Masons & Labourers building a Limestone in Rhydney to the 20 th of the above Date inclusive } 1 19 4	20 Paid D ^r building a stone house in Rhydney from 1 st to this last inclusive } 3 12 2 1/2
20 Paid D ^r W. on the Sea Wall in Rhydney from 1 st to this last inclusive } 5 2 9	Dec 1 Paid Lab ^r carrying stones to Rhydney Sea Wall from Nov 21 st to this last inclusive } 2 4 -
Sept 10 Paid for 100 lbs of stones to Rhydney } 10 12 -	20 Paid Masons & Lab ^r building the stone house at Rhydney from Dec 1 st to this last inclusive } 16 0
11 Paid John Jones for 100 stones of Limestone to Rhydney from 1 st to this last inclusive } 1 10 -	20 Paid D ^r on Rhydney Sea Wall from Dec 1 st to this last inclusive } 4 -
20 Paid Masons & Labourers building a stone house in Rhydney from 1 st to this last inclusive } 3 - 5	20 Paid Lab ^r carrying stones to Rhydney Sea Wall from Dec 1 st to this last inclusive } 1 2 4
Aug ¹ 29 th to this last inclusive } 120 - 6	Carried over } 20 12 9

Plate 7: Part of a document detailing expenses relating to the Flood Defences between 1772 and 1776 (Tredegar ANI/1).

Continued		Brought over	54 10
To a Bill paid Mr. Howell for Mason and Labouring work done on the Sea Wall in Rhydney	32 1 10		
Masons			
Labourers			
Horses			
To a Bill paid Thos. Robert for hauling work done on the Sea Wall in Rhydney	14 5		
Allowed for going in the tide for 1 st to 1 st 12 6			
To a Bill paid Howell & Son for wheeling Limestone from the Sea Wall at Rhydney Sea Wall	1 12 6		
To a Bill paid Mr. Williams for 4 cart loads of Ashes for Rhydney Sea Wall at 7 th Road	2		
To a Bill paid Thos. Jenkins for casting 574 Barrels of Tyn-y-Dwynn Limestone whole work	4 16 3		
To a Bill paid Thos. Sheldon & others for Labouring work done on the Railway in the Park	14 16		
To a Bill paid Mr. Lewis for relaying 300 Pair of Stone Blocks on the Railway in the Park & 1 st Road	11 8		
Allowed Extra for raising a slip in the head	11 6		
To a Bill paid Lewis & Lewis for raising and Dozing 15 Pair of Stone Blocks for the Railway at Rhydney	12 6		
To a Bill paid Mr. Edw. Bird for Ironmongery Articles from 22 nd Decem ^r 1810 to 1 st July 1811 both days included			
To a Bill paid			

Plate 8: Document of 1811 detailing expenditure on the sea defences, and thatching a nearby lime kiln (Tredegar 68/108)



Plate 9: Relict Sea Wall (02321.0s, 275880, GM474), view to northeast.



Plate 10: View southeast from the sea defences on Rhymney Great Wharf.



Plate 11: The Sea Defences east of the River Rhymney, view to southeast



Plate 12: View towards the modern outlet of the Pil Melyn (RE002), to east.



Plate 13: Eroding land surface on the eastern bank of the River Rhyrnney, view to southwest.



Plate 14: One of a number of grey clay deposits visible on both banks of the river, possibly indicating ancient vegetation. Scale in 0.5m divisions



Plate 15: View of slipway (possibly 08990s), to south.



Plate 16: Flood defences on the eastern bank of the River Rhymney beneath the A4232. View to northwest.



Plate 17: View of the river Rhymney to the northeast



Plate 18: Railway Bridge at the northern terminus of the development. View to northwest.



Plate 19: Surviving bank on the western side of the Rhymney, view to northwest.



Plate 20: View southeast along the Rhymney at low tide. Note the rocky patches, formed of dumped dressed stone – possibly attempts to tackle erosion.



Plate 21: Possible Paleochannel identified at the mouth of the Rhymney, although outside the study area.



Plate 22: Structure RE008, view to east-northeast. Scale in 0.5m divisions.



Plate 23: View of the Rhymney Estuary from the west bank, view to northeast



Plate 24: View of the coastline at the western terminus of the proposed development, with the water treatment works in the background. View to east-southeast.

Appendix III: Aerial photographs with coverage of the allocation area

The following is a list of the aerial photographs with coverage of the study area held by the Central Registry of Air Photography for Wales (CRAPW). The table shows photographs available to view at the time of assessment.

Aerial Photographs available to view at the time of assessment

Ref	Sortie	Date Flown	Scale	Air Survey Org	Photo Type	Frame
4102	HLA/134	01/03/1941	-	Medmenham	B & W	15 – 16, 21, 24
4822	CPE UK 2520	23/03/1948	1:5000	RAF	B & W	5115 – 5117, 5207 – 5208, 5236, 5267
5022	541 RAF 527	14/05/1950	1:10000	RAF	B & W	3177 – 3178, 4177, 4191
5024	541 RAF 540	01/06/1950	1:10000	RAF	B & W	3037, 4036 – 4037
5129	58 RAF 690	24/05/1951	Oblique	RAF	B & W	178 – 82, 183, 189, 190 – 200
5211	58 RAF 863	2504/1952	1:5000	RAF	B & W	5030 - 5035
6007	543 RAF 950	10/06/1960	1:10000	RAF	B & W	F41: 76 – 79, 85-90, F42:76- 79
6209	58 RAF 5098	02/05/1962	1:10000	RAF	B & W	F21 52-57
6211	58 RAF 5154	01/06/1962	Various	RAF	B & W	V51
6213	58 RAF 5502	03/10/1962	Various	RAF	B & W	F22: 8 – 11, V5
6310	OS 63 074	31/05/1963	1:24000	Ordnance Survey	B & W	46 - 48
6852	58 RAF 8659	18/03/1968	1: 15600	RAF	B & W	F41: 93 F43 & 44: 65
7156	39 RAF 3764	07/09/1971	Various	RAF	B & W	F43 & 44: 43
7940	OS 79 129	22/09/1979	1:24400	Ordnance Survey	B & W	61 – 63, 102
8101	J A Story 8669	29/06/1981	1:5000	JA Story (NRSC)	B & W	3081:260 – 265, 3181:18 & 172, 3681:198,

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8103	MAFF	26/08/1981	1:10000	MAFF	(Infra-red)	28 – 31 (Partial Coverage)
8157	13 RAF 5823	22/06/1981	1:50000	RAF	B & W	89: 34 - 35
8354	1 PRU RAF 0351	14/11/1983	Various	RAF	B & W	56 - 60
8527	OS 85 087	31/05/1985	Various	Ordnance Survey	B & W	1 -5; 90 105, 126
8829	OS 88 037	11/04/1988	1:5300	Ordnance Survey	B & W	28 – 30, 34, 62, 65 – 67, 68, 92
9138	-	01/07/1991	1:5000	Geonex (NRSC)	Colour	159 91: 83 – 6, 72, 225 – 228. 160 91: 217 - 222
9943	OS 99 349	09/09/1999	1:5000	Ordnance Survey	B & W	8 – 9, 60 – 64, 43 – 44, 37 - 39

Appendix IV: Gazetteer of archaeological interests

ID	Site
03990s	Slipway
NGR	Period
ST2166077502	Modern

Full Description

A modern slipway leading from a boatyard on the west bank of the river Rumney, the structure was not depicted on any OS maps.

Type	Condition	Status
Slipway	Damaged	-
Rarity	Group association	Historical association
Low	Low	Unknown
Confidence	Value	Effect
Medium	D	Major

ID	Site
02321.0s, 275880, GM474	Rumney Great Wharf Relict Seawall
NGR	Period
ST23487785	Post-medieval

Full Description

A relict seawall on Rumney Great Wharf, comprising a 540 - 560m long wall, located behind the modern sea defences. Documentary evidence shows that the sea defence was in existence as early as 1591, and much of the surviving clay bank is thought to be original. The wall stands 1 - 2m on the seaward side, and as much as 3.2m high on the landward. It is up to 15m wide at the base (measurements vary between sources)

A revised entry to the SAM notes that the monument comprises of a 565m in length by 15m in width (Cadw 2011).

Type	Condition	Status
Sea Defences	Restored	GM474
Rarity	Group association	Historical association
Medium	Medium	Possible-Low
Confidence	Value	Effect
Medium	A	Minor

ID	Site
02889s, 519320	Finds at Trowbridge
NGR	Period
ST2363977834	Iron Age

Full Description

Evidence of an occupation site recorded in Cadw Coastal Archaeology Survey (Locock 1998). Site information from previous fieldwork by Dr M Bell.

Type	Condition	Status
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Sherd	Not Known	-
Rarity	Group association	Historical association
Medium	Medium	Unknown
Confidence	Value	Effect
Medium	B	Major

ID	Site
05090s	Peat Deposits
NGR	Period
ST23007760	Not Applicable

Full Description

Peat deposits, encountered during boreholes undertaken on the site of Lamby Way Tip.

Type	Condition	Status
Peat Deposit	Not applicable	-
Rarity	Group association	Historical association
Low	Medium	Unknown
Confidence	Value	Effect
Low	C	Minor

ID	Site
02812.0s	Sea Defences, Splott Moors
NGR	Period
ST218773	Unknown

Full Description

Sea defences on Splott Moors, on the western bank of the River Rhymney.

Type	Condition	Status
Sea Defences	Not known	-
Rarity	Group association	Historical association
Medium	Low	None
Confidence	Value	Effect
Medium	D	Major

ID	Site
02788s	Medieval Mill
NGR	Period
ST228777	Medieval

Full Description

The possible site of a medieval mill, near the outlet of the Pil Melyn stream.

Type	Condition	Status
-------------	------------------	---------------

Flood Defences, Afon Rhymney, Cardiff: archaeological desk-based assessment

Mill	Not Known	-
Rarity	Group association	Historical association
Medium	Low	Possible-low
Confidence	Value	Effect
Low	C	Major

ID	Site
02787s	Sea Defences
NGR	Period
ST230776	Unknown

Full Description

Old sea wall (Locock 1993b and 1995, Site 3). Probably a continuation of the post-medieval sea bank recorded as PRNs 1453 and 2321. Largely replaced by the modern sea wall (Mayner 1995).

Type	Condition	Status
Sea Defences	Not Known	-
Rarity	Group association	Historical association
Medium	Medium	Certain-Low
Confidence	Value	Effect
Medium	C	Major

ID	Site
02324s	Drainage Ditch
NGR	Period
ST225777	Unknown

Full Description

A former drainage ditch or reen seen near ST225777 that is visible in a small island of Little Wharf, which owing to recent erosion has become isolated from the main saltmarsh. It is cut into the Wentlooge Formation, and there is also evidence for the recutting of a smaller reen on the same course as the original one. Inspection of the erosional embayments of the nearby saltmarsh edge at Little Wharf suggest that there might be further reens, although exposures of such features were obscured by the most recent beach deposits. Drainage ditches further east have been identified as Roman in date.

Type	Condition	Status
Drainage Ditch	Not known	-
Rarity	Group association	Historical association
Low	Medium	Unknown
Confidence	Value	Effect
Low	C	Major

ID	Site
506654	Rumney Wharf (West)
NGR	Period

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ST2362877852

Post-medieval

Full Description

A possible landing place suggested by the RCAHMW, suggested by a post on the sea wall. It is likely, however, that the placename 'Wharf' does not refer to a landing place, but instead to the shore (from its Old English etymology).

Type	Condition	Status
Landing Point	Not Known	-
Rarity	Group association	Historical association
Low	Low	Unknown
Confidence	Value	Effect
Low	D	Minor

ID	Site
RE001	Pil Melyn Gout
NGR	Period
ST2277077670	Post-medieval

Full Description

A gout, or sluice, from which water could drain from behind the sea defences at low tide. The gouts acted as valves, and would close at high tide. The Pil Melyn was a watercourse running behind the sea defences, into which the low lying farmland drained. The gout was labelled on the 1823 Survey of the sea defences, and appeared on the later Ordnance Survey (1st - 4th edition) mapping as a sluice. Associated with sea defences 02321.0s, 275880, GM474 and 02787s.

Type	Condition	Status
Sluice	Not Known	-
Rarity	Group association	Historical association
Low	Medium	Unknown
Confidence	Value	Effect
High	D	Major

ID	Site
RE002	Earthworks, Lamby Fach
NGR	Period
ST2167377668	Unknown

Full Description

Earthworks first visible on the First Edition Ordnance Survey Map, on the area of land labelled as Lamby Fach on the tithe map. They consist of three sub-rectangular features, connected by a linear earth ban, the latter aligned approximately north-south. They appear on subsequent Ordnance Survey Mapping until the Fourth Edition, and on aerial photographs until 1988, when they were buried with the expansion of the Lamby Tip. Later photographs show the features as full of water, and it is possible that they may have had drainage, or possibly earlier sea-defence functions. It also possible that the features may represent earlier, overgrown structures on this part of Lamby, though again, it is impossible to ascertain with the current evidence.

Type	Condition	Status
Earthwork	Not Known	-
Rarity	Group association	Historical association

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Low	Low	Unknown
Confidence	Value	Effect
Low	C	Major

ID	Site
RE003	Stone
NGR	Period
ST2160077515	Unknown

Full Description

A stone marked on the First Edition Ordnance Survey Map. Located on the western side of the estuary, just above the high water mark, its date is unclear: it is possible that it could be anywhere from prehistoric to nineteenth century in date. It had gone by the time of the Second Edition Map. This short-lived appearance in the historic mapping may suggest a relatively recent origin for the stone.

The lack of detailed information precludes any more detailed conclusions being drawn.

Type	Condition	Status
Stone	Not Known	-
Rarity	Group association	Historical association
Low	Low	Unknown
Confidence	Value	Effect
Low	C	Major

ID	Site
RE004	Sluice
NGR	Period
ST2325977672	Modern

Full Description

A sluice which first appears on the Second Edition Ordnance Survey Map. It is square and sited just outside the sea defences. A sewage pipe is marked nearby on this map, and it is possible that the two may be linked. The sluice had gone by the Third Edition, although the pipe remained, this time with a small building (RE004) constructed over one end.

Type	Condition	Status
Sluice	Not known	-
Rarity	Group association	Historical association
Low	Medium	Unknown
Confidence	Value	Effect
Medium	D	Major

ID	Site
RE005	Building
NGR	Period
ST2318877700	Modern

Flood Defences, Afon Rhymney, Cardiff: archaeological desk-based assessment

Full Description

A small rectangular building, constructed over a sewage pipe. First appearing on the Third Edition (1919) OS map. It remained visible until sometime between 1963 and 1971.

Type	Condition	Status
Building	Not Known	-
Rarity	Group association	Historical association
Low	Low	Unknown
Confidence	Value	Effect
Medium	D	Major

ID	Site
RE006	Allotment Gardens
NGR	Period
ST2146377957	Modern

Full Description

Allotment Gardens, first visible on the 1941 Ordnance Survey Map and wartime aerial photographs. It is possible that they may have first been planted as part of the 'Dig for Victory' campaigns to support self-sufficiency during the Second World War. They survived the end of the war and continue to be used, although from 1962 they became increasingly fragmented with the construction of roads and other development. The surviving area is sited well away from the river and separated from it by the modern A4232 road.

Type	Condition	Status
Allotments	Damaged	-
Rarity	Group association	Historical association
Low	Low	Possible - Low
Confidence	Value	Effect
Medium	D	None

ID	Site
RE007	Anti-invasion Defences/ Decoy site
NGR	Period
ST2200077600	Modern

Full Description

A series of posts forming a distinctive intersecting pattern, visible on the 1941 and 1948 aerial photographs. Their exact purpose is speculative, although it seems likely that they may have been anti-glider poles, other anti-invasion defences, or possibly a decoy site, constructed to divert the attention of German aircraft from other targets (for example RAF Pengam Moor). They had disappeared by 1948.

Type	Condition	Status
Anti-Invasion or Decoy	Not Known	-
Rarity	Group association	Historical association
Medium	Medium	Certain - Low
Confidence	Value	Effect
Medium	C	Minor

ID	Site
RE008	Structure
NGR	Period
ST21997718	Modern

Full Description

A brick built structure, first identified on the 1948 aerial photographs as a 'C' shaped structure. A subsequent site visit found that it consisted of a structure at least 10.6m in length by 4.45m in width, and constructed of red bricks with frogs to an English bond, with a grey cement matrix. The walls measured 0.6m wide. The lowest four courses were each stepped out approximately 0.055m from the ones above, giving a foundation which protruded 0.23m from the rest of the structure. Some of the bricks were stamped 'Star'. Three ceramic pipes, 0.1m in diameter were visible at intervals in the southeast facing elevation at the top of the stepped foundation. The walls survived to a maximum height of 1.05m above the existing ground surface. Additionally, the remains of a possible doorway were visible in the southeast facing elevation, 9.1m from the eastern corner of the building and at least 1.5m wide: the remains of a wooden door were recognisable near this opening, although it is unclear whether this door belonged to this structure.

The function of the structure remains unknown, although the date suggests that it may be related to the wartime (or possibly early Post-war) airfield of Pengam Moor. It cannot be proven that the structure definitely relates to the airfield, however, and it may have had other, unknown, functions.

Type	Condition	Status
Airfield Structure?	Near Destroyed	-
Rarity	Group association	Historical association
Low	Medium	Unknown
Confidence	Value	Effect
Low	C	Major

ID	Site
RE009	Limekiln
NGR	Period
ST323776	Post-medieval

Full Description

A Post-medieval limekiln, first mentioned in documentary evidence of 1772, with two entries mentioning masons being paid for the construction in August and September 1772. The two entries presumably relate to the same kiln, as later references in the same document refer to 'the limekiln'. The limestone was brought from Penarth (60 tons were shipped by John Phillips in September 1772) and perhaps from elsewhere as well. Although the exact location of the kiln is uncertain, later references of 1811 refer to it as 'the limekiln at Rumney sea wall'. It does not appear on any of the historic mapping and had presumably been removed by this date.

Type	Condition	Status
Limekiln	Not known	-
Rarity	Group association	Historical association
Low	Medium	Certain - Low
Confidence	Value	Effect
Medium	C	Major



**Glamorgan-Gwent
Archaeological Trust Ltd
(Projects Department)**



QUALITY CONTROL

Report Title: Flood Defences, Afon Rhymney, Cardiff: archaeological desk-based assessment

Report Date: January 2017

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Date: 13/01/2017

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Date: 17/01/2017

As part of our desire to provide a quality service we would welcome any comments you may wish to make on the content or presentation of this report.