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LAND TO THE NORTH-WEST OF TREMADOG (LLIDIART YSPYTTY)

ARCHAEOLOGICAL ASSESSMENT

Report No. 519

Prepared for

Symonds Group Limited

May 2002
Revised February 2004

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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by
David Hopewell
and D Rh Gwyn

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LAND TO THE NW OF TREMADOC (LLIDIART YSPYTTY): ARCHAEOLOGICAL ASSESSMENT (G1736)

1. INTRODUCTION

Symonds group Ltd has asked the Gwynedd Archaeological Trust to undertake a Desktop archaeological assessment in advance of a proposed development at Tremadog, Gwynedd on behalf of North Wales NHS Trust. The proposed development is centred on SH 557402 and the affected area is indicated on the site plan Fig 1. This constitutes the study area of the present document. The development area contains remains of ironstone mining, possibly of Roman origin, and significant road and railway remains. Adjacent to the site is a Roman bath-house (now buried beneath the garden of the adjoining house), and finds of Mesolithic/Neolithic date were recovered west of the A487 during trial excavations in 1995. The development area falls within a designated Landscape of Outstanding Historic Interest (HLW (Gw) 7: Aberglaslyn) and within Historic Landscape Characterisation Area 35, Llidiart Yspytty (GAT Draft report 422).

A Brief was prepared for this project by Gwynedd Archaeological Planning Service (Appendix 1). A project design (Appendix 2) was prepared conforming to the requirements specified within the Brief, and in the *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 1999). The report was updated in February 2004 to take into account changes to the proposed layout.

2. SPECIFICATIONS AND PROJECT DESIGN

An initial report was requested from Gwynedd Archaeological Trust, assessing the likely archaeological impact of the planned development and suggesting mitigatory measures.

The basic requirement was for a desk-top survey of the development area in order to assess the likely impact of the scheme on the archaeological and heritage features therein. The importance of known archaeological remains was to be assessed and areas of archaeological potential to be identified. Measures to mitigate the effects of the development works on the archaeological resource were to be suggested.

Gwynedd Archaeological Trust's proposals for fulfilling these requirements were 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)
c) to recommend ways in which damage to the cultural heritage can be avoided or minimised

The first stage of an archaeological assessment comprises a desktop study and field walkover. This is followed by an initial report which details the findings and makes recommendations for any field evaluation or mitigation work. Field evaluation may be necessary if sites are present which cannot be assessed by desktop or field visit alone. This typically takes the form of geophysical survey and/or trial excavation. A full programme of assessment and evaluation may therefore consist of:

a) Desktop study
b) Field walkover
c) Initial report
d) Field evaluation
e) Draft report
f) Final report

This present document covers the first three phases, and recommendations are included for further evaluation and mitigatory measures. The full project design is included as appendix 2.

3. METHODS AND TECHNIQUES

3.1 Desk-top Study

The desk-based assessment involved a study of the regional Sites and Monuments Record (SMR) information for the study area. This included an examination of the core SMR, and secondary information held within the record including unpublished reports, the 1:2500 County Series Ordnance Survey maps and the National Archaeological Record index cards. The National Monuments Record (NMR) was checked for sites additional to the SMR. Secondary sources were examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales and indices to relevant journals, including *Archaeologia Cambrensis*. Vertical aerial photographs were examined. Information about Listed Buildings and Scheduled Ancient Monuments were obtained from Cadw: Welsh Historic Monuments. Maps and relevant documents were examined at the County Record Office in Caernarfon and at the National Library of Wales (see Section 9 below 'Sources consulted').

3.2 Field survey

This part of the assessment involved visiting the study area and assessing the sites identified during the desk-based study and the assessment of any additional sites visible within the study area. The position of each site was marked on a 1:2500 plan of the study area. A written description and a basic photographic record was made of the individual sites. The project archive will be retained at Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, LL57 2RT. The site was revisited in January 2004.

3.3 Historic landscape assessment

The area falls within a designated Historic Landscape (HLW (Gw) 7: Aberglaslyn). An assessment of the impact upon that landscape as described within *Guide to good practice on using the Register of Landscapes of Historic Interest in Wales in the planning and development processes* (Cadw & CCW, 2003) was therefore necessary. This required undertaking an Assessment of the Significance of the Impact of Development on Historic Landscapes (ASIDOHL) as described within the Guide.

3.4 Report

All available information was collated and assessed. On this basis, recommendations for further evaluation along with mitigatory recommendations are given in the relevant sections of this report. The sites were allocated to the following categories as specified in the guidelines given in *Planning and the Historic Environment: Archaeology* (Welsh Office circular 60/96). The allocation of a site to a category defines the importance of the archaeological resource of that site. Definitions of site categories, evaluation techniques and mitigatory measures are stated below.

3.2.1 Definition of site categories

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 (grades I and II*) 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

These sites are those which would not fulfill the criteria for scheduling or listing (grades I or II*), 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. The two principal evaluation techniques are outlined below. By the end of the assessment there should be no sites remaining in this category.

3.2.2 Definition of field evaluation techniques

Field evaluation is necessary to allow the reclassification of the category E sites, and to allow the evaluation are 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.

3.2.4 Definition of Mitigatory Recommendations

Below are the measures that may be recommended to mitigate the impact of the development on the archaeology.

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. RESULTS OF THE DESK-TOP ASSESSMENT

4.1 Topographic description.

The study area lies in a strip of open pasture between the spectacular cliffs of Craig y Castell and the reclaimed estuary of Traeth Mawr. The underlying geology consists of Tremadog slates with igneous intrusions. The upper part of the area lies close to the base of the cliffs, and is on sloping pasture fields. A sharp break of slope forming a low cliff face runs across the site separating the upper from the lower part, into which a number of adits have been excavated for the purpose of extracting ironstone. This steeper area is colonised by gorse and blackthorn, and is difficult to access. The lower area borders on the former tidal estuary (prior to the construction of the cob this would have been very close to the High Water mark). Though largely pasture, there are wetter areas here.

4.2 Archaeological and historical background

4.2.1 Prehistoric period

No known Prehistoric features are associated with the study area although a flint blade and flint working debris, indicative of late Mesolithic or Neolithic activity were found during trial trenching on Y Bryn 50m to the south (Hopewell 2-4).

4.2.2 Roman period

Bricks and human remains identified as dating from the Roman period were discovered in the vicinity of Llidiart Yspytty *c.* 1810, and in 1876 workmen engaged in building a drain identified further remains. Excavations carried out by in 1908 revealed a bath-house; pottery indicated occupation from the second century AD to the fourth (Breeze and Anwyl 1909).

It has been suggested that the presence of a Roman building here was to guard the wealth of the ironstone mine that lay immediately adjacent. However, there is as yet no evidence to show that the mine was worked in the Roman period (RCAHM 1960, 1453-4). The ore in the adjacent Bryn y Garreg Haiarn would probably have been very obvious at the time and unrecorded exploitation cannot be ruled out. An alternative explanation is that the bath-house was associated with a *mansio* for travellers crossing Traeth Mawr and following the Roman road through Penllystyn to Segontium.

4.2.3 Medieval period

The establishment of a church dedicated to St Beuno at nearby Penmorfa suggests that the area formed a focus in the seventh century (Gresham 79) but there is otherwise no known archaeological or documentary evidence for human settlement or society in the area until the late sixteenth century, when Sir John Wynn was attacked at Llidiart Yspytty by a gang of eight armed men sent there, he claimed, by his enemy William Maurice, who would have killed him had it not been for 'passengers traveling that waye' (Gresham 91). Further detail is lacking, but the episode suggests that Llidiart Yspytty was still a recognised route across

the Traeth Mawr, probably still the landing point from the ferry boat, and as such an easy place, if a public one, to mount an attack.

This also appears to be the earliest documentary reference to the name Llidiart Yspytty. There is no documentary reference to a *hospitium* here, whether under the patronage of the Knights of St John of Jerusalem or any other order, but it would have been the obvious place for pilgrims making their way to Bardsey to rest having negotiated the perils of the Traeth Mawr, and a hostel of some sort may have been maintained here, much as the putative *mansio* might have served. The discovery of skeletons by the road in 1820, later reburied in Penmorfa church, may be connected with the *hospitium* (Alltud Eifion 26).

A nineteenth century local historian, Robert Isaac Jones, refers to a castle on the site and that states that within his lifetime two cottages stood on the site (Alltud Eifion 27). It is far more likely that the 'castle' was a natural outcrop, though the site of cottages may be indicated by the surviving dwelling marked on plot 480 of the 1842 tithe map.

There is evidence that the Traeth had been silting up between Llidiart Yspytty and Penmorfa since the sixteenth century, when the Clennenau family had exploited the saltings (Gresham 79), and a document of 1779 indicates that Llidiart Yspytty farm had rights of common in the marsh, implying that the land had encroached considerably since the sixteenth century (NLW Rhiwlas Estate Papers D84). The Llidiart Yspytty farmhouse as it survived into the early nineteenth century was described as 'an ordinary old farmhouse' (*hen amaethdy cyffredin* - Alltud Eifion 23).

In the late seventeenth century documentation becomes sufficiently detailed to identify changes in land-ownership patterns within the area; in 1679 the whole of the township of Gest, along with various other properties, passed from the Castellmarch family to Colonel William Price of Rhiwlas, near Bala, in whose family it remained until the Tremadoc estate was sold to William Alexander Madocks in 1798 (Gresham 321, 323, 327, NLW Rhiwlas Estate Papers D105).

4.2.4 Modern period

The purchase of the estate by Madocks initiated a vigorous programme of improvement such as was being carried out elsewhere in Caernarvonshire by Lord Penrhyn, and though Madocks was to bring himself to penury by his exertions, he not only bequeathed one of the most remarkable 'improved' landscapes in Wales or indeed the United Kingdom, but also succeeded in laying the basis for the area's nineteenth and twentieth century prosperity. His plan involved enclosure of the Traeth Mawr in order to increase his agricultural holding, and the creation of a planned urban settlement, and, in the slightly longer term, developing the area's industrial, mineral and transport potential.

It is well known how he built an embankment to cut off the north-western part of the Traeth, thereby enclosing the area where the present town of Tremadog stands, and finally severing Llidiart Yspytty from the sea. Instead, Llidiart Yspytty now found itself on the limits of a small town (Beazley).

Furthermore, as well as the old route from the ferry site wandering northwards over Garreg Haiarn, ultimately to Caernarfon, around 1807 a new road connected Tremadog with Criccieth and Pwllheli, which Madocks hoped would become part of a trunk road between London and Porth Dinllaen. In 1810 the Caernarvonshire turnpike trust took over the old route from Llidiart Yspytty to Penmorfa and Caernarfon (Pritchard 1956 66). These two roads joined at Llidiart Yspytty. In 1845 the Caernarfon road was rebuilt on its present alignment, superseding its earlier alignment past Llidiart Yspytty farmhouse and cowshed. (This date derives from the fact that the Worcester and Porthdinllaen railway plans of that year show only the old road, but a visiting geologist in the same year speaks of the 'Old Caernarvon road' here [Davis 72]).

The realignment of the Caernarfon road may have been prompted by the development of mining on Llidiart Yspytty. A prominent feature of the tenement is an outcrop at the break of the slope known as Bryn Mwnawl ('ore hill') or more commonly as Bryn y Garreg Haiarn ('ironstone hill' - Alltud Eifion 27). The mine may have been worked from 1754 (NLW Price of Rhiwlas 6); it was certainly being exploited by 1770

when Thomas Pennant observed 'an unprofitable mine-adventure' here (Pennant ii 196), and Alltud Eifion, who was born in 1815, noticed as a schoolboy 'the level in the iron rock, with a gate to prevent animals entering' from an earlier phase of working (Alltud Eifion 45).

On 20 March 1840 the mine was leased to Henry Cooper of Aberglaslyn Cottage and James Robins Croft, a Liverpool merchant, with the right to build a railway to Porthmadog (NLW Schedule of Harrison Deeds and Documents box 65 parcel 4). They must have had a takenote in the previous year, as they were already shipping out significant quantities from Porthmadog harbour (NLW Portmadoc 513). They left in 1841, when the mine passed to Henry Pritchard, a Bristol merchant, and in 1845 to John Hayward, an Oswestry solicitor, and despite a threat to his tenure from an organisation calling itself 'The Cambria Mine and Quarry Co.', Hayward was granted a lease empowering him to erect 'smelting furnaces' and to divert the railway serving the mine (NLW Schedule of Harrison Deeds and Documents box 65 parcel 4). The furnaces were erected near the principal adit, and are shown on the first edition 25" ordnance survey (Caernarvonshire XXXIV 1887).

The Porthmadog harbour dues confirm that no less than 3,301 tons of ironstone was shipped between March 1839 and December 1840 (NLW Portmadoc 513), the great majority of which can only have come from Llidiart Yspytty - Pen Syflog, the only other locally productive mine, is too small to have supplied more than a small part of this (GAT Metal Mines report, Alltud Eifion 45). Owen Morris claimed that in the period 1848-1850 between 10,000 and 15,000 tons were shipped (Owen Morris 40). This suggests that the underground workings at Llidiart Yspytty are very extensive - the mine's final closure came long before the obligation to deposit an abandonment plan - but it is remarkable that no tips of any size survive in the immediate vicinity of the mine. A possible clue is the mine's proximity to the turnpikes; uncommercial rock could have been used for road-mending.

However, by September 1850 St Pierre Foley, the notorious mining speculator, was describing the mine as 'rather silent in its operations' (*Mining Journal* 1850, 459), and the following year it is described as having closed down (*Mining Journal* 1851 571).

The railway serving the mine was constructed in 1840-1841. Tenders were invited on 5 September 1840 (*CDH*) and the lease of 1841 stipulated that it was to be completed by September of that year. Though Boyd (Boyd 8) suggests that it was 3' gauge, and that it reflects the engineering, and may have reused the track components, of the pre-Festiniog Railway maintenance line over the main cob, it appears far more likely that it was built to the same nominal 2' gauge as the Festiniog (*CDH* 28 May 1842 indicates through running from the Festiniog Railway to Tremadog).

The track arrangements at Llidiart Yspytty mine were changed more than once in the course of the railway's history (see Figs 2, 3 and 4). As built, it crossed the Porthdinllaen turnpike on an acute angle, crossed the track to Llidiart Yspytty house and ran steeply up past the later school to reach the open workings on the top of Garreg Haiarn. The records of the Caernarvonshire Turnpike Trust from 1842 make it clear that the railway went over the turnpike at this time (CRO XQS/TT (add) 4). An application for the railway to cross the line of the Porth Dinllaen turnpike was made in 1848 (CRO XQS/TT/39). The line was subsequently relaid so that instead of climbing Bryn y Garreg Haearn, it ran at its foot, by dint of crossing the Porthdinllaen turnpike on the level a few yards to the west of the original level crossing, by which it reached the main adit. An undated map in the National Library of Wales illustrates its course (NLW Map 5753). The original line was abandoned, but in order to still give access to the open-cast workings on the top of Bryn y Garreg Haearn a new link was built, curving sharply through 180 degrees on a gradient of 1/23½.

In 1855-7 the railway was completely rebuilt and extended from the end of this curved link to give access to the remote Gorseddau slate quarry some three miles to the north. James Brunlees, later to be knighted as one of the foremost engineers of the mid nineteenth-century (builder *inter alia* of Llandudno pier and of the São Paolo Railway), engineered this line by making use of the course of the existing Tremadog railway and building an entirely new line onwards from the terminus of the link line to the upper part of Llidiart Yspytty to Gorseddau, all to 3' gauge (Boyd 11-17). (That the link line is a pre-existing railway and not Brunlees's work, Brunlees himself made clear; he informed the Institute of Civil Engineers that on the section of line

he built himself, rather than adapted from an existing railway alignment, the sharpest curve was 400' radius, whereas the Llidiart Yspytty link is 150' radius [*Minutes of the Proceedings of the Institute of Civil Engineers* xxiv (1864-5), pp. 386-7, CRO X/Plans/R/69, Vignes 45]).

The mine site therefore continued to have an industrial function as a 'station' and a slate yard for Brunlees's Gorseddau Tramway (*CDH* 23 May 1857). Though most of the slates were destined for Porthmadog harbour, the Llidiart Yspytty sidings made a convenient spot to load slates and slabs destined for local building work onto carts. An office building is shown here in Nash Williams plate XVI.

By the 1860s Gorseddau quarry had also closed, and the railway through Llidiart Yspytty went through its last metamorphosis in the period 1872-5, when it was once again regauged, this time back to 2', and adapted for locomotive running in an attempt to tap the supposed mineral wealth of Cwm Pennant. The line's one locomotive, however, saw very little use, and spent most of its life in its shed near the Llidiart Yspytty adit, marked on the first edition 25" ordnance survey map (Boyd 17-30, 42, County series XXXIV 11, 1889). It was the construction of 'an engine house' nearby in 1876 first alerted local antiquarians to the existence of the Roman site, but it is unlikely that this was the shed to house a locomotive, and was more probably a weighing machine house. What may be this building, perhaps with a contiguous office is illustrated in Nash Williams 1954 and is shown on the County series map. The County series map also shows what also appears to be a weighing machine house on the loop line.

The railway saw little use, and was lifted before the end of the nineteenth century.

Other structures close to the study area include the school, built as a National School in 1857 (Edward Davies 98), and the houses alongside the Caernarfon road. These are not shown on the 1839-41 1" ordnance survey but are marked on a map of the Tremadoc estate (too large to be copied) dating from 1870 (CRO: X/Maps/717).

4.4.5 Cultural associations

As well as the travellers and local historians mentioned in *4.2.4* above, and Madocks' own circle of friends (which included Percy Bysshe Shelley) the area is also associated with Elizabeth Gaskell, several of whose short stories are set in the immediate area. The evidence is summarised by R M Jones. Tremadog was the birthplace of T E Lawrence, born August 16, 1888.

5. RESULTS OF THE FIELD SURVEY

The field survey was carried out on 17th May 2002. Weather conditions were reasonable with somewhat overcast skies and occasional heavy showers. The results were compiled into a site gazetteer which includes impact assessments along with recommendations for field evaluation and mitigatory measures. For feature locations see Fig. 5.

5.1 Site gazetteer

Feature 1 ***Llidiart Yspytty Principal Adit*** *(Plate 1)*
Category B/E
Direct impact: None
Indirect Impact: Visual impact.
A partially blocked adit can be seen running into the south-west side of Bryn y Garreg Haearn. The entrance is still accessible, although partially blocked by a fall of earth, and is 1.4m wide and 1.6m high. Various pieces of iron and steel can be seen in the vicinity of the adit. These appear to be, in part, a result of modern dumping but some could be the remains of a gate that formerly closed off the adit. The adit appears to be open for some distance underground but no attempt was made to enter.
Recommendation for further assessment: None.
Recommendations for mitigatory measures: Preservation in situ.

Feature 2 ***Llidiart Yspytty Kilns*** *(Plate 1)*
Category B
Direct impact: None
Indirect impact: Visual impact
The site of the kilns erected in 1845 is visible as a roughly semi-circular platform to the south-west of the principal adit. The remains of the kilns themselves are not visible but could be buried beneath spoil.
Recommendation for further assessment*: None*
Recommendations for mitigatory measures*: Preservation in situ.*

Feature 3 ***Revetment Wall*** *(Plate 1)*
Category C
Direct Impact: None
Indirect Impact: Visual impact
A revetment wall 10m long and 3m high of local stone stands behind the kiln platform. The central part is slightly raised possibly indicating that ore was tipped from here to the kilns below.
Recommendation for further assessment: None
Recommendations for mitigatory measures: *Preservation in situ.*

Feature 4 ***Possible blocked adit***
Category E
Direct impact: Considerable
Indirect impact: Visual impact
A very overgrown slot cut into the rock face 40m to the south-west of the principal adit could be the remains of a blocked adit or trial.
Recommendation for further assessment: Clear vegetation and reassess
Recommendations for mitigatory measures: Dependant on further assessment

Feature 5 ***Line of the 1848 link railway***
Category B
Direct impact: None
Indirect impact: Visual impact
The line of the link railway is visible as a 3.5m wide slightly raised platform with occasional exposed kerb stones. The railway leads into a cutting immediately adjacent to the road. A length of 80m is clearly visible but the railway could not be traced as far as the principal adit with any certainty.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Preservation in situ.

Feature 6 ***Blocked adit/trial***
Category E
Direct impact: Considerable
Indirect impact: Visual impact
A linear excavation into the rock close to the top of Bryn y Garreg Haiarn is presumably a blocked adit or abandoned trial. The area could not be properly assessed as it was very overgrown.
Recommendation for further assessment: Clearance of vegetation
Recommendations for mitigatory measures: Dependant on further assessment

Feature 7 ***Open workings, partially infilled*** *(Plate 2)*
Category C
Direct impact: Considerable
Indirect impact: Not relevant
The open workings on the top of Bryn y Garreg Haiarn shown on the 1887, 25" OS map have, for the most part, been infilled. The edge and upper part of the workings are still visible.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Basic recording

Feature 8 ***Industrial remains***
Category E
Direct impact: Considerable
Indirect impact: Not relevant
An overgrown and obviously disturbed area of land immediately to the north-west of the open workings presumably contained features associated with the mining operations. No features are currently visible above ground as the area was presumably landscaped at the same time as the open workings were infilled.
Recommendation for further assessment: Trial excavation
Recommendations for mitigatory measures: Dependant on further assessment

Feature 9 ***Road – Caernarvonshire Turnpike Trust (south-east part)*** *(Plate 2)*
Category B
Direct impact: Considerable
Indirect Impact: Severance of historic transport links
The turnpike is still in use as a footpath/track running from Tremadog school to the junction with the Gorseddau tramway. It is bounded by mortared stone walls and an iron fence adjacent to the open workings.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Preservation in situ as first option, if not this is not possible then detailed recording.

Feature 10 ***Link railway***
Category B
Direct impact: Considerable
Indirect Impact: Severance of historic transport links
The line of the 1848 link railway can be seen running across a field at this point. The field is improved pasture and the rail bed can be seen as a terrace benched into the slope. It is cut at the south-east end by Tremadog School playground.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Preservation in situ as first option, if not this is not possible then detailed recording.

Feature 11 ***Railway siding or yard***
Category C
Direct impact: Considerable
Indirect Impact: Not relevant
The railway joined the line of the turnpike road next to the open workings. The north-eastern side of the track/road has been widened at this point by cutting into a rock outcrop. A large block of slate lies in this area that could have fallen off a wagon.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Excavation and detailed recording

Feature 12 ***Road - Caernarfonshire Turnpike Trust (western part)***
Category B
Direct impact: Considerable
Indirect Impact: Severance of historic transport links

The line of the, by this time superceded turnpike, was used by the Gorseddau railway for a short distance beyond the open workings. The line of the turnpike is not entirely clear beyond this point but a dotted line on the 1887 map (also transcribed onto Fig. 4) appears to indicate that the tramway quickly deviated from turnpike and that the turnpike was retained as a track just above the field boundary. The turnpike can still be seen as a terrace in the field running down the hill towards Glanmorfa Terrace.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Preservation in situ as first option, if not detailed recording.

Feature 13 ***Possible incline*** *(Plate 3)*
Category E
Direct impact: Considerable
Indirect Impact: Not relevant
A field boundary runs parallel to and to the south of the Turnpike road. The ground is very overgrown below the boundary but a linear dip in the blackthorn and two lengths of rock-cut terracing suggest that an incline runs from somewhere near the opencast, down the slope below the field boundary, to a point to the east of Glanmorfa Terrace. The lower end of this feature is difficult to trace and may have been landscaped during road widening.
Recommendation for further assessment: Clearance of vegetation, Trial excavation..
Recommendations for mitigatory measures: Dependant on further assessment

Feature 14 ***Agricultural building***
Category C
Direct impact: Considerable
Indirect Impact: Not relevant
This building was shown on the 1841 lease. It is now derelict, has lost its roof and has been converted into a sheep pen. The building measures 8m x 4m internally and has a 9m x 4m sheepfold added to the north-west. It is built from rough blocks of local stone and has a recent entrance added through the north west gable. The floor consists of a slate walkway through the centre of the building with a slightly raised slate platform to the north-east and a single square slate platform at the south. Various fixing points in the floor and walls probably indicate the placement of feeding troughs etc. but it is possible that the building was used in connection with the mine at some point.
Recommendation for further assessment: None
Recommendations for mitigatory measures: Detailed recording

Feature 15 ***Site of locomotive shed***
Category E
Direct impact: Considerable
Indirect Impact: Not relevant
A locomotive shed is shown in this position on the 1887 map. There is, however, no sign of it on the ground.
Recommendation for further assessment: Trial excavation
Recommendations for mitigatory measures: Dependant on further assessment

Feature 16 ***Site of shed***
Category E
Direct impact: Considerable
Indirect Impact: Not relevant
A shed associated with the railway is shown in this position on the 1887 map. There is, however, no sign of it on the ground.
Recommendation for further assessment: Trial excavation
Recommendations for mitigatory measures: Dependant on further assessment

Feature 17 ***Gorseddau Tramway*** *(Plate 4)*
Category B
Direct impact: Significant
Indirect Impact: Severance of historic transport links
The bed of the Gorseddau Tramway is well preserved in this area and is currently used as a footpath. The tramway is visible as a well-defined raised platform flanked by distinctive mortared stone walls.
Recommendation for further assessment: none
Recommendations for mitigatory measures: Preservation in situ as first option, if not detailed recording

Feature 18 ***Building, site of***

Category E
Direct impact: Considerable
Indirect Impact: Not relevant
A small building is shown in this position on the 1887 OS map but not on the 1915 edition.
Recommendation for further assessment: Trial trenching
Recommendations for mitigatory measures: Dependant on further assessment

Feature 19 Area around Roman bath-house
Category E
Direct impact: None
Indirect Impact: Visual impact
The buried but excavated remains of a Roman bath-house stand about 30m outside the south-eastern boundary of the study area. It is very unlikely that the bath-house stood alone and it is possible that it was associated with nearby mining or possibly with a *mansio*. Further remains have yet to be identified but it is possible that further Roman feature exist within the study area.
Recommendation for further assessment: None, unless there is to be direct impact on the area above the bathhouse. If this is the case, then trial excavation should be undertaken.
Recommendations for mitigatory measures: Dependant on further assessment

6. ASSESSMENT OF THE SIGNIFICANCE OF THE IMPACT OF DEVELOPMENT ON HISTORIC LANDSCAPES

6.1 Contextual Information

The development area falls within a designated Landscape of Outstanding Historic Interest (HLW (Gw) 7: Aberglaslyn) and within Historic Landscape Characterisation Area 35, Llidiart Yspytty (GAT Draft report 422). Details of these areas are included in appendices 4 and 5 and Fig. 6. An Assessment of the Significance of the Impact of Development on Historic Landscapes (ASIDOHL) is therefore necessary as part of the overall assessment process. The procedure described within *Guide to good practice on using the Register of Landscapes of Historic Interest in Wales in the planning and development processes* (Cadw & CCW, September 2003) was followed in the production of this part of the report.

The proposed development that is the subject of this assessment comprises a 3500 sq.m community hospital along with two car parks, an access road and a route for emergency access (see Fig 1 and Plates 5 and 6). The ASIDOHL is to form part of a site development appraisal at the outline planning application stage. The locations of the hospital and carparks are described as being provisional on the provided plans. No details of preliminary siteworks and supporting infrastructure have been provided although a development boundary enclosing 6.3 hectares has been defined. At this stage, it must be assumed that all archaeological features within this boundary are likely to be disturbed by the development.

6.2 Assessment of direct, physical impacts of development

The key historic landscape characteristics in the area, as defined in the Llidiart Yspytty Historic Landscape Characterisation (in GAT Report 422), are intrinsic parts of a wider artificial landscape originally created in the early 19th century by William Madocks. Madocks built the town of Tremadog and also sought to develop the transport facilities in the area and exploit the mineral wealth of his estates. The elements in this Historic Landscape Area are concerned with iron stone mining along with railway and road routes. Feature numbers refer to sites described in the gazetteer above:

Llidiart Yspytty Principal Adit (Feature 1) Category B
A partially blocked adit can be seen running into the south-west side of Bryn y Garreg Haiarn. The entrance is still accessible and is 1.4m wide and 1.6m high. A fall of earth has partially blocked the entrance. The adit appears to be open for some distance underground and it is presumed that extensive underground workings exist beneath the characterisation area.

Llidiart Yspytty Kilns (Feature 2) Category B
The site of the kilns erected in 1845 is visible as a roughly semi-circular platform to the south-west of the principal adit.

Blocked adits and other industrial activity (Features 3,4,6,7 and 8) Category B
A wide range of mining and industrial features can be seen on the rather overgrown Bryn y Garreg Haiarn including blocked adits and trials, an area of partly backfilled open workings and a possible incline. Most of these features would be individually classified as category C sites but their importance is increased when considered as a group.

Turnpike road (features 9 and 12) Category B
The pre 1845 turnpike road is still in use as a footpath/track running from Tremadog School to the junction with the Gorseddau tramway. It is visible between the tramway and Glanmorfa Terrace as a terrace running across improved pasture.

1841-8 railway (features 5 and 10) Category B
The line of parts of the original 1841 railway, the re-routed 1848 railway and the 1848 link railway are visible as terraces in improved pasture at the south of the characterisation area (see Figs 4 and 5). The apex of the acute curve of the link railway has been destroyed by modern development. This group of features provide the spatial and historical link between the Tremadog Railway and the Gorseddau Tramway.

1855-7 Gorseddau Tramway (feature 17) Category B

The bed of the Gorseddau Tramway survives as a well-defined landscape feature and is currently in use as a footpath. This feature is part of the infrastructure of the man-made landscape that developed out of Madocks' improvements and is essential to its interpretation.

The direct impacts on Historic Character Area 35 are summarised below:

ASSESSMENT OF DIRECT, PHYSICAL IMPACTS ON LLIDIART YSPYTTY HISTORIC CHARACTER AREA		
ABSOLUTE IMPACT (LOSS OF AREA)		MAGNITUDE
4.5 ha, 40% area		Considerable
RELATIVE IMPACT (LOSS OF KNOWN CHARACTERISTICS OR ELEMENTS)	STATUS	
Adit (Feature 1) 1 site, 0% loss	B	Very slight
Kilns and related features 3 and 4 - 3 sites, 0% loss	B	Very slight
Blocked adits and other industrial activity (Features 6,7,8) 5 sites, 100% loss	B	Very Severe
Turnpike road (features 9 and 12) 370m, 85% loss	B	Severe
1841-8 railway (features 5 and 10) 330m, 50% loss	B	Considerable
1855-7 Gorseddau Tramway (feature 17) 110m, 52% loss	B	Considerable

The area of open mining and many of the transport links that characterise this area will be severely disturbed or destroyed. The direct impact upon the adit and kiln site will be very low. It should be noted that the Gorseddau Tramway continues beyond the historic character area and the overall direct physical impact on this feature is low.

6.3 Assessment of indirect impacts of development

A finite area of land will be directly affected by the development. The development will however have a wider impact due to fragmentation of the historic landscape, visual intrusion and encroachment. The importance of setting, both within the immediate area and in the context of the wider historic landscape is an important criterion in the assessment of the impact of the development.

The indirect physical impacts on the historic characterisation area are listed below:

ASSESSMENT OF INDIRECT, PHYSICAL IMPACTS ON LLIDIART YSPYTTY HISTORIC CHARACTER AREA		
IMPACTS	STATUS	MAGNITUDE
Turnpike road (features 9 and 12): Functional connection of original Caernarvonshire Turnpike Trust Road to 1845 deviation disrupted.	B	Severe
1848 railway (features 5 and 10): Functional connection between Gorseddau Tramway (17) and 1848 Tremadog Tramway disrupted.	B	Severe
Amenity value of Turnpike road (features 9 and 12), now used as footpath, reduced.	B	Severe

It can be seen that the main indirect physical impact is the severance of several historic transport links. This area is crucial to the historical and physical interpretation of the development of the Tremadog Railway and Gorseddau Tramway along with their relationship to the turnpike roads. These elements are in turn an important part of the man-made landscape that characterises the Aberglaslyn Landscape of Outstanding Historic Interest.

The indirect visual impacts on the historic characterisation area are listed below:

ASSESSMENT OF INDIRECT, VISUAL IMPACTS ON LLIDIART YSPYTTY HISTORIC CHARACTER AREA	
IMPACT-	MAGNITUDE
Change to visual setting of south-eastern half of historic character area as linking transport corridor disrupted.	Severe
Encroachment into agricultural land between Tremadog and Penmorfa affecting setting of both villages	Severe
Development form	Considerable
Development appearance	Considerable

This historic characterisation area has traditionally been a linking transport corridor between Tremadog, Penmorfa and the mines and quarries to the north. This corridor is currently incorporated into agricultural land which defines the edge of Tremadog. Encroachment into this area will have an impact on the visual setting of Tremadog in particular. The extension of the built up area away from the original nucleus of the planned town at the base of the south facing cliffs of Craig y Dref into the raised shelf below the south-west facing cliffs of Craig y Castell would extend the town into a different geographical area and would tend to destroy the visual independence of Tremadog, Glan-y-morfa and Penmorfa. It should be noted that while the hospital building may not be easily visible from immediately below the site it will be visible from Traeth Mawr to the south (see Plate 6), from parts of Porthmadog and from most of the uplands to the south and south-west. Details of the form and appearance of the development were not available at the time of writing so a detailed assessment of the overall visual impact is not possible. It is, however, clear that the visual impact on the Aberglaslyn Landscape of Outstanding Historic Interest will be considerable.

6.4 Evaluation of relative importance

This stage of the ASIDOHL process examines the relative importance of the historic character area directly affected by the development in relation to:
(a) the whole of the historic character area
(b) the whole of the landscape of outstanding historic interest
followed by,
(c) an evaluation of the relative importance of the historic character area in the national context

Modified criteria for the selection of Scheduled Ancient Monuments are used for the evaluation.

Details of the evaluation of the relative importance of that part of Llidiart Yspytty Historic Character Area directly affected by development are given below.

(a) Whole of historic character area

Rarity: High - there are no other similar historic elements within the historic characterisation area
Representativeness: High - the elements affected characterise the historic characterisation area
Documentation: High - the documentary evidence from both the Turnpike Trust and the Railways add greatly to our understanding of the area
Group Value: High - the structural and functional coherence of several historic elements within the area define its importance.
Survival: Moderate - approximately 60% of the elements survive in the landscape.
Condition: Moderate - the condition of the elements is somewhat variable but on average is moderate.
Coherence: High - dominant historic themes are clearly discernible
Integrity: Moderate - the elements are visible in the landscape and are, in part, easily understood although documentary evidence is needed for a complete understanding

Potential: Moderate - the elements within the historic characterisation area are reasonably well understood although there may be some scope for further analysis elements of the landscape that predate the Madocks improvements and subsequent industrial development.
Associations: - the historic characterisation area has some associations with William Madocks. The majority of the development was, however, carried out after his death by a variety of private speculators and engineers These included James Brunlees who was to be knighted as one of the foremost engineers of the mid nineteenth-century.

(b) Whole of historic landscape area

Rarity: Moderate - there are other elements relating to transport within the historic landscape area
Representativeness: Low – some of the elements affected characterise the historic landscape area
Documentation: High – a significant amount of documentary evidence for the creation of Madocks' man-made landscape and its subsequent development is available.
Group Value: High - the structural and functional coherence of the many historic elements within the historic landscape area define its importance. These elements include those in the historic characterisation area.
Survival: Moderate - the railways continue into other parts of the historic landscape area and some elements fall entirely within the historic character area. Approximately 60 to 70% of these elements survive in the wider landscape.
Condition: Moderate - the condition of the landscape elements is somewhat variable but on average is moderate.
Coherence: High - dominant historic themes are clearly discernible throughout the historic landscape area
Integrity: Moderate - the elements are visible in the landscape and are reasonably well integrated with the transport elements elsewhere in historic landscape area although the remains of the railways are now fragmentary.
Potential: Moderate - the elements within the historic character area are reasonably well understood although there may be some scope for further analysis elements of the landscape that predate the Madocks improvements.
Associations: - the historic character area has associations with William Madocks and his 'grand scheme' that defines the historic landscape area. The majority of the development was however carried out after his death by a variety of private speculators and engineers These included James Brunlees who was to be knighted as one of the foremost engineers of the mid nineteenth-century.

The evaluation is summarised below:

EVALUATION OF THE RELATIVE IMPORTANCE OF THE PART OF LLIDIART YSPYTTY HISTORIC CHARACTER AREA DIRECTLY AFFECTED BY DEVELOPMENT						
CRITERION/ VALUE	HIGH/ GOOD	MODERATE/ AVERAGE	LOW/ FAIR	HIGH/ GOOD	MODERATE/ AVERAGE	LOW /FAIR
in relation to	(a) WHOLE OF HISTORIC CHARACTER AREA			(b) WHOLE OF HISTORIC LANDSCAPE AREA		
RARITY	X				X	
REPRESENTATIVENESS	X					X
DOCUMENTATAION	X			X		
GROUP VALUE	X			X		
SURVIVAL		X			X	
CONDITION		X			X	
COHERENCE	X			X		
INTEGRITY		X		X		
POTENTIAL		X			X	
ASSOCIATIONS	X			X		

These results demonstrate that the relative importance of the part of the historic character area that will be directly affected by the development is generally high in relation to the historic character area itself. This is to be expected because these elements define the historic character area. The relative importance to the whole historic landscape area is slightly less because, although the features in the historic character area are important to the integrity of the whole historic landscape area they only partially define its character.

c) The evaluation of the relative importance of Llidiart Yspytty Historic Character Area in the national context

Rarity: Moderate - the type of mining and transport elements found in the historic character area are reasonably common in the national context although the early railway may be less so.
Representativeness: High - the elements within the area define the historic character area
Documentation: High - the documentary evidence for the Madocks' man-made landscape and it subsequent development is very significant and increases our understanding of the elements within the historic character area and in their wider context.
Group Value: High - the structural and functional coherence of the historic elements within the historic character area define its importance.
Survival: Moderate - approximately 60% of the elements survive in the landscape.
Condition: Moderate - the condition of the elements is somewhat variable but on average is moderate.
Coherence: High - dominant historic themes are clearly discernible
Integrity: Moderate - the elements are visible in the landscape and are, in part, easily understood although documentary evidence is needed for a complete understanding
Potential: Moderate - the elements within the historic character area are reasonably well understood although there may be some scope for further analysis of elements of the landscape that predate the Madocks improvements.
Associations: - the historic character area has associations with William Madocks and his 'grand scheme' that defines the historic landscape area. The majority of the development was however carried out after his death by a variety of private speculators and engineers these included James Brunlees who was to be knighted as one of the foremost engineers of the mid nineteenth-century.

EVALUATION OF THE RELATIVE IMPORTANCE OF LLIDIART YSPYTTY HISTORIC CHARACTER AREA IN THE NATIONAL CONTEXT			
CRITERION/ VALUE	HIGH/ GOOD	MODERATE/ AVERAGE	LOW/ FAIR
RARITY		X	
REPRESENTATIVENESS	X		
DOCUMENTATAION	X		
GROUP VALUE	X		
SURVIVAL		X	
CONDITION		X	
COHERENCE	X		
INTEGRITY		X	
POTENTIAL		X	
AMENITY		X	
ASSOCIATIONS	X		

The historic character area contains an important integrated set of elements that are important in the context of the later development of Madocks' man-made landscape. Their significance in the national context is as a result of this association.

6.5 Assessment of the overall significance of impact

The above stages have described, and as far as possible quantified, the direct and indirect impacts of the proposed development and have established the relative value of the area affected. This information can be

used to assess the significance of the impact of the development on the historic character area along with its overall impact on the whole historic landscape area.

All designated Landscapes of Outstanding Historic Interest are defined as being of national importance. Any development that affects important elements of this landscape must therefore have a *severe* impact on it. Some elements of a landscape will have a greater significance than others, however, and impact can therefore be defined as *very severe*, *moderately severe* or *fairly severe*.

In the case of Llidiart Yspytty Historic Characterisation Area the above assessment has shown that the historic character area contains key landscape characteristics consisting of:

a) remains relating to Llidiart Yspytty ironstone mine dating from the 18th and 19th century
b) a well documented series of 19th century road and rail links, incorporating the Gorseddau Tramway that links Porthmadog and Tremadog to the Gorseddau and Prince of Wales quarries further to the north.

The above landscape characteristics define the Llidiart Yspytty Historic Characterisation Area and are therefore of great importance within this context. They are also of importance to the wider historic landscape area but are not its major defining characteristics.

The proposed development is likely to have a very severe directly physical impact on all of the above key landscape characteristics with the loss of 40% of the historic character area. The physical severance of the historic transport links can be seen as an additional indirect impact on the wider context of the area.

The visual impact is difficult to assess without detailed plans but the encroachment into the historic transport corridor and surrounding agricultural land will detrimentally affect the setting of both Tremadog and Penmorfa particularly when viewed in the context of the setting of Madocks' planned village

6.6 Concluding Statement

There will be a 40% loss of surface area of the Llidiart Yspytty Historic Characterisation Area, including the removal or disturbance of a number of its key landscape characteristics, namely the loss of 18th and 19th century industrial remains and the severance of historic rail and road links important in the interpretation of the wider historic landscape area. There will also be a detrimental visual impact on Madocks' planned village of Tremadog. These factors will significantly reduce the value of the historic character area as a whole, thereby diminishing the value of the nationally important Aberglaslyn Landscape of Outstanding Historic Interest. The impact of the development must therefore be defined as severe. It must be concluded that the proposed development would have an inappropriate impact on the designated Aberglaslyn Landscape of Outstanding Historic Interest.

7. PROPOSALS FOR FIELD EVALUATION AND MITIGATORY MEASURES

The following sites were identified as category E sites, i.e. sites requiring further evaluation. The recommendations for further assessment are summarised in the table below.

Feature number and name		Recommendations for further assessment
Feature 6	Blocked adit/trial	Clearance of vegetation
Feature 8	Industrial remains	Trial trenching
Feature 13	Possible incline	Clearance of vegetation, Trial trenching.
Feature 15	Site of locomotive shed	Trial trenching
Feature 16	Site of shed	Trial trenching
Feature 18	Building, site of	Trial trenching

Many of the mining and industrial features (7, 6 and 13) are obscured by dense blackthorn and require clearance of the vegetation before they can properly be assessed. The above ground parts of the Llidiart Yspytty Principal Adit (1) have been assessed but more information is required about the underground workings. It is possible that up to 15,000 tons of ore was produced from this mine (although records are not detailed) implying that there may be some considerable workings beneath the study area. These features could obviously have a severe physical impact on any development. The extent of the sub-surface survival of the industrial and railway features shown on the 1887 OS map (8, 15,16,17 and 18) is not known and these require further assessment by trial excavation.

Recommendations for mitigatory measures for category E site will be made after further assessment has been completed.

The rest of the archaeological features within the study area were individually classified as category B or C sites (district or local importance) and none were classified as category A sites. The ASIDOHL process demonstrated, however, that the key landscape features within the study area form an integral part of the nationally important Aberglaslyn Landscape of Outstanding Historic Interest. This approach classifies the whole study area as being of national importance and states that proposed development would have an inappropriate impact on the designated Aberglaslyn Landscape of Outstanding Historic Interest. It must therefore be concluded that the preferred option for mitigatory measures is that no development should take place within the study area.

It is, however, recognised that the historic landscape designations are non-statutory and provide development guidelines for the historic landscape as opposed to legal protection.

It must therefore be stated that while it is strongly recommended that no development should take place within the study area this assessment must also provide individual recommendations for mitigatory measures on the basis of the archaeological assessment as opposed to the landscape assessment.

The recommendations for mitigatory measures for all sites apart from category E sites are listed below:

Feature number and name	Category	Recommendations for mitigatory measures
Feature 1 Llidiart Yspytty Principal Adit	B/E	Preservation *in situ*
Feature 2 Llidiart Yspytty Kilns	B	Preservation *in situ*
Feature 3 Revetment Wall	C	Preservation *in situ*
Feature 5 Line of the 1848 link railway	B	Preservation *in situ*
Feature 7 Open workings, partially infilled.	C	Basic recording
Feature 9 Road – Caernarvonshire Turnpike Trust (south-east part)	B	Preservation *in situ* as first option, if not detailed recording

Feature 10 Link railway	B	Preservation *in situ* as first option, if not excavation and detailed recording
Feature 11 Railway siding or yard	C	Detailed recording
Feature 12 Road - Caernarfonshire Turnpike Trust (western part)	B	Preservation *in situ* as first option, if not detailed recording.
Feature 14 Agricultural building	C	Detailed recording
Feature 17 Gorseddau Tramway	B	Preservation *in situ* as first option, if not detailed recording

It is recommended that the main industrial/mining features (features 1, 2 and 3) and main transport link features (5, 9, 10, 12 and 17) be preserved *in situ* as a first option. If this is not possible detailed recording and where appropriate excavation is recommended. It should be stressed that, where possible, the route of the transport features should be preserved within the landscape. Other category C sites should also be recorded in advance of destruction.

8. CONCLUSIONS AND SUMMARY

The development area falls within a nationally important designated Landscape of Outstanding Historic Interest (HLW (Gw) 7: Aberglaslyn) and within Historic Landscape Characterisation Area 35, Llidiart Yspytty (GAT Draft report 422). A study of the impact on the historic landscape concludes that the proposed development would have an inappropriate impact on the designated Aberglaslyn Landscape of Outstanding Historic Interest. On this basis the preferred option for mitigatory measures is that no development should take place on this site. The historic landscape designations, however, provide no statutory protection. A second non-preferred program of further assessment and mitigatory measures is therefore also proposed comprising a full, detailed assessment of the entire development area along with the recording of and preservation *in situ* of as many key archaeological and landscape features as possible.

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9.2 Archival sources

Caernarfon Record Office
XM/Maps/717 - map of Tremadoc estate, 1870
Tithe maps of Ynyscynhaearn parish and Penmorfa parish
X/Plans/R/69 - deposited plans of Gorsedda Junction and Portmadoc Railways
X/QS/TT (Adit.) 4 - turnpike trust records
X/QS/TT/39 - turnpike trust records

National Library of Wales
Rhiwlas Estate Papers 6, D84, D105
Harrison Deeds Box 65 parcel 4
Map 5754 *Ideal Plan of Part of the Tre Madock Estate* (1810?)
Map 5753 *Plan of Railway from PORTMADOC to LLIDIART YSPYTTY IRON WORKS* (no date - 1840s?)
Portmadoc 513

9.3 Newspaper and journal sources

Carnarvon and Denbigh Herald 5 September 1840, 25 September 1841, 4 June 1842, 24 January 1846, 23 May 1857
Mining Journal 1850, 459, 1851 571).

9.4 Ordnance survey

1" ordnance survey (1839-1841)
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6" XXXIV SE (1901)

9.5 Aerial photography

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APPENDIX 1: DESIGN BRIEF

DESIGN BRIEF FOR AN ARCHAEOLOGICAL ASSESSMENT

Gwynedd Archaeological Planning Service

Site: Land to the north-west of Tremadog

Agent for the applicant: Symonds Group Limited

Date: 17 April 2002

National Grid Reference: 255500 340400

This design brief is only valid for six months after the above date. After this period Gwynedd Archaeological Planning Service should be contacted.

It is recommended that the contractor appointed to carry out the archaeological assessment visits the site of the proposed development and consults the Regional Sites and Monuments Record (SMR) for north-west Wales before completing their specification. Gwynedd Archaeological Planning Service cannot guarantee the inclusion of all relevant information in the design brief.

1.0 Site Description

1.1. For the purposes of this brief the proposed development site comprises an area to the north-west of Tremadog, as shown on drawing 57740/SK/0 rev P2.

1.2. The proposed development site lies slightly inland from Porthmadog and the northern shores of Bae Ceredigion (Cardigan Bay), on land at the foothills of the Snowdonia mountain range.

1.3 The density of known archaeological sites close or adjacent to the proposed development site suggests that the potential for further discoveries is high. These include the site of a Roman bath house (scheduled ancient monument C174), nineteenth century ironstone mining at Glan y Morfa Mines (*P*rimary *R*ecord *N*umber *PRN* 20519) and Llidiart Ysbytty Mine (PRN 20517), the Gorseddau Tramway and the discovery of horse bones during road widening in the 1860s (PRN 1924).

1.4 In 1995, Gwynedd Archaeological Trust Contracts section carried out an evaluation on the south side of the A487, comprising a geophysical survey and trial trenching. Whilst the results of the geophysical survey were inconclusive due to the large amounts of iron pyrites in the underlying bedrock, a small number of worked flints of Mesolithic and Neolithic date were found during trial trenching. These indicate early Prehistoric activity around the site of a small hill (Y Bryn) to the south of the development site.

1.5 Documentation:

Anon. 1868. Cambrian Archaeological Association. Porthmadoc Meeting, report. *Archaeologia Cambrensis* 3rd series, volume 14: 479Breese, C.E. 1908. Archaeological notes and queries. Roman building at Glasfryn, Tremadoc, Caernarfonshire. *Archaeologia Cambrensis* 6th series, volume 8: 287-8

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2.0 The nature of the development and archaeological requirements

2.1 The proposed development comprises plans to build a community hospital of 3,5000 sq.m floor area and associated infrastructure.

2.2 This is a design brief for an archaeological assessment to be undertaken according to guidelines set out in Welsh national planning guidance (*Planning Policy Guidance Wales 1996*) and Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*). The assessment will comprise a desk top study and field visit.

2.3 The object of this programme of archaeological works is to make full and effective use of existing information in establishing the archaeological significance of the site to assess the impact of the development proposals on surviving monuments or remains.

2.4 Following desk-based assessments field evaluation work may also be required in order to further assess the presence or absence of remains, their extent, nature, quality and character before determining the appropriate mitigation strategy, whether it be preservation *in situ*, archaeological excavation or a combination of the two.

3.0 Desk-top assessment detail

3.1 This *brief* should be used by archaeological contractors as the basis for the preparation of a detailed archaeological *specification*. The specification must be submitted to the archaeological curator for approval before the work commences.

3.2 The assessment must consider the following:

a) The nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area through the development of a deposit model. This deposit model should reflect accurately the state of current knowledge and provide a research framework for further work if necessary.

b) The history of the site.

c) The potential impact of any proposed development on the *setting* of known sites of archaeological importance.

d) A methodology for non-intrusive survey and intrusive evaluation to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development.

4.0 Archaeological deposit model

4.1 The archaeological deposit model will involve the following areas of research:

a) Collation and assessment of all relevant information held in the SMR, including listed building records.

b) Assessment of all available excavation report and archives including unpublished and unprocessed material effecting the site and its setting.

c) Assessment of all extant aerial photographic (AP) evidence and, where relevant, a re-plotting of archaeological and topographic information by a suitably qualified specialist at an appropriate scale. Many of the main archaeological aerial photographic records can be consulted at the Royal Commission on Ancient and Historical Monuments in Wales (RCAHMW), Aberystwyth. However, the Countryside Council for Wales (CCW), Bangor, also holds AP collections including 1940s Luftwaffe photographs, and these may be equally suited to the requirements of the desktop study.

d) Assessment of records held at the RCAHMW and University College Bangor, if appropriate.

e) Assessment of the environmental potential of the archaeological deposits through existing data or by inference.

f) Assessment of the faunal potential of the archaeological deposits through existing data or by inference.

g) Assessment of the artefactual potential of the archaeological deposits through existing data or by inference.

h) Assessment of all available geotechnical information for the area including the results of test pits and boreholes.

i) Assessment of the present topography and landuse of the area through maps and site visits.

5.0 Historical research

5.1 Historical research will involve the following:

a) An analysis of relevant maps and plans. Cartographic evidence is held at the County Record Offices, including Tithe Maps, Enclosure Act Plans, Estate Maps and all editions of the Ordnance Survey. Place and field-name evidence from these sources should be considered.

b) An analysis of the historical documents (e.g. county histories, local and national journals and antiquarian sources) held in museums, libraries or other archives, in particular local history and archives library.

6.0 The issue of setting

6.1 When considering the issue of setting for scheduled ancient monuments, listed buildings and other sites of national and/or regional significance, the SMR should be consulted to determine if the development falls within any designated landscape areas, such as World Heritage Sites and landscape character areas. Of particular importance are the *Register of Landscapes of Outstanding Historic Interest in Wales*, the *Register of Landscapes of Special Historic Interest in Wales*, published by Cadw: Welsh Historic Monuments in 1998 and 2001 respectively.

7.0 Evaluation methodology

7.1 The evaluation methodology must consider the use of the following techniques:

a) Ground survey within the core area.

b) The use of geophysical survey.

c) A programme of trenching and/or test pits to investigate the deposit model in more detail.

7.2 The evaluation should aim to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development. An adequate representative sample of all areas where archaeological remains are potentially threatened should be studied.

7.3 The evaluation should carefully consider any artefactual and environmental information and provide an assessment of the viability (for further study) of such information. It will be particularly important to provide an indication of the relative importance of such material for any subsequent decision making regarding mitigation strategies.

8.0 Results

8.1 The results must be presented in a report and should be detailed and laid out in such a way that data and supporting text are readily cross-referenced. The SMR Officer should be contacted to ensure that any sites or monuments not previously recorded in the SMR are given a Primary Recognition Number (PRN) and that data structure is compatible with the SMR. The historical development of the site must be presented in phased maps and plans comprising clearly, the outline of the site.

8.2 The deposit model should be presented graphically in plan and, where appropriate, in profile and at a scale that is commensurate with subsequent use as a working document.

8.3 Within the report an attempt should be made to indicate areas of greater or lesser archaeological significance and the sites should be ranked in level of overall archaeological importance (locally, regionally and nationally).

8.4 All relevant aerial photographs, re-plots and historic maps must be included and be fully referenced.

8.5 The report should specifically include the following:

a) a copy of the design brief

b) a location plan

c) all located sites plotted on an appropriately scaled plan of the development

d) a gazetteer of all located sites, including full dimensional and descriptive detail

9.0 General requirements

9.1 The archaeological assessment must be undertaken by an appropriately qualified individual or organisation, fully experienced in work of this character. Details, including the name, qualifications and experience of the project director and all other key project personnel (including specialist staff) should be communicated to the development control archaeologist and all written work attributed to an author (s).

9.2 Contractors and subcontractors are expected to conform to standard professional guidelines, including the following:-

- English Heritage's 1991 Management of Archaeological Projects (MAP2).
- The Institute of Field Archaeologists 1985 (revised 1997) Code of Conduct.
- The Institute of Field Archaeologists 1990 (revised 1997) Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology.
- The Institute of Field Archaeologists 1994 (revised 1999) Standard and Guidance for Archaeological Watching Briefs.
- The Institute of Field Archaeologists 1994 (revised 1999) Standard and Guidance for Archaeological Field Evaluation.
- The Institute of Field Archaeologists 1995 (revised 1999) Standard and Guidance for Archaeological Excavation.
- The Institute of Field Archaeologists 1996 (revised 1999) Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures.
- The Institute of Field Archaeologists 1999 Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.
- Museum and Galleries Commission 1994 Standards in the Museum Care of Archaeological Collections.

- United Kingdom Institute for Conservation 1990 Guidelines for the Preparation of Excavation Archives for long-term storage.

9.3 Many people in North Wales speak Welsh as their first language, and many of the archive and documentary references are in Welsh. Contractors should therefore give due consideration to their ability to understand and converse in Welsh.

9.4 Where relevant, specialist studies of environmental, economic and historical data must include a *statement of potential*. All specialist reports used in the preparation of this study must be reproduced **in full** in the desk-top study.

9.5 A full archive including plans, photographs, written material and any other material resulting from the project should be prepared. All plans, photographs and descriptions should be labelled, cross-referenced and lodged in an appropriate place (to be agreed with the archaeological curator) within six months of the completion of the project.

9.6 Two copies of the bound report must be sent to the address below, one copy marked for the attention of the Development Control Archaeologist, the other for attention of the SMR Officer, who will deposit the copy in the SMR.

9.7 The involvement of Gwynedd Archaeological Planning Service should be acknowledged in any report or publication generated by this project.

10.0 Glossary of terms

10.1 *Archaeological Contractor*
A professionally qualified individual or an organisation containing professionally qualified archaeological staff, able to offer an appropriate and satisfactory treatment of the archaeological resource, retained by the developer to carry out archaeological work either prior to the submission of a planning application or as a requirement of the planning process.

10.2 *Archaeological Curator*
A person, or organisation, responsible for the conservation and management of archaeological evidence by virtue of official or statutory duties. In north-west Wales the archaeological advisor to the Local Planning Authorities is the development control archaeologist, who works to the Welsh Archaeological Trust's Curators' Code of Practice.

10.3 *Archive*
An ordered collection of all documents and artefacts from an archaeological project, which at the conclusion of the work should be deposited at a public repository, such as the local museum.

10.4 *Assessment*
A desk-based archaeological assessment (also known as a *desk-top assessment*) is a detailed consideration of the known or potential archaeological resource within a specified area or site (land-based, intertidal or underwater), consisting of a collation of existing written and graphic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional or national context as appropriate.

10.5 *Brief*

The Association of County Archaeological Officers (1993) defines a *brief* as an outline framework of the planning and archaeological situation which has to be addressed, together with an indication of the scope of works that will be required.

10.6 *Evaluation*

A limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site; and, if present, defines their character and extent, and relative quality. It enables an assessment of their worth in a local, regional, national or international context, as appropriate. The programme of work will result in the preparation of a report and archive.

10.7 *Sites and Monuments Record (SMR)*

A documentary record of known sites in a given area. In north-west Wales the SMR is curated by the curatorial division of the Gwynedd Archaeological Trust.

10.8 *Specification*

The Association of County Archaeological Officers (1993) defines a *specification* as a schedule of works outlined in sufficient detail to be quantifiable, implemented and monitored.

11.0 Further information

11.1 This document outlines best practice expected of an archaeological assessment but cannot fully anticipate the conditions that will be encountered as work progresses. If requirements of the brief cannot be met they should only be excluded or altered after gaining written approval of the Gwynedd Archaeological Planning Service.

11.2 Further details or clarification of any aspects of the brief may be obtained from the Development Control Archaeologist at the address below.

Emily La Trobe-Bateman
Development Control Archaeologist

Gwynedd Archaeological Planning Service

Craig Beuno

Ffordd Y Garth
Bangor

Gwynedd LL57 2RT

APPENDIX 2: PROJECT DESIGN

SITE DEVELOPMENT APPRAISAL, TREMADOC

ARCHAEOLOGICAL ASSESSMENT (G1736)

Prepared for Symonds Group, 23/01/02, by Gwynedd Archaeological Trust.

1. PROJECT BACKGROUND

Gwynedd Archaeological Trust have been asked by Symonds Group to provide a quotation for carrying out an archaeological assessment in advance of a proposed development at Tremadoc, Gwynedd, on behalf of North West Wales NHS Trust.

The improvements are centred on SH 557428, and the study area comprises field numbers 5541, 6928, 5784 and 5926.

A Brief has been prepared for this project by Gwynedd Archaeological Planning Service. This project design will conform to the requirements specified within the Brief, and in the *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 1999).

The development area contains remains of ironstone mining, possibly of Roman origin, and significant railway remains. Adjacent to the site is a Roman bath-house (now buried beneath the garden of the adjoining house), and finds of Mesolithic date were recovered west of the A487 during trial excavations in 1995.

2. ARCHAEOLOGICAL AIMS

A desk-based assessment is defined as "a programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate" (*Standard and Guidance for Archaeological Desk-based Assessment).*

The aims of the assessment are:

- to identify and record the cultural heritage within the defined study area;
- to evaluate the importance of what has been identified;
- to recommend ways in which impact upon the cultural heritage can be avoided or minimised.

3. PROGRAMME OF WORK

The first stage of an archaeological assessment comprises a desktop study and field walkover. This is followed by an initial report which details the findings and makes recommendations for any field evaluation or mitigation work. Field evaluation may be necessary if sites are present which cannot be assessed by desktop or field visit alone. This typically takes the form of geophysical survey and/or trial excavation. A full programme of assessment and evaluation may therefore consist of:

- Desktop study
- Field walkover

- Initial report
- Field evaluation
- Draft report
- Final report

This design covers the first three phases, and recommendations will be made in the initial report for any field evaluation considered necessary.

3.1 Desktop

The desk-based assessment will involve a study of the SMR information for the study area. This will include an examination of the core SMR, and secondary information held within the record which includes unpublished reports, the 1:2500 County Series Ordnance Survey maps, and the National Archaeological Record index cards. The National Monuments Record (NMR) will be checked for sites additional to the SMR. Secondary sources will be examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales, and indices to relevant journals, including *Archaeologia Cambrensis*. Vertical aerial photographs will be examined. Information about Listed Buildings and Scheduled Ancient Monuments will be obtained from Cadw: Welsh Historic Monuments. Maps and relevant documents will be examined at the County Record Office in Caernarfon, and, if relevant, at the National Library of Wales.

3.2 Field survey

This part of the assessment will involve visiting the study area and assessing the sites identified during the desk-based study. Any additional sites noted will also be assessed.

The aims of this stage of the work are to:

- verify the results of the desk based assessment
- identify any further archaeological sites which may exist as above ground features
- photograph and record the present condition of all sites noted.

Access onto land is to be arranged by the Clients, although GAT staff will notify all landowners prior to gaining access.

3.3 Historic landscape assessment

The area falls within a designated Historic Landscape (HLW (Gw) 7: Aberglaslyn) and will require an assessment of the impact upon that landscape as described within *Guide to good practice on using the Register of Landscapes of Historic Interest in Wales in the planning and development processes* (Cadw & CCW, September 2001). This requires undertaking an Assessment of the Significance of the Impact of Development on Historic Landscapes (ASIDOHL) as described within the Guide.

3.4 Initial report

Following completion of the desk based assessment as outlined above, a report will be produced incorporating the following:

1. Introduction
2. Specification and Project Design
3. Methods and techniques
4. Archaeological Background
5. Site gazetteer - including areas of archaeological interest
6. Assessment of impacts

7. Landscape assessment
8. Proposals for field evaluation and mitigatory measures
9. Summary and conclusions
10. List of sources consulted.

Where copyright allows, copies of the principal relevant maps and photographs will be incorporated into the report. A full list of sources consulted will be included in section 9 of the report.

Details of the proposed scheme will be required in order to assess the impact of the scheme.

To assess the importance of sites and to allow the appropriate mitigatory action to be proposed for each, a framework of categories will be used with each site allocated to a particular category according to its relative importance:

Category A - Sites of National Importance.
This category includes Scheduled Ancient Monuments and Listed Buildings as well as those sites which 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
These sites are those which would not fulfil the criteria for scheduling or listing, 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.

4. HEALTH AND SAFETY

The Trust subscribes to the SCAUM (Standing Conference of Archaeological Unit Managers) Health and Safety Policy as defined in **Health and Safety in Field Archaeology** (1997, updated September 1999). Risks will be assessed prior to and during the work.

5. INSURANCE

The Trust holds public liability insurance with an indemnity limit of £2,500,000 through Russell, Scanlon Limited Insurance Brokers, Wellington Circus, Nottingham NG1 5AJ (policy 01 1017386 COM), and Professional Indemnity Insurance for £2,000,000 per claim (policy No. 59A/SA11818791).

6. STAFF

The work will be supervised by one of the Trust's Project Manager's Mr Andrew Davidson, who graduated in archaeology in 1979. During his career he has been involved with all aspects of archaeological work, including excavation, topographic survey, heritage management , assessments and field evaluations. For the past five years he has been Project Manager for the Contract Section of the Trust, and has been responsible for carrying out or overseeing the production of all contract work, including road schemes, pipeline installations and major construction schemes.

Dr D R Gwyn is experienced in archive work, and is able to read both medieval Latin and Welsh documents, as well as being familiar with the estate records of north Wales. He is experienced in industrial archaeology, and is currently editor of *Industrial Archaeology Review*. He will undertake the desktop work, fieldwork and report compilation.

(Full cv's can be supplied upon request).

7. OTHER

If you have any queries concerning this project design, contact Andrew Davidson, Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd, LL57 2RT. Tel. 01248 352535.

APPENDIX 3

LANDSCAPES OF HISTORIC INTEREST IN WALES

Part 2 of the Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales

PART 2.1 : LANDSCAPES OF OUTSTANDING HISTORIC INTEREST

CADW, ICOMOS UK, CCW

1998

The area comprises Traeth Mawr, or the former tidal estuary at the mouth of the River Glaslyn which flows south from Snowdonia into Tremadog Bay. The area represents probably one of the most ambitious 19th century land reclamation schemes, certainly in Wales, if not in Britain. It includes the Porthmadog Cob embankment, which was once described as the wonder of Wales, the planned Georgian town of Tremadog, and Porthmadog, once one of the largest ports on Cardigan Bay. The reclamation of Traeth Mawr and the building of Tremadog is an excellent example of the product of landlord initiative and conscious landscape creation in pursuit of particular economic objectives in the late 18th and early 19th centuries.

The Penrhyndeudraeth peninsula on which Portmeirion stands is a smaller planned landscape chosen by Clough Williams-Ellis as the ideal site for his cherished dream of a fantasy village where he could indulge in the styles of architecture which attracted him. The village creates its own discrete, yet highly distinctive, landscape, but apart from being a popular and internationally famous architectural tourist attraction, it is associated in most minds today as the place where The Prisoner was filmed, a 1960s television series that became a cult.

Summary

Ref number HLW (Gw) 7

OS map Landranger 124

Former county Gwynedd

Unitary authority Gwynedd

Principal area designations The northern end of the area is within the Snowdonia National Park and the western end within the Lleyn Peninsula Environmentally Sensitive Area. The area includes: part of the Coed Tremadog National Nature Reserve; part of Morfa Harlech and the whole of Glaslyn Marshes and Pont Croesor Sites of Special Scientific Interest. It includes Porthmadog, Tremadog and Portmeirion Conservation Areas. Porthmadog Cob is categorised as a a Grade II* Listed Building.

Criteria 1

Contents and significance A man-made landscape occupying a reclaimed river estuary situated in south Snowdonia, the whole conceived as one man's grand scheme, probably the most ambitious of its kind in 19th century Britain. The area includes: the reclaimed marshes and Porthmadog Cob embankment; Tremadog planned town and Porthmadog town. Portmeirion, the architecturally-exotic, planted, Italianate village designed by Clough Williams-Ellis is also included.

APPENDIX 4

HISTORIC LANDSCAPE CHARACTERISATION REPORT

VALE OF FFESTINIOG

Gwynedd Archaeological Trust

REPORT NUMBER 422

35 Llidiart Yspytty

Historic background

A 'linking', transport corridor lying between the sheer cliffs above Tremadoc and the drained marshes of Traeth Mawr, and the settlements of Tremadoc and Penmorfa. The land was part of Madocks's Tremadoc estate at the end of the eighteenth century, and at the same time that he drained the Traeth and built the town of Tremadoc, he also developed the area's mineral and transport facilities. In 1807 a new road was built to connect Tremadoc with Criccieth and Pwllheli, which Madocks hoped would become part of a trunk road between London and Porth Dinllaenand, and in 1810 the Caernarvonshire turnpike trust took over the old route from Llidiart Yspytty to Caernarfon. These two roads joined at Llidiart Yspytty, and in 1845 the Caernarfon road was rebuilt on its present alignment.

Around the same time, the mining of ironstone was developed here. The first mine may have been worked from 1754, and was certainly being exploited by 1770: the Portmadog harbour dues confirm that 3,301 tons of ironstone was shipped out between March 1839 and December 1840, the great majority of which must have been mined at Llidiart Yspytty. 'Smelting furnaces' were built, probably in 1845, near the principal adit. In 1848-1850 between 10,000 and 15,000 tons were shipped, suggesting that the underground workings were very extensive, although it is interesting that no tips of any size survive in the immediate vicinity of the mine (it is possible that waste was carted away by road for other uses). The mine closed down in 1851.

The railway serving the mine was constructed in 1840-1841, although the track arrangements were changed more than once in the course of its history. It was re-aligned in 1848, and completely re-built in 1855-7 when it was extended to give access to Gorseddau slate quarry: the mine site thereafter continued to have an industrial function as a 'station' and a slate yard for the Gorsedda tramway. However, by the 1860s Gorseddau quarry had also closed, and the railway through Llidiart Yspytty was adapted in 1872-5 in an attempt to tap the supposed mineral wealth of Cwm Pennant. However, it was hardly used and was dismantled before the end of the nineteenth century.

Key historic landscape characteristics

Ironstone mine, railway and road routes

Remains of the principal mine adit can be seen, still partially open, as well as the site of the kilns built in 1845 to the south-west. A number of presumed other blocked adits are also visible, as are areas of industrial acitivity. Parts of the line of the 1848 railway, the 1855 Gorseddau tramway and the Turnpike Trust road are clearly visible. The main road from Caernarfon to Tremadog is still in use as such.

Conservation priorities and management

Preservation of the remains relating to mining and transport activities which characterise this area.

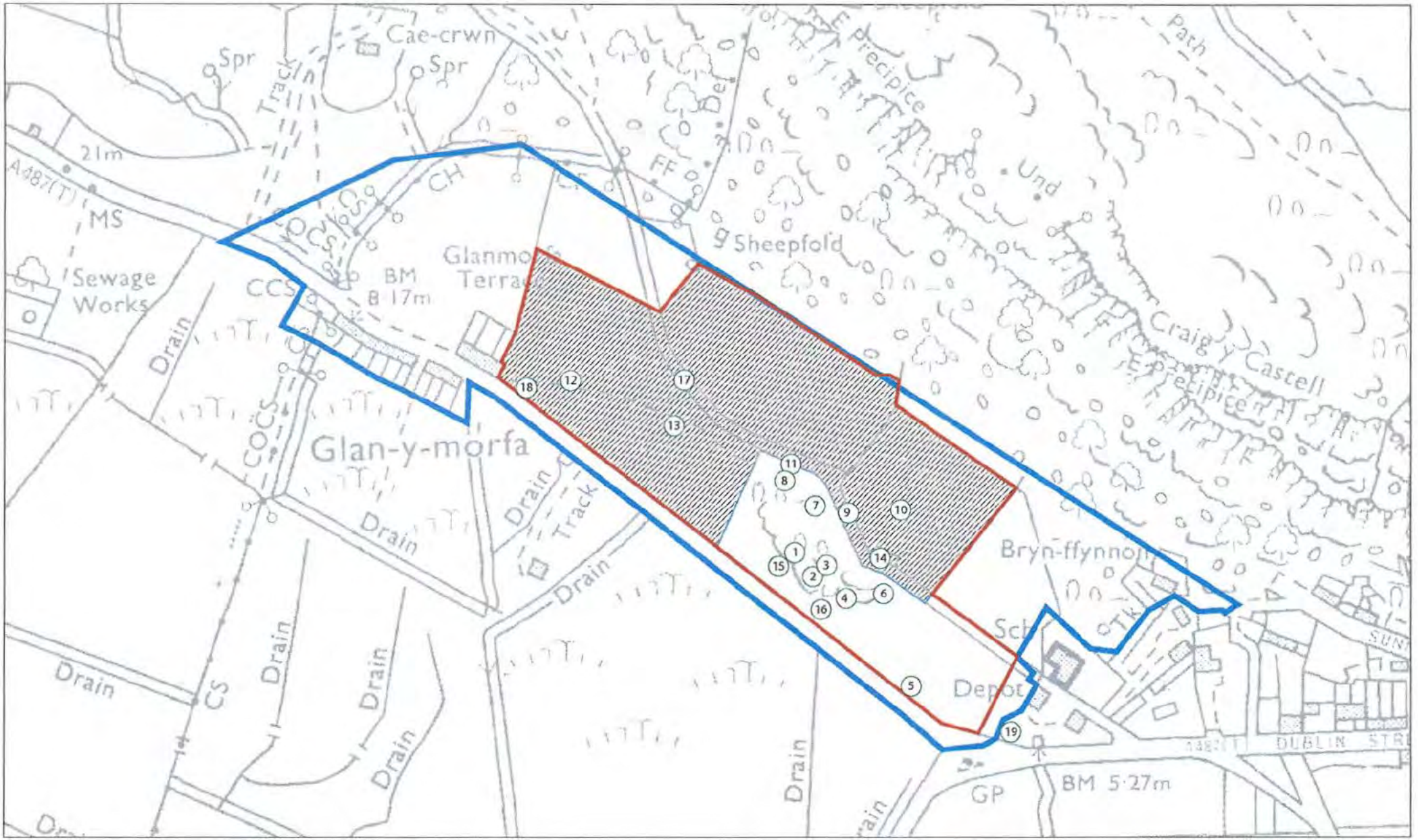

Fig. 1 Development Area, Historic Character Area and sites

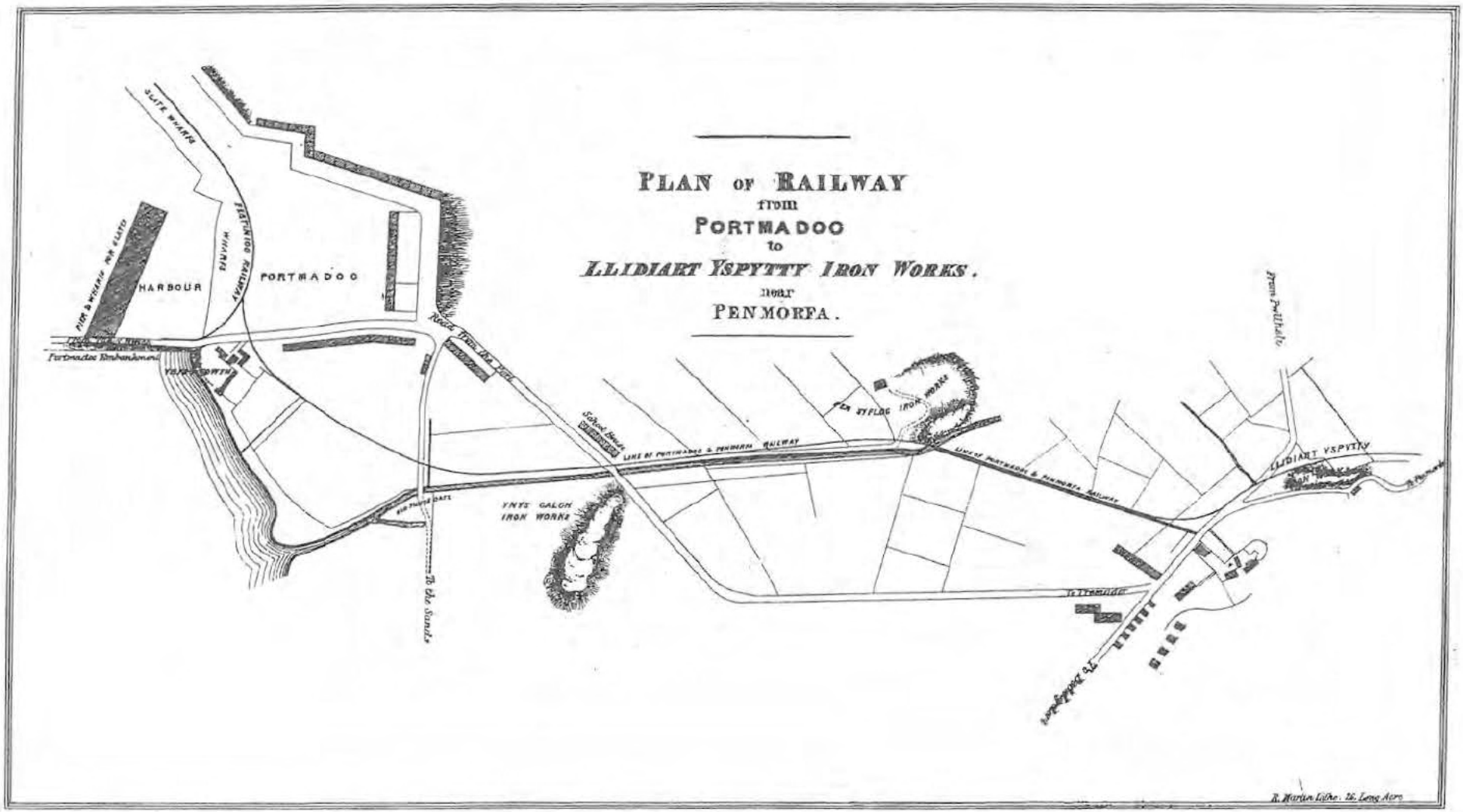

Fig. 2 Plan of railway from Porthmadog c.1848

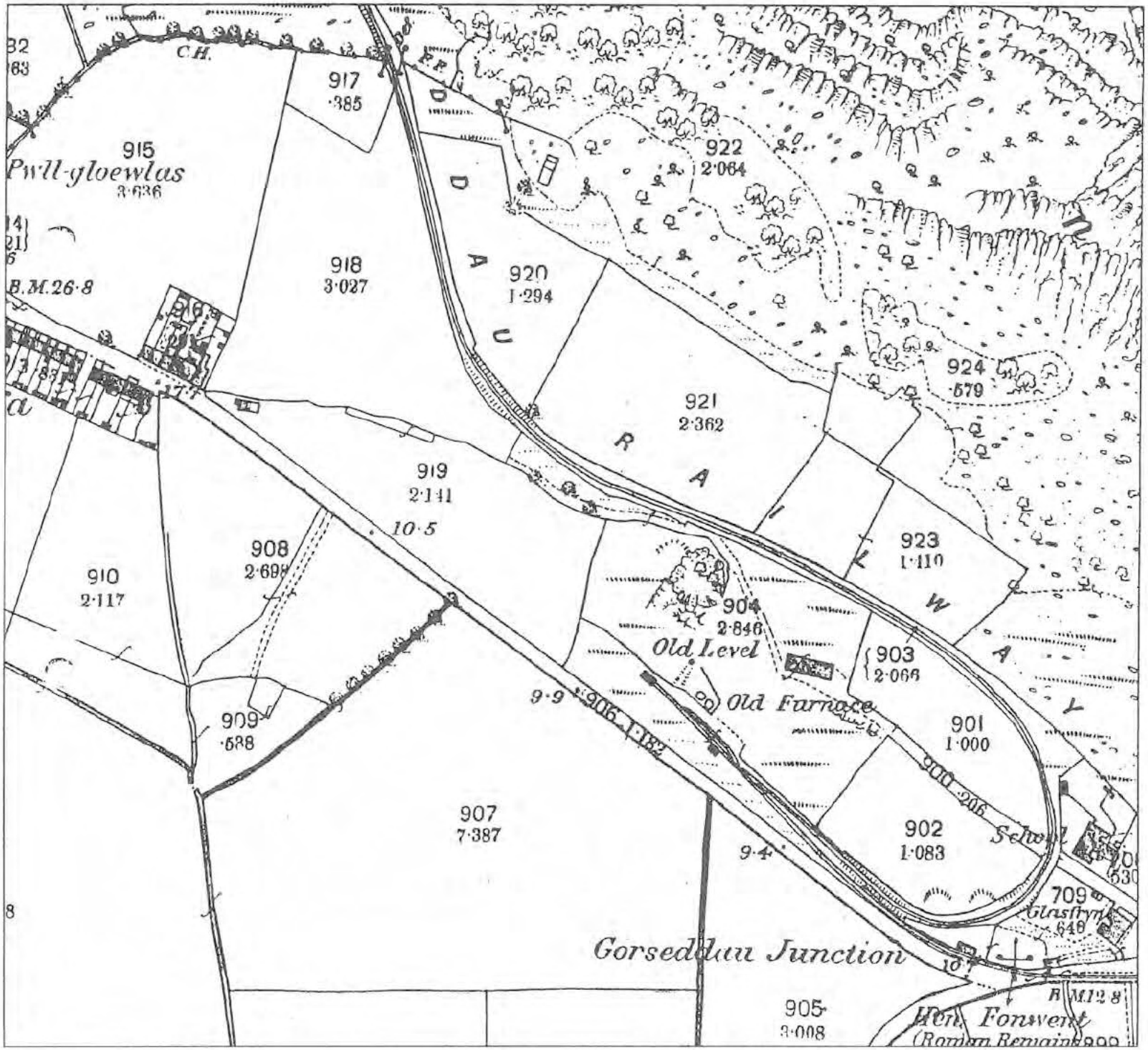

Fig. 3 1887 Caernarvonshire XXIV.II OS map

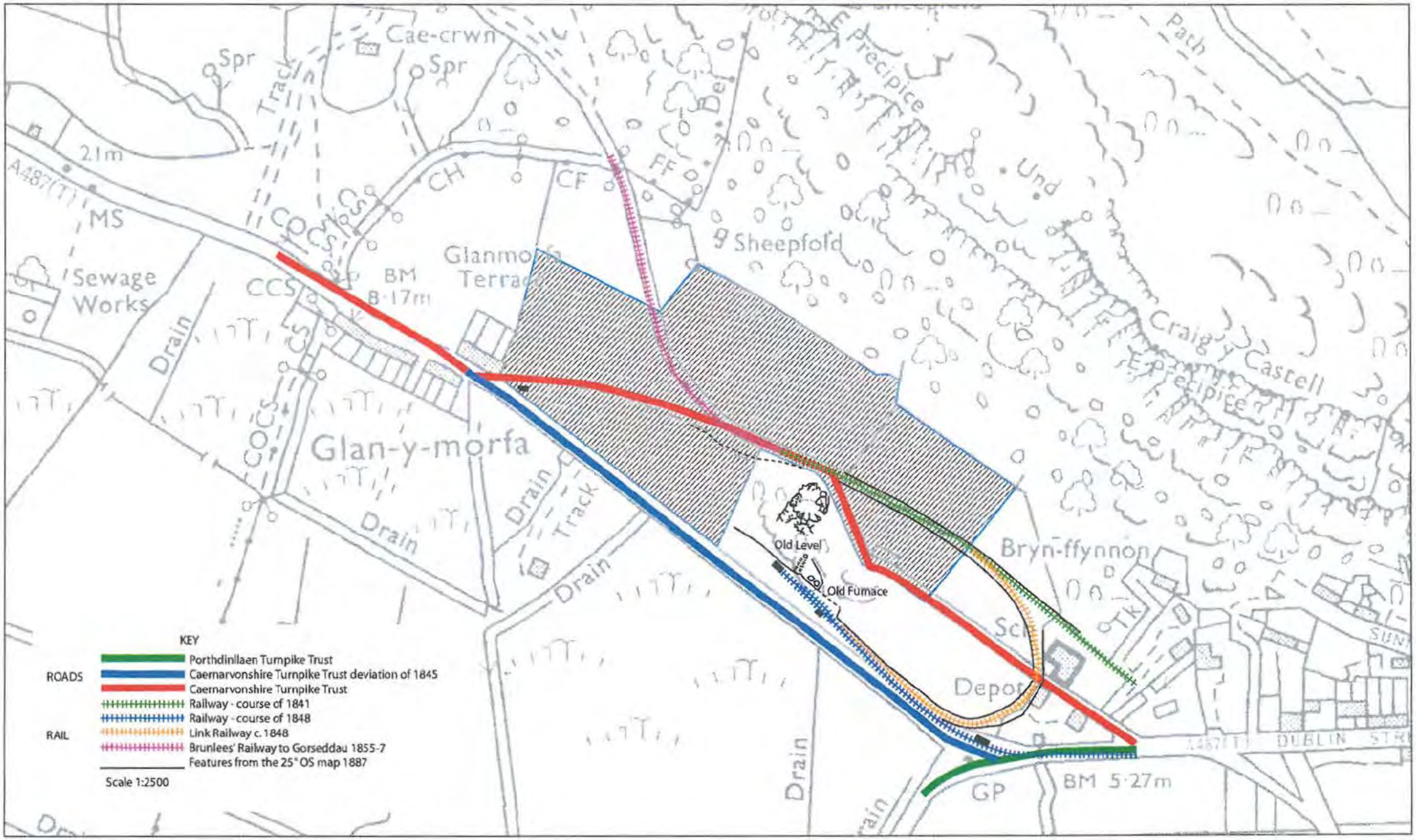

Fig. 4 Development Area showing roads and railways from 1887 OS map

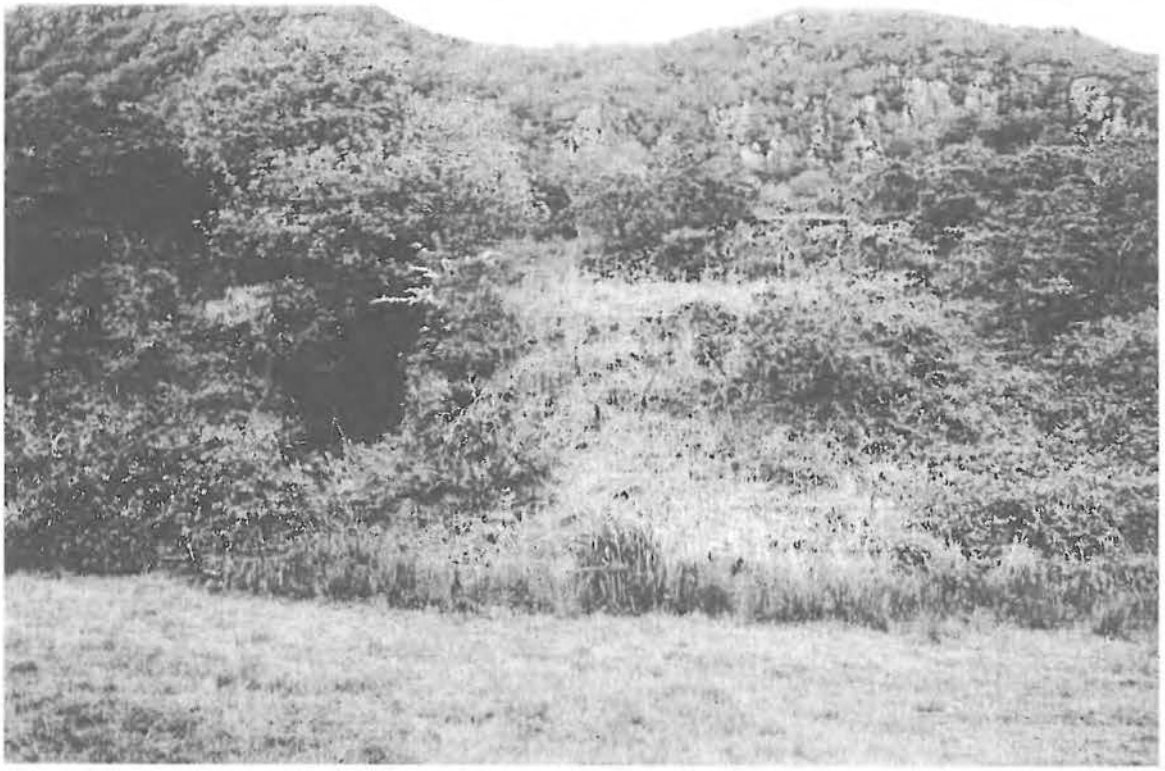

Plate 1 Llidiart Yspytty principal adit and kiln (features 1-3) from the south-east

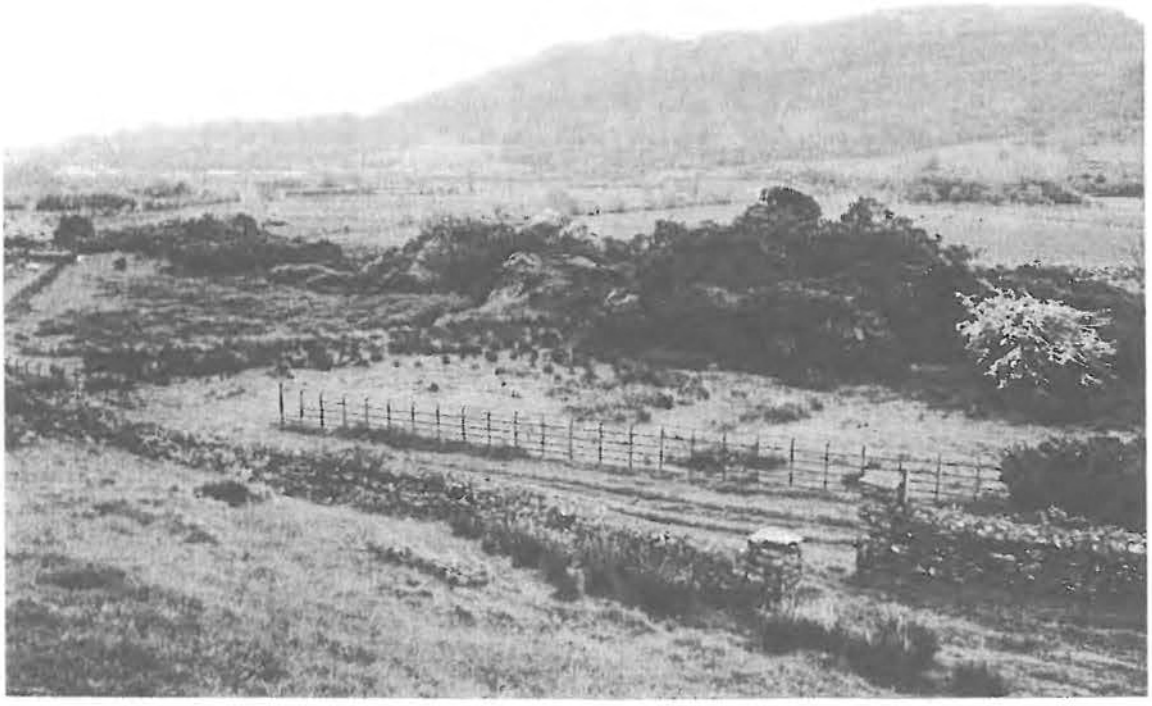

Plate 2 Garreg Haearn from north showing infilled workings and turnpike road / 1841 railway features

Plate 3 Possible incline (feature 13) from the north-west

Plate 4 Gorseddau tramway from north west (feature 17)

Plate 5 The proposed hospital site from the north west

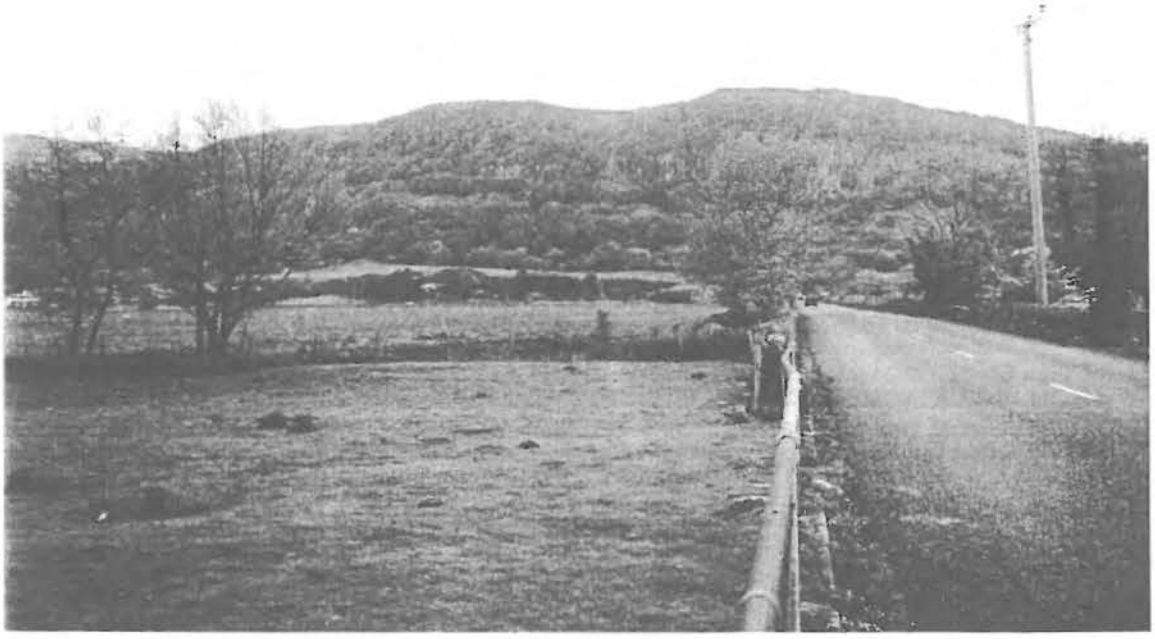

Plate 6 The development area (framed between the trees in the foreground) from the Traeth Mawr to the south-east

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