
Holyhead WTW Improvements Urban Scheme

Archaeological assessment

GAT Project No. G1750b

Report No. 464

October 2002

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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Prepared for
Symonds Group

by

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**Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
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HOLYHEAD WTW IMPROVEMENTS

URBAN SCHEME (G1750b)

ARCHAEOLOGICAL ASSESSMENT

SUMMARY

An archaeological assessment was carried out in advance of a new pipeline between the Waste Water Treatment Works at Penrhos, Holyhead and the south side of the harbour. This involved consultation of existing records and documents and a field search. Eleven archaeological features were identified of which 7 will be categorised as regional importance and 4 of minor importance. There will be no impact upon 7 of the features. There will be a slight impact on 2 of the features, (Turkey Shore Road and Telford's A5 road), and an unknown impact on the remaining two, as their exact location is presently unknown. Those sites which will be slightly affected will be recorded during the works. A watching brief will be undertaken along the entire route during the initial earth removal process, and during trench excavation if it is considered appropriate.

1 INTRODUCTION

Gwynedd Archaeological Trust have been asked by Symonds Group Ltd to undertake an archaeological assessment in advance of a new pipeline between the Waste Water Treatment Works at Penrhos, Holyhead (SH25938135), and Holyhead Harbour (SH23618361), a length of 5.5 Km.

2 SPECIFICATION AND PROJECT DESIGN

No brief has been prepared for this work, but a project design was produced which conforms to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 1999), and the project has been monitored by Gwynedd Archaeological Planning Service.

Gwynedd Archaeological Trust's proposals for fulfilling the requirements were, briefly, as follows:

- a) *to identify and record the cultural heritage of the area to be affected;*
- b) *to evaluate the importance of what was identified (both as a cultural landscape and as the individual items which make up that landscape); and*
- c) *to recommend ways in which damage to the cultural heritage can be avoided or minimised.*

A full archaeological assessment usually comprises 6 phases:

- 1) *Desk-top study*
- 2) *Field Search*
- 3) *Interim Draft Report*
- 4) *Detailed Field Evaluation*
- 5) *Final Draft Report*
- 6) *Final Report*

This assessment has covered the work required under 1, 2 and 3. It is sometimes necessary to undertake a programme of field evaluation following the desktop assessment. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is required. This typically takes the form of geophysical survey or trial excavation, although a measured survey is also an option. The present report makes recommendations for any field evaluation required.

3 METHODS AND TECHNIQUES

3.1 Desk-top Study

This involved consultation of maps, computer records, written records and reference works, which make up the Sites and Monuments Record (SMR), located at Gwynedd Archaeological Trust, Bangor. Aerial photographs were examined at the National Monuments Record, Aberystwyth, chiefly of 1940's date, and more recent photographs were examined at the Welsh Water Project Office. Estate maps, tithe maps and OS maps were examined at the County Record Office, Llangefni, and the University of Wales Bangor archives. Information about Listed Buildings and Scheduled Ancient Monuments was obtained from Cadw: Welsh Historic Monuments. Secondary sources were consulted to provide background information, particularly on the development of the port of Holyhead. A full list of sources consulted is given in section 7 of the report.

3.2 Field Search

This was undertaken on 2 September, 2002, when the route of the pipeline was walked by an archaeologist to note the present state of known sites, and to identify any archaeological features visible as earthworks.

The conditions were fine for a field search, though some fields were heavily overgrown, and access to one area, marked on fig. 1, was not possible.

Features identified were marked on copies of the 1:10,000 OS map, as accurately as possible without surveying. Each feature was described and assessed. Detail notes, sketch plans and photographs were made of the more important features. These records are archived in Gwynedd Archaeological Trust under project number G1750.

3.3 Report

All available information was collated, and the features were then assessed and allocated to the categories listed below. These are intended to give an idea of the importance of the feature and the level of response likely to be required; descriptions of the features and specific recommendations for further assessment or mitigatory measures, as appropriate, are given in the relevant sections of this report.

The criteria used for allocating features to categories of importance are based on those used by the Secretary of State when considering ancient monuments for scheduling; these are set out in the Welsh Office Circular 60/96.

3.3.1 *Categories of importance*

The following categories were used to define the importance of the archaeological resource.

Category A - Sites of National Importance.

This category includes Scheduled Ancient Monuments and Listed Buildings of grade II* and above, as well as those sites that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of Regional Importance

This category includes grade II Listed Buildings and sites which would not fulfil the criteria for scheduling, but which are nevertheless of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of District or Local Importance

These sites are not of sufficient importance to justify a recommendation for preservation if threatened, but nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and Damaged Sites

These are sites, which are of minor importance, or are so badly damaged that too little remains to justify their inclusion in a higher category. For these sites rapid recording either in advance or during destruction, should be sufficient.

Category E - Sites needing further investigation

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A-D, are temporarily placed in this category, with specific recommendations for further evaluation. By the end of the assessment there should be no sites remaining in this category.

3.3.2 Definition of Impact

The direct impact of the proposed development on each site was estimated. The impact is defined as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this particular site.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the feature, *e.g.* part of a trackway or field bank.

Unlikely:

This category indicates sites that fall on the margins of the study area, but are unlikely to be directly affected.

Likely:

Sites towards the edges of the study area, which may not be directly built on, but which are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of a site affecting its overall integrity. Sites falling into this category may be linear features such as roads or field boundaries where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the site is unknown, but thought to be in the vicinity of the proposed development.

3.3.3 Definition of field evaluation techniques

Field evaluation is necessary to allow the reclassification of the category E sites, and to allow the evaluation of areas of land where there are no visible features, but for which there is potential for sites

to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching.

Geophysical survey

This technique involves the use of a magnetometer, which detects variation in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetised iron oxides, which tend to be concentrated in the topsoil. Features cut into the subsoil and back-filled or silted with topsoil contain greater amounts of iron and can therefore be detected with the gradiometer. Strong readings can be produced by the presence of iron objects, and also hearths or kilns.

Other forms of geophysical survey are available, of which resistivity survey is the other most commonly used. However, for rapid coverage of large areas, the magnetometer is usually considered the most cost-effective method. It is also possible to scan a large area very rapidly by walking with the magnetometer, and marking the location of any high or low readings, but not actually logging the readings for processing.

Trial trenching

Buried archaeological deposits cannot always be detected from the surface, even with geophysics, and trial trenching allows a representative sample of the development area to be investigated. Trenches of an appropriate size can also be excavated to evaluate category E sites. These trenches typically measure between 20m and 30m long by 2m wide. The turf and topsoil is removed by mechanical excavator, and the resulting surface cleaned by hand and examined for features. Anything noted is further examined, so that the nature of any remains can be understood, and mitigation measures can be recommended.

3.3.4 Definition of Mitigatory Recommendations

None:

No impact so no requirement for mitigatory measures.

Detailed recording:

Requiring a photographic record, surveying and the production of a measure drawing prior to commencement of works.

Archaeological excavation may also be required depending on the particular feature and the extent and effect of the impact.

Basic recording:

Requiring a photographic record and full description prior to commencement of works.

Watching brief:

Requiring observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers or structures.

Avoidance:

Features, which may be affected directly by the scheme, or during the construction, should be avoided. Occasionally a minor change to the proposed plan is recommended, but more usually it refers to the need for care to be taken during construction to avoid accidental damage to a feature. This is often best achieved by clearly marking features prior to the start of work.

Reinstatement:

The feature should be re-instated with archaeological advice and supervision.

4 ARCHAEOLOGICAL FINDINGS AND RECOMMENDATIONS

4.1 Topographic Description

Holy Island, or Ynys Gybi, is located off the western coast of Anglesey, to which it is joined by the Stanley Embankment, and also by the bridge at Four Mile Bridge (Pont Rhyd y Bont). The proposed pipeline starts on Turkeyshore Road (SH 252826) on the east side of Holyhead harbour, and runs roughly parallel to the coast to Penrhos Beach, where it turns south and runs inland to the proposed treatment works at Penrhos (SH 259813).

The geology is composed of pale green chlorite schists, part of the New Harbour Group of the Mona Complex (Keeley 1987). Boulder clay overlies this, with the rock outcropping in places, and occasional patches of glacial gravels. The soils formed over these substrates are brown earths of the Rocky Gaerwen and Trisant types (Geological and soil survey maps). These soils can carry crops or excellent pasture, and were frequently chosen for settlement in the prehistoric period. The Rocky Gaerwen soils are shallow with frequent rock outcrops, and farms and fields tend to be smaller on these than on deeper soils (Keeley 1987).

A pollen study was carried out to the north-west of Trefignath burial chamber (Greig 1987). This suggested that the Boreal period vegetation was of a scrubby sub-arctic type. The woodland developed in the usual sequence, from open woodland with birch to denser, mixed oak forest, but with an unusual amount of willow. The climax forest contained oak and elm with hazel as an under-storey. A band of peat, with little pollen survival due to the drying out of the bog, was dated to about the start of the Neolithic period. The band contained charcoal and other evidence for burning, suggesting forest clearance in the immediate area. When the pollen record continued it showed that the forest had been replaced by grassland and arable fields. In the medieval period, and later, expanding arable farming caused increased erosion into the bog.

4.2 Archaeological and Historical Background

The study area must be seen in relation to the port of Holyhead, and the rich archaeological heritage of Holy Island. The location of Holy Island within the busy western seaways linking Brittany, Cornwall, Ireland, Wales, Northern England, Scotland and the Viking countries to the east provides an international setting until post-medieval times, when its use as an official port for Ireland became of dominant importance. The port of Holyhead provided easy access in most weather, and recognition from sea was aided by the dominant mass of Mynydd y Twr, or Holyhead Mountain.

Evidence for activity from Neolithic times (*circa* 4000 BC to 2500 BC) to the present is abundant within the northern part of Holy Island. The two Neolithic tombs of Trefignath and Trearddur lie close to the study area. Four Neolithic polished stone axes have been found in the northern part of Holy Island (Lynch 1991), including two Graiglwyd axes found when excavating a hole for a turntable railway near Kingsland in 1926 (PRN 2507, SH 2504 8165), and one axe of unspecified stone found at Penllech Nest (PRN 2506, SH 251 816).

Two Bronze Age barrows were prominently situated on top of Holyhead Mountain (SH 219 829), though little can be seen of them now, and three barrows lay close to the shore at Porth Dafarch (SH 234 801), whilst others were situated at Garn (SH 211 825) and Gorsedd Gwlwm (SH 227 816). A barrow was recently discovered under the early Christian cemetery at Ty Mawr (SH 2520 8135). The Ty Mawr standing stone is one of several such stones in this part of Holy Island. There is another to the south, next to Stanley Mill (SH 2664 7888), and a rare pairing of two stones just over 3m apart, to the west at Plas Meilw (SH 227 809) (Lynch 1991).

The island has several notable Iron Age and Roman period sites. Holyhead is dominated by its mountain, to the north-west of the town. The summit is enclosed by a stone rampart wall forming the hillfort of Caer y Twr (SH 219 829). A much smaller promontory fort, Dinas on the south coast of Holy Island (SH 223 794), is probably also Iron Age. This promontory is surrounded by high cliffs and a low bank runs along the edge of the chasm, which separates it from the mainland. These forts were probably defensive refuges, and the population lived in more hospitable areas. Towards the foot of the south-western slope of Holyhead Mountain are a group of huts near another Ty Mawr (SH 211 820)

and a similar hut group overlies the Bronze Age barrows at Porth Dafarch (SH 234 801). Excavation at Ty Mawr demonstrated that the stone huts belonged to the 1st millennium bc, but with some activity in the 3rd century AD, as well as earlier prehistoric and post-Roman settlement evidence. The finds from Porth Dafarch dated the huts to the Roman period (Lynch 1991, RCAHMW 1937).

A Roman fort was constructed at Holyhead towards the end of the 3rd century or later, as a naval base against Irish raiders. A Roman coin hoard was found in the area in 1710. The coins were buried in a brass vessel, and all dated to the 4th century (PRN 2503, SH 26 81).

Holy Island was of considerable importance in the early Christian period, with the *clas* site of Caer Gybi large enough to attract the attention of the Vikings in 961 (Edwards 1986,24). The foundation of this monastic community by St Cybi is traditionally dated to the mid 6th century AD. There is an unusual concentration of early Christian sites known, or suspected, on the island. These include a cemetery of long-cist graves, dating to approximately 6th to 8th century AD, discovered during the construction of the A55 dual carriageway, to the north-west of Ty Mawr Farm. At this site the graves were located around, and cut into, the remains of a Bronze Age barrow. Another cemetery, of similar date, lies to the south-west of the study area, at Tywyn y Capel, the site of a medieval chapel on the shore of Trearddur Bay (Edwards 1986, 31). There were early Christian cist burials found at Porth Dafarch.

The development of the parochial system in the 12th century saw Holyhead church change from a *clas*, or 'mother' church to a collegiate one. Responsibility remained, however, for a number of small chapels in the area, usually with associated wells, including Capel Ulo, and Capel Gorlas.

The official use of Holyhead as a port increased in the reign of Elizabeth I, when it became the departure point for the Royal Mail to Ireland. During Oliver Cromwell's Commonwealth Holyhead was garrisoned, and regular packet boats sailed to Ireland (Hughes and Williams 1981). The port subsequently grew until, by the early 19th century, it was the principle port for Ireland.

During the 17th century the road across Anglesey to Holyhead was probably just a rough track, but the forerunner to the bridge at Four Mile Bridge already joined Holy Island to Anglesey by 1578 (Hughes and Williams 1981). One of the earliest maps of Anglesey, published by Speed in 1630, marks Pont-Rhydbont (the bridge at Four Mile Bridge), and just to the west of it is Llansanfraidd (St Bride's or Trearddur Bay), the only place marked on Holy Island, other than Holyhead itself (Evans 1972).

In 1765 the road from the Menai ferries to Holyhead was turnpiked, and much improved (Ramage 1987). However, transport was still difficult until Telford built his new London to Holyhead road (the A5), which arrived on Holy Island in 1823. The Stanley Embankment (grade II listed, 20074) carried the road over Afon Lasinwen, the tidal strait between Holy Island and Anglesey, replacing the ferries and fords (GAT 251). The embankment was designed by Thomas Telford, started in 1822 and opened in 1823; its construction created the body of water now referred to as the Inland Sea. In 1846-8 the railway line was constructed along the southern side of the embankment (GAT 204, p251).

Major improvements were also made to the harbour throughout the 19th century (Hughes and Williams 1981). The earliest improvements included two piers at the entrance to the inner harbour (Admiralty pier and South pier, the former with a lighthouse at the end). The initial plans were drawn up by Rennie, however following his death the work was completed by Telford. Later plans involved the construction of a large outer harbour by building a new breakwater to the north of the existing harbour. This was a massive undertaking, designed by J M Rendell and completed by J Hawkshaw, it used some 7 million tones of stone and took nearly 30 years to construct, during which time the population of Holyhead rose from just over 2000 to nearly 9000.

Much of the land within the study area was owned by the Penrhos estate, though the pipeline also runs through the lands of Plas Llanfawr. The owners of Penrhos took the surname Owen in the early 16th century (Richards 1940), but in 1763 Margaret Owen, the heiress to Hugh Owen, married John Stanley and the estate passed to the Stanley family of Alderley (Ramage 1972, 1987, Richards 1940). W O Stanley was a noted antiquarian, and the Penrhos estate maps provide valuable historical evidence.

The northern part of the pipeline route thus runs through former Penrhos lands, and the farm known as Plas Croes, a small estate which was bought by the Penrhos family in 1777 from the Lloyds of Maesmor (Williams 1950, 63).

The southern part passes through the former estate of Plas Llanfawr. This was bought by a James Vickers after he obtained the Irish Mail Contract in 1689, though previously it had been owned by the Wood family - William Wood had been Inquisitor of Confiscation under the Government for Anglesey in 1567, and had acquired considerable property for himself (Griffiths 1914, 132). The estate was sold by the Vicker's family in 1827 (Williams 1949, 58-60). The house of Plas Llanfawr was demolished and the site and lands now lie under the large Morawelan housing estate built in the 1960's.

The dramatic changes wrought by the building of the Morawelan housing estate mean that the landscape now bears little resemblance to that which existed until the middle of the 20th century, and nearly all the farms and fields which existed then no longer exist. Where the pipeline passes close to the site of a former building it is noted in the gazetteer below. It is also of note that the Anglesey Aluminium conveyor from the main works to the pier off Salt Island passes under the playing fields west of Morawelon.

4.3 The Existing Archaeological Record

(See figure 2)

Eleven features were identified within the survey area, of which four may be directly impacted by the scheme, and seven will not suffer impact. These are listed below along with recommendations for further assessment and mitigatory measures.

1. Turkeyshore Road, Holyhead SH25248257

Category: B Impact: Slight

Turkeyshore Road, leading from the Black Bridge past Alltran and on to Ynys Rug or Parry's Island would appear to have been built during the early 19th century, probably to reach the graving dock and south pier installed by Telford after 1810. It is clearly shown on Beechey's map of 1839. The south side of the harbour was already known as Turkey Shore by 1800, however, though the origin of the name is obscure.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching Brief.

2. Tyddyn Lantern, Holyhead SH25338252

Category: D Impact: Unknown

This is a building shown on a map of 1817 (Penrhos II 778). Its name would suggest it originally housed a light for guiding ships, and it has been stated that 'a lantern placed in the window (of Tyddyn Lantern) was the earliest harbour guide' (Williams 1939, 87), though no confirmation has been found for this in contemporary sources. It is clearly marked on the more recent Ordnance Survey maps as Ty'n Lantern, and would appear to have been demolished in recent years, as the area is now wasteland with no upstanding buildings remaining on site.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching Brief.

3. Llain Garregoes SH25478244

Category: D Impact: Unknown

A rectangular structure is marked on the tithe map of Holyhead to the east of Tyddyn Lantern, and given the name Llain Garregoes. It is not clear from the map evidence if it was a domestic or agricultural building. The pipeline runs very close to site of the former structure, though nothing is now visible on the ground.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching Brief.

4. Telford's Holyhead Road SH25948137

Category: B Impact: Slight

The pipeline cuts through a short remaining stretch of Telford's Holyhead road, built 1810 to 1815, and taken out of use when the A5 road was re-routed for the construction of the Anglesey Aluminium

Works in the 1960's. Telford's road is now recognised as a site of national importance, and many parts are listed or scheduled. Excavation through this redundant section will enable a section to be recorded through the road, and, if it survives, through the original road as designed by Telford.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Watching Brief and detailed recording

4.4 Sites lying close to the route

The sites described in this section lie close to the proposed route of the pipeline, but will not suffer direct impact if the present line is followed. Care must be taken when obtaining access to the pipeline route that these sites are not disturbed.

5. Accumulator House SH25228256

Category B: Impact: None

The engine house which powered the LNWR graving dock gates and pumps. Built in the 1860's when the east side of the harbour was being infilled and straightened by the railway company.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

6. Graving Dock SH25218259

Category B: Impact: None

Graving dock built in the 1870's when the east side of the harbour was being infilled and straightened by the LNWR railway company. It is now filled in, but the top course of the masonry is still visible.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

7. Graving Dock SH25498220

Category B: Impact: None

Graving dock designed by Telford and built in 1825-6. It is now filled in, but parts of the edging stones are still visible in places.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

8. Engine House SH25468251

Category B: Impact: None

The engine house which powered the 1825-6 graving dock gates and pumps. The building is now derelict, but contains many features of interest including mountings and various fixings relating to the steam engine, now reputedly in the Science Museum, Kensington.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

9. Rectangular structure SH25838204

Category D: Impact: None

A rectangular structure clearly marked on the tithe map for Holyhead, and later on the 1924 25" OS map (Anglesey XI.3). It lay within the grounds of Plas Llanfawr, but there is no clear indication of its function. The 1924 map shows three buildings, which would indicate a house with outbuildings, but it is not named. Two gateposts appear to mark the location of the former buildings, but nothing else is visible above ground.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

10. Ellin Stanley's Cross SH25528202

Category B: Impact: None

A cross erected in honour of Ellin Stanley following her death in 1876.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

11. Glan y Gors farmhouse and buildings (site of) SH25998129

Category D: Impact: None

This farm appears to have come into existence in the early years of the 19th century occupying an area of relatively poor land and enclosing it with rectangular fields. It is shown on the tithe map of 1845, and there is a record of drainage and enclosure taking place in the early 19th century by the Glynllifon estate (GAT Report 452). The farmhouse and buildings were demolished in the 1960's.

Recommendations for further assessment: None

Recommendations for mitigatory measures: None.

Entire Route

Many sites of archaeological importance are not recognisable by assessment techniques alone, and only become apparent during field evaluation (geophysical survey and trial excavation) or during a watching brief. Whilst field evaluation is recommended for two specific areas on the route (sites 4 and 6), the remainder of the route would be adequately examined by a watching brief during the top soil strip and, if required, during trench excavation. This would ensure all sites not identified by the assessment process but affected by construction will be identified and recorded.

4.5 Summary of importance and impact

Feature no	Category	Impact	Mitigation measures
1	B	Slight	Watching Brief
2	D	Unknown	Watching Brief
3	D	Unknown	Watching Brief
4	B	Slight	Watching Brief and Detailed Recording
Entire route	E	Considerable	Watching Brief

5. SOURCES

OS Maps

OS 1:10,000 map sheets SH 70 SW (1980) and SH 70 SE (1979)

25" County Series Anglesey V.14 and XI.2 surveyed 1887

25" County Series Anglesey XI.3 surveyed 1887 revised 1924

6" County Series Anglesey Sheets XI NW and XI NE surveyed 1887 revised 1923

Aerial Photographs

National Archaeological Record, Aberystwyth

Welsh Water Collection of Photographs taken for the scheme

Manuscript Sources

Anglesey Record Office, Llangefni

Tithe maps for Holyhead (1845)

University of Wales, Bangor: Penrhos Papers

Penrhos II 772 Maps of Penrhos Estate 1769

Penrhos II 804 Maps of Penrhos Estate 1817

Published sources

Anon, 1775 *A History of the Island of Anglesey*, London: Printed for J Dodsley.

Baynes E. N., 1911 'The megalithic remains of Anglesey', *Trans of the Cymmrodorion Soc*, 2-91

Brown I., et al, 1995 *20th century defences in Britain*. Practical Handbooks in Archaeology No. 12.

CBA, London

Carr A.D., 1982 *Medieval Anglesey*, Llangefni

Davies B. L., 1972 Geology. In *Richards (ed)*, 9-10

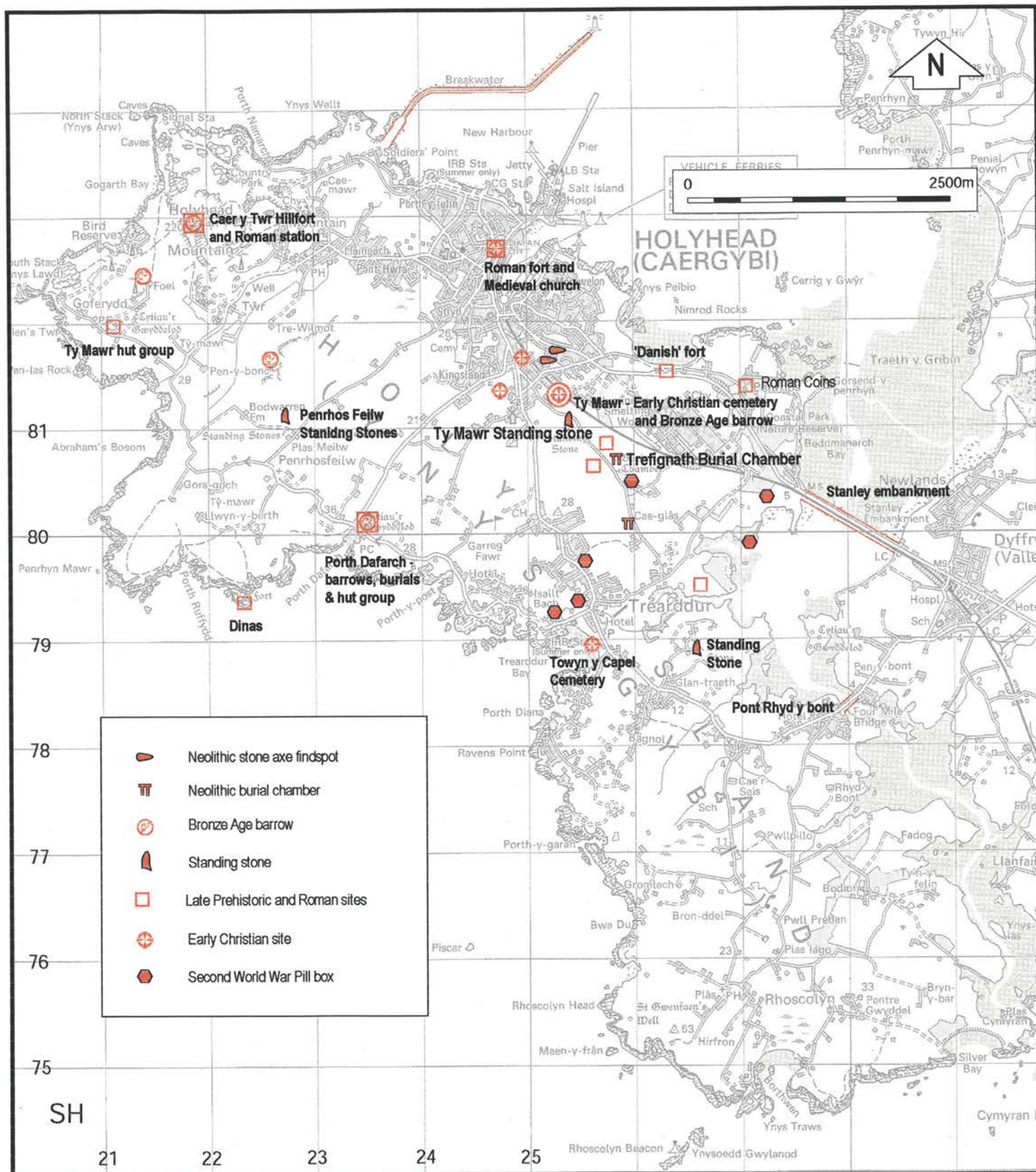
Edwards N., 1986 Anglesey in the early Middle Ages: the archaeological evidence. *Transactions of the Anglesey Antiquarian Society*, 19-42

Evans O.C., 1972 Early maps. In *Richards (ed)*, 61-62

Greig J., 1987 Pollen and plant macrofossils. In *Smith 1987*, 39-44

Hughes D. L. and Williams D. M., 1981 *Holyhead: the story of a port*, Holyhead

- Keeley H., 1987 The soils. In *Smith 1987*, 35-38
- Lynch F., 1969 Inventory of megalithic tombs of North Wales. In Powell TGE *et al Megalithic Enquiries in the West of Britain*, Liverpool, 296-304
- Lynch F., 1972 The celtic Iron Age and the Roman occupation. In *Richards (ed)*, 23-24
- Lynch F., 1991 *Prehistoric Anglesey*. The Anglesey Antiquarian Society, Llangefni
- Neale, A., 1997 'Broad Gauge at Holyhead', *Industrial Gwynedd*, Vol 2, Plateway Press.
- Ramage H., 1987 *Portraits of an island, eighteenth century Anglesey*. The Anglesey Antiquarian Society, Llangefni
- Ramage H., 1972 Eighteenth century country houses. In *Richards (ed)*, 73-76
- Redfern N. I., 1998 *Twentieth Century Fortifications in the United Kingdom*. Council for British Archaeology, London
- Richards M. (ed), 1972 *An Atlas of Anglesey*, Llangefni
- Richards T., 1940 UCNW library, special collections, VI introductions to the catalogues. *Transactions of the Anglesey Antiquarian Society*, 62-75
- Royal Commission on the Ancient and Historical Monuments in Wales, 1937 *Inventory of ancient monuments in Anglesey*, London
- Smith C., 1987 The excavation of the Trefignath burial chambers – 1977 to 1979. In Smith CA and Lynch FM *Trefignath and Din Dryfol, the excavation of two megalithic tombs in Anglesey*. Cambrian Archaeological Monographs No. 3, Cardiff
- Welsh Office Circular 60/96 1996 *Planning and the historic environment: archaeology*, Cardiff
- Williams, L., 1939 'Notes on Holyhead social life in the first half of the eighteenth century' *Trans of the Anglesey Antiquarian Society*, 86-99.
- Williams, L., 1949 'The Llanfawr Estate at Holyhead', *Trans of the Anglesey Antiquarian Society*, 58-60.
- Williams, L., 1950 'The development of Holyhead' *Trans of the Anglesey Antiquarian Society*, 51-70.



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Fig 1. Location of sites in proximity to study area.

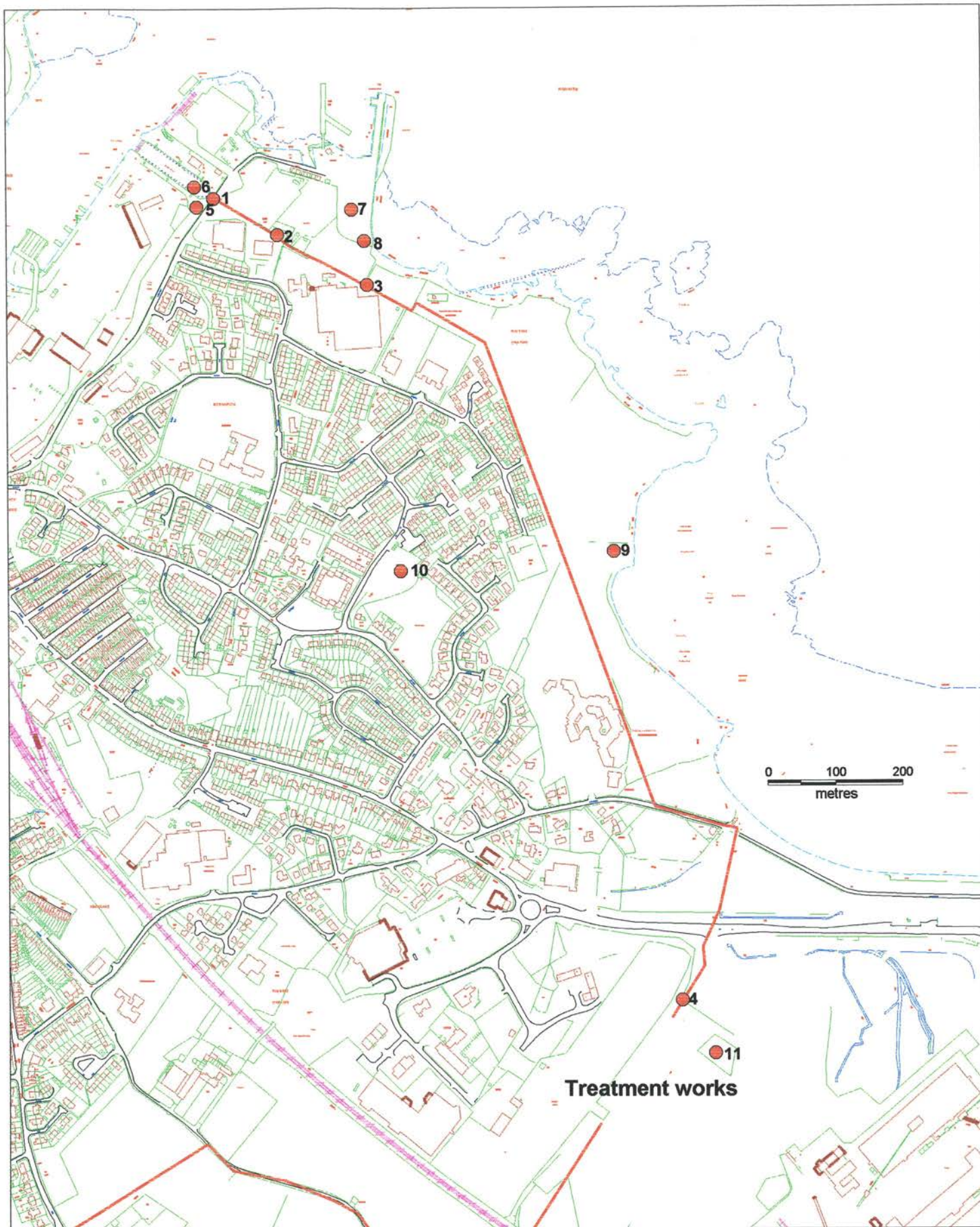


Fig 2. Location of archaeological sites



Fig 3. Tithe map of 1845 with approximate route of pipeline

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