

Plas Y Coed, Bangor, Gwynedd, North Wales

Archaeological Assessment



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Plas Y Coed, Bangor, Gwynedd, North Wales

Archaeological Assessment

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Contents

Summary	1	Impact and Recommendations	9
Introduction	1	Summary of Recommendations	11
Project Brief & Specification	1	Conclusions	12
Methods & Techniques	3	Archive	12
Archaeological Results	3	Appendix I Sites on the Gwynedd HER within 200m of the study area	14
Summary of Archaeological Potential	9	Appendix II Listed buildings within 200m of the study area	18
		Appendix III Categories of Importance	35
		Appendix IV Project Design	37
		Appendix V Geophysics report	44

Figures

Figure 01: Site location map

Figure 02: Penrhyn Estate map of 1803 (Bangor Archives Maps 40) Study area highlighted in yellow

Figure 03: 1st Edition 25" Ordnance Survey Map of 1889 (OS Sheets Caernarfon IX.5 & IX.9) Study area highlighted in yellow

Figure 04: Aerial photograph of 1945 (106G/UK655 frame 4034) Study area highlighted in yellow

Figure 05: The villa of Lime Grove, near Bangor 1800 (Published by permission of the Librarian, R.I.B.A, taken from Jones 1981)

Plates

Plate 01: View of Plas Y Coed lodge. Photograph taken from the east

Plate 02: Rear elevation of Plas Y Coed house. Photograph taken from the north east

Plate 03: Front elevation of Plas Y Coed house. Photograph taken from the south east

Plate 04: View of entrance to service range. Photograph taken from the north

Plate 05: View of the kitchen garden walls (entrance at the north west corner) Photograph taken from the north

Plate 06: View of raised walkway heading south from the south east corner of the kitchen garden. Photograph taken from the south

Plate 07: View of the pasture field from the west. Photograph taken from the west

Plate 08: View of the gateway into Penrhyn Castle Demesne from Plas Y Coed lodge. Photograph taken from the east

PLAS Y COED, BANGOR (G2210)

ARCHAEOLOGICAL ASSESSMENT

SUMMARY

An assessment was carried out at Plas y Coed, Bangor, Gwynedd. Significant remains of Plas y Coed and its associated outbuildings and garden were identified, and these form important evidence for a small 18th century estate rebuilt in 1878, a subsidiary element to the much larger Penrhyn Estate, occupied by its estate agent. This replaced Lime Grove, an 18th century house occupied by the Wyatt family who were important architects to the Penrhyn Estate and to the City of Bangor in the later part of the 18th and early 19th centuries. A programme of basic recording is recommended for the recording of the outbuildings which are due to be affected by the development and the eastern part of the raised trackway. A programme of detailed recording is recommended for the Plas y Coed main house and stable block prior to renovation.

No known buried archaeological features have been identified within the study area, although archaeology of national importance has been noted close by at Parc Bryn Cegin and the Llandegai Industrial Estate. A programme of geophysical survey and trial excavation is recommended in the areas of the development site where this is practicable.

1 INTRODUCTION

Gwynedd Archaeological Trust has been asked by *Watkin Jones Group* to carry out an archaeological assessment of a 2 acre development area located close to Porth Penrhyn and approximately 1 km east of the city of Bangor, at the former Plas y Coed Grade II listed building complex (centred on NGR SH 59297246, Fig. 1). The proposed development area is located partly within a large irregular shaped field to the immediate west of, and includes the complex of, Plas y Coed. The 2 acre proposed development site forms part of a larger area which extends to some 15 acres to the south, which is also owned by *Watkin Jones Group*.

The proposed development includes:

- The conversion of Plas y Coed (Grade II LB 23370) and the former stable block (Grade II LB 23371) into 12 self-contained flats;
- 17 new residential dwellings;
- Residential access;
- Demolition of building within northern portion of the Plas y Coed complex;
- Landscaping within the proposed development zone

The archaeological assessment has been completed as part of a planning application, and this report conforms to the guidelines specified in the brief and in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Archaeology, 1994, rev. 2001, 2008).

The intention of *Watkin Jones Group* in the conversion of Plas y Coed and the former stable block is to:

‘utilise all parts of the ‘original’ building whilst only removing some of the more incongruous and recent elements such as the lift shaft which have detracted from the composition of the building for a number of years’

Moreover ‘the external façade will be retained almost in its entirety with the repair of any stone features, together with the installation of new materials to replace missing elements which will complement rather than fight against the original concept. Any repairs made to the property will be undertaken using the same materials as already present and as originally used (e.g. slate roofing, sash windows, lead valleys, stone copings etc.)’

‘At present it is difficult to establish the extent of internal retention and restoration but suffice to say that the more robust elements such as the main staircase and any tiled floors will be retained and repaired where necessary and practical. These features are integral parts and form part of the listed building description. Therefore, their retention, maintenance and refurbishment are of utmost importance.

Generally the internal wall linings have suffered by the use of the building over the years and as there does not appear to be any finishes worthy of note, works will be carried out to upgrade the fabric of the building to modern day standards and requirements, but with care to retain as many of the original form as is practical.

The adjoining listed stables have also suffered over the years but it is the Company's intention to bring these back to life in a similar manner to the main house with conversion to flats.

It is proposed that more recent outbuildings which do not contribute to the character of the listed building will be demolished.'

The 17 new residential dwellings 'will be constructed in predominantly facing brickwork which will blend in with the rural surroundings and will drastically reduce any possible impact on the setting of the listed building.

The roofs of the dwellings will be steep double pitch with a slate finish, incorporating pediments, features found at Plas y Coed.

The houses will be 2 storeys, again ensuring that their presence does not impose on the mass and setting of Plas y Coed, and that they are subservient to the listed structures.

There is a varied mix of styles within the Bangor area and this development will not be incongruous with any of these styles or indeed the parkland setting of Plas y Coed.'

The residential access 'takes the form of a river meandering through the trees, with a minimum of tree removal required to achieve the desired effect.'

'The site boundaries are well stocked with mature native trees forming a natural screen between the site and surrounding areas. These trees will be retained in their entirety with only some trees of less value from within the site being removed.

Similarly many of the trees which currently screen the area of pasture land from Plas y Coed on a north south line will be retained with only the minimum of removal of trees of low value. Plas y Coed will maintain its privacy in the parkland setting.' (Watkin Jones Group, November 2011).

1.1 Acknowledgements

The staff of Bangor University Archives are thanked for their help with providing archive material, and the assistance of Jenny Emmett and Ashley Batten of Gwynedd Archaeological Planning Service (GAPS) is acknowledged.

2 PROJECT BRIEF AND SPECIFICATION

A detailed brief has not been prepared for this scheme, however an archaeological desk-based assessment report was requested by the Gwynedd Archaeological Planning Service.

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*, IFA 2001, 2).

The aims of the assessment as given in the specification 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.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of

geophysical survey or trial excavation, although measured survey is also a possible option. A full programme of assessment and evaluation may therefore consist of:

- Desktop study
- Field walkover
- Initial report
- Field evaluation
- Draft report
- Final report

This phase of the project concerns the first three phases, and recommendations are made concerning further archaeological evaluation or mitigation.

3 METHODS AND TECHNIQUES

3.1 Desk top study

The desktop study comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Historic Environment Record (HER), located at Gwynedd Archaeological Trust (GAT), Bangor. Information about listed buildings was consulted by means of the Coflein, which is the online index of the Royal Commission on Ancient and Historic Monuments, Wales. Relevant aerial photographs from the collection at RCAHM, Wales were examined. Documents forming part of the Penrhyn archive held at Bangor University were also examined.

Sites, buildings and find spots listed in the GAT HER were identified (Fig. 1), with GAT HER referring to the unique Primary Record Number given to each individual site.

3.2 Field Search

The field search was undertaken during August 2011, when the area of the proposed development was examined. Notes were taken, sketches and measurements were taken of sites of potential archaeological interest and a photographic record was made. Weather and ground conditions were good for a site visit, although the high vegetation in the field to the west meant that detailed study of it was difficult.

3.3 Report

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment of the area is given at the end.

The criteria used for assessing the value of features was based upon those used by the Secretary of State for Wales when considering sites for protection as scheduled ancient monuments, as set out in the Welsh Office circular 60/96. The definitions of categories used for impact, field evaluation and mitigation are set out in Appendix 2.

4 ARCHAEOLOGICAL RESULTS

4.1 Topographic description

The proposed development site at Plas y Coed, formerly known as Lime Grove, lies close to Porth Penrhyn and approximately 1 km east of the city of Bangor, located between the former Penrhyn Quarry Railway and the former slate works. It is bounded on the west by a lane which formed the track bed of the former quarry railway and to the north by the road leading to Port Penrhyn and the Penrhyn Castle demesne. The trapezoidal shaped site is located within the parish of Llandygai and lies at approximately 10m OD, on a plateau sloping slightly westwards towards the Afon Cegin, which is close by to the west. The study area consists of the main house of Plas y Coed with associated stables, outbuildings and a kitchen garden to the south. A former garden, now somewhat overgrown, lies to the east of the house.

The underlying geology is that of a band Ordovician rocks which are 'contiguous with the complex syncline of Snowdonia' flanked by outcrops of Cambrian rocks to the north and south (Bassett & Davies, 1977). The field at the west of the study area has not been used as grazing pasture in recent years, and as a result waist high vegetation obscures the area.

4.2 Archaeological and historical background

4.2.1. Prehistoric and Roman sites

Extensive archaeological investigations have also been carried out by Gwynedd Archaeological Trust (GAT) c.175.0m to the southwest of the site, at Parc Bryn Cegin and Llandygai Industrial Estate, located on the same plateau as the Plas y Coed site (Kenney 2009). These have recorded extensive multi-period remains including an early neolithic timber building, dated to about 3760 BC, a mid Neolithic pit group, a late neolithic ceremonial complex (Scheduled Ancient Monument; Cn153), an early bronze age barrow, sixteen burnt mounds, a settlement of the mid iron age and late iron age/Roman periods, early medieval smithing activity, an early medieval cemetery, and further medieval and post-medieval features (*ibid.*, 9). Stray finds including worked flint, stone hammers and bronze palstaves have been found in the vicinity of the study area. A large Early Bronze Age burial cairn, known as Carnedd Howel, is located about 1.5km to the south, and cropmarks indicate that there may have been others much closer in Parc Penrhyn. Nearly 4km to the south is the remains of a Neolithic chambered tomb at Sling and about 4km to the north there used to stand another chambered tomb. The site of this is now on the Lavan Sands and it has been entirely destroyed by the sea, but it was visible in 1805 (Williams 1806, 206). A burnt mound was found at Rhos Uchaf, 300m to the south-east and some probably prehistoric hearths 400m to the south on the line of the A55.

Excavations in 1967-8 under the present Llandygai Industrial Estate revealed the presence of a group of Later Neolithic ceremonial monuments of national significance. These included two henges, large circles, about 90m in diameter, defined by banks and ditches, and a cursus, an embanked linear enclosure. Associated with them were two lesser circles and the complex was preceded by an earlier Neolithic building. The site was subsequently used for Early Bronze Age funerary activity, Iron Age and Romano-British settlement and an Early Medieval inhumation cemetery (Lynch and Musson 2004). A possible late prehistoric enclosure is located within Penrhyn Park (PRN 24769).

The Roman road between Caerhun and Segontium probably passed about 500m to the south-east of the development site, with the suspected site of a Roman fortlet at Tal-y-Bont. A possible Roman site is known within Penrhyn Park at the Home Farm, Llandegai (PRN 2370)

4.2.2 Medieval

Whilst there is no known earlier archaeological activity within the development area, within the wider area, archaeological sites include an Early Medieval square barrow cemetery (PRN 24776) within the grounds of Penrhyn Castle. Llandygai village has medieval origins, its church dating from the 14th century but there are records of an earlier church, and earthwork hut platforms in Parc Penrhyn are probably medieval (Smith 2005). There is also the potential for remains associated with medieval and post-medieval activity centred on the village, in particular the post-medieval flint mill to the south-east (PRN 6387).

4.2.3 Post-Medieval

The development of the slate quarries by Richard Pennant was to be a great force for change, and a major stimulus for the development of Bangor. Pennant's inheritance and accumulation of the Penrhyn Estate, and his subsequent development of the slate quarries at Braich y Cafn has been well described elsewhere (Lindsay 1974; National Trust 1992), but it was the need to transport the slates by ship to their market and the subsequent development of the port at Abercegin that provided much of the demand for labour and the incentive to invest in new housing and industry. The harbour was developed from 1780, and was served by a tramway opened c. 1800, and became known as Port Penrhyn (Boyd 1985). A branch line off the Chester & Holyhead Railway to Port Penrhyn was opened in 1848, which closed finally in 1965. In addition to the quarries, Pennant also developed subsidiary industries, particularly through his partnership with Samuel Worthington, including a flint grinding mill which involved importing flints from Suffolk and Ireland, and exporting them to Toxteth, and a factory for the production of writing slates that was to become the World's largest supplier (Boyd 1985). Both of these made use of the power supplied by the River Ogwen, and both were reliant upon transport by sea. Close to the port Pennant built a new hotel, the Penrhyn Arms (the former

entrance arch survives as PRN 12123), and an adjacent house at Pen y Bryn (PRN 11402). These and the slightly later dispensary at Tan y Coed (PRN 11497) were all designed by Benjamin Wyatt in classical style. The combination of these buildings and the subsequent construction of the London to Holyhead road, gave a distinct status to the area, which was in marked contrast to the development that was to take place immediately below at Hirael.

The growth of the port and quarries created the demand for a myriad of service industries, including shipbuilding, sail making, iron founding, smithing and timber yards, as well as slate yards for the processing of slate products. This all resulted in an increased demand for labour and new housing. Though there was ample room between the old town and the sea for development, ownership was divided amongst a number of estates, including Penrhyn, Friars School and the Bishop. Not all were free to develop their lands as they wished, but the first stirrings occurred when John Roberts leased from the Bishop, in 1805, a portion of the foreshore at Hirael for commercial and residential development (Jones 1991).

4.2.3.1 Plas y Coed

Plas y Coed began life in the last quarter of the 18th century as Lime Grove, a villa designed by Samuel Wyatt at the same time as he was working on the principal house at Penrhyn (Fig. 5). It has been described as having been a classical villa of "chasteness and technical" purity, and was built for Benjamin Wyatt, brother of Samuel and agent for Lord Penrhyn (Jones 1981). The Penrhyn Estate Map of 1803 (Bangor Archives Penrhyn Maps 40; Fig. 2) shows the original Lime Grove building as a smaller building than that currently on the site, and a formal garden is shown to the west. The current single field to the west was divided into three smaller fields in 1803, although it was a single field by the time of the tithe map of 1841.

The current Plas y Coed (Grade II LB 23370) was built in 1878 as a house for the Penrhyn Estate agent Captain Pennant Lloyd, and it remained the agent's house until the Second World War. In about 1970 the property was converted into a residential home for the elderly, run by Gwynedd County Council. The stables (Grade II LB 23371) were built contemporaneously with Plas y Coed (Plate 4). An aerial photograph of 1945 (RAF 106G/UK 655 frame 4034; Fig. 4) shows Plas y Coed with its outbuildings and the kitchen garden to the west in use. Additional structures no longer present are noted between the lodge and the main house that are also shown on the 1st edition 25 inch Ordnance Survey Map of 1889 (Fig. 3). Plas y Coed was effectively built as a small and reasonably self-supporting estate for Lord Penrhyn's agent, adjacent to but separated from the main Penrhyn demesne, and with good independent access to both Porth Penrhyn and the town.

4.3 Statutory and non-statutory designations

The Plas y Coed complex includes a main structure and several ancillary buildings to the north; the main structure is listed Grade II: (Ref: 23370) and the stable block is also Grade II Listed (Ref: 23371). There are a large number of Listed Buildings in the surrounding area, and these are noted in Appendix 2. The site is part of the Penrhyn Estate/Port Penrhyn landscape (PRN 15,856) and is adjacent to the quarry railway, slate works and industrialised dock area. The study area is c.17m northeast of the Quarry Railway Viaduct which is a Scheduled Ancient Monument (SAM Cn380). The site lies within the Dyffryn Ogwen / Ogwen Valley landscape of outstanding historic interest in Wales (Ref. HLW (Gw) 10), where it is described as containing *extensive and very well preserved remains of prehistoric and later land use superimposed by the extensive and visually dramatic remains of the recent and continuing industrial exploitation of slate* (Cadw, CCW, ICOMOS UK 1998a, 105-108). The demesne of Penrhyn Castle (Ref; PGW (Gd) 40 (GWY)) is included in the Register of Parks and Gardens in Wales, where it is described as retaining much of its *nineteenth century character and the gardens, which have an exceptional collection of woody plants, are well preserved*, and the study area forms part of the essential setting of it (Cadw/ICOMOS 1998b, 250-251).

4.4 The Archaeological Survey (Fig. 1)

The archaeological survey lists sites identified within the study area. In order 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 to define the importance of each site and the magnitude and significance of impact caused by the proposed scheme on each site.

The sections below list the principal features within the study area, and categorises their importance on a scale of A (National); B (Regional); C (Local); D (Other); E (Unknown), these principal features are also shown on Figure 1.

The definition of impacts on the cultural heritage are defined as follows:

Table 1: Factors in the Assessment of Magnitude of Impacts

Major	Change to most or all key archaeological materials, such that the resource is totally altered. Comprehensive changes to setting.
Moderate	Changes to many key archaeological materials, such that the resource is clearly modified. Considerable changes to setting that affect the character of the asset
Minor	Changes to key archaeological materials, such that the asset is slightly altered. Slight changes to setting
Negligible	Very minor changes to archaeological materials, or setting
No Change	No change

Where a site is considered to be affected by the proposed construction design provided by *Watkin Jones Group*, mitigation measures would be required in accordance with guidelines set out in Welsh national planning guidance (*Planning Policy Guidance Wales 2010*) and Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*). The following are the basic categories of archaeological mitigation measures which will be used. Additional details may be added in regard to the setting of archaeological sites.

None - No impact, so no requirement for mitigation measures.

Basic recording - Recording by photograph and description requires a photographic record and written description prior to the commencement of works on site. A measured survey may be required in certain cases.

Detailed recording - Detailed recording requires a photographic record, surveying and the production of a measured drawing prior to the commencement of the works on site. Archaeological excavation works may also be required, depending upon the particular feature and the extent and effect of the impact. This may entail full excavation and recording where a known site will be destroyed or partially destroyed by the scheme. Some built sites would require dismantling by hand, to provide a detailed record of the method of construction and in the case of a listed structure, the salvage of materials for re-use and re-building.

For wider areas of high archaeological potential there are three main options:

Geophysical Survey - This can be used, where appropriate, as an initial non-intrusive assessment technique allowing areas of archaeological activity to be recognised. Magnetometer survey is the preferred first option in most cases, because it allows large areas to be surveyed quickly and can detect a wide range of archaeological features. Resistivity may be used as a secondary option. It should be noted that not all archaeological features can be detected using geophysical survey and absence of positive results does not prove that there is no archaeology present. Geophysical survey should be followed by one of the following options.

Trial Trenching - This can be adopted as a staged mitigation process involving assessment and then wider excavation where necessary. A series of trenches would be excavated within a designated area in order to provide a sample of the buried archaeology. A minimum of 5% area coverage is usually specified. The results from geophysical survey can be used to allow accurate positioning of a proportion of the trenches over specific archaeological features. All archaeological features

uncovered during the process would be assessed. Significant features would then be excavated and fully recorded.

Strip map and sample - This technique involves the examination of machine-stripped surfaces to identify archaeological remains. The process of machine stripping would be supervised by an archaeologist. Once stripping has been undertaken, areas of archaeological potential would be identified and cleaned by hand. Sample areas would be cleaned by hand in apparently negative areas to act as a control. Where complex archaeological deposits are identified during stripping, these would be identified at an early stage in order to formulate a defined area of work. This technique relies upon the recognition of features by plan, and excavation of features would be kept to a level required to assess the nature and importance of the remains. This would be followed by full excavation where appropriate.

Other mitigatory measures include:

Watching brief - Observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers, structures or sections.

Avoidance - Features which may be affected directly by the scheme, or by the construction of the scheme, should be avoided.

Reinstatement and/or relocation – The feature should be reinstated with archaeological advice and supervision.

The value of an archaeological asset refers to both the physical remains and information inherent in the site. If a site is excavated in advance of destruction the physical remains will be destroyed but the information will have been retained. This is termed “Preservation of Archaeological Remains by Record” in Planning and the Historic Environment: Archaeology (Welsh Office Circular 60/96). It should be noted that even though this is seen as a valid mitigatory measure, preservation *in situ* is the preferred option.

SITE 1: PLAS Y COED (Plates 2-3)		PRN: 34778
Assessment of Importance: B	Physical Impact: Moderate	Site Status Reference: LB II Ref: 23370
<p>The house is located at the end of a drive-way running south-eastwards from the area in front of Port Lodge, with the former garden to the south overlooking Penrhyn Park. Plas y Coed is a three storey building of snecked granite with three cross-wings. The window and door mouldings are of limestone. The south facing front has bay windows to the eastern bay and a wooden veranda between the east and central wing. It is slate roofed, and the building is currently derelict and boarded up (2011).</p> <p>It was built in 1878 (the date is shown on the hopper heads) as a house for the agent of Penrhyn Estate, at that time Captain Pennant Lloyd, and it continued to be used for this purpose until the Second World War. Plas y Coed replaced Lime Grove, a classical villa built by Samuel Wyatt after 1781 for the agent Benjamin Wyatt.</p>		
NGR: SH 59387247		
Recommendations for further assessment: None		
Mitigation Recommendations: Detailed recording (commensurate with level 3/4 building record)		
SITE 2: STABLES AT PLAS Y COED (Plate 4)		PRN: 34779
Assessment of Importance: B	Physical Impact: Moderate	Site Status Reference: LB II Ref: 23371
<p>The stables are attached to west end of the house at Plas y Coed forming a small U-shaped courtyard. They were built contemporaneously with the house at Plas y Coed. The range in front of the courtyard on the west side was added in the late 20th century. The buildings consist of a</p>		

single-storey range forming a U-plan around a small courtyard. The centre range has a boarded opening to the front with conical ventilator to the left on the ridge; a similar ventilator is present on the front of the east range. The west range has one doorway, two windows with stone cills and an integral lateral stack to the east wall. There are gate piers to the inner front corners of the east and west ranges, former truncated, with a latter retaining moulded stone cap. The west range has been extended to the north of the original courtyard.

NGR: SH 59367247

Recommendations for further assessment: None

Mitigation Recommendations: Detailed recording (commensurate with level 3/4 building record)

SITE 3: KITCHEN GARDEN AT PLAS Y COED (Plate 5)	PRN: 34780
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Assessment of Importance	C	Physical Impact: No change	Site Status Reference: None
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A former walled kitchen garden, with evidence of former south-facing greenhouses along the inside of the northern wall. The wall encompasses an area of 0.15ha and is constructed of bricks to a height of approximately 2.5m with a modern entrance on the north side, although the original entrance would appear to have been along the south wall. The bricks are laid in English Garden Wall Bond (rows of headers between rows of stretchers). An avenue of trees runs north-south to the south of the walled garden. The kitchen garden will not be impacted upon by the proposed development.

NGR: SH 59357246

Recommendations for further assessment: None

Mitigation Recommendations: Avoidance

SITE 4: OUTBUILDINGS AT PLAS Y COED	PRN: 34781
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Assessment of Importance: C		Physical Impact: Major	Site Status Reference: None
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To the west-south-west of the house lies an 'L' shaped range of former outbuildings. A two storey building, possibly an estate keeper's house, with a long east west range with a modern extension attached. This contains three entrances. It appears to be later 19th century in date. These are to be demolished as part of the proposed development.

NGR: SH 5933872499

Recommendations for further assessment: None

Mitigation Recommendations: Basic Recording (commensurate with level 2 building record)

SITE 5: LODGE AT PLAS Y COED (Plate 1)	PRN: 34782
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Assessment of Importance: B		Physical Impact: No change	Site Status Reference: None
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The former Lodge to Plas y Coed is still in occupation. It consists of a two storey gabled building built in the same style as the main house, with an additional range to the south. The walling to the north west, consisting of former chain-linked piers bounding the pasture field to the east, formed an important element in the formal approach to the main house.

NGR: SH 59327254

Recommendations for further assessment: None

Mitigation Recommendations: Avoidance

SITE 6: RAISED WALKWAY (Plate 6)	PRN: 34783
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Assessment of Importance: C		Physical Impact: Minor	Site Status Reference: None
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A raised walkway along the southern edge of the study area, leading south from the kitchen garden to the south-west corner of the study area. It is built up on four courses of irregular coursed rubble blocks, and is about 1.5m wide and 0.7m above the field (Site 7), and slopes away sharply to the Cegin valley to the south and west. The proposed development will not impact upon the raised section of the trackway located towards the south of the development area, but will impact upon the section which connects with the kitchen garden. This part of the feature is not elevated and exists as a rough track.

NGR: SH 59297243

Recommendations for further assessment: None
Mitigation Recommendations: Basic record and avoidance of southern section

SITE 7: FORMER PASTURE FIELD (Plate 7)		PRN: 34784
Assessment of Importance: E	Physical Impact: Major	Site Status Reference: None
A former pasture field, which was shown as divided into three smaller fields in 1803 (Fig. 2; Bangor Archives, Penrhyn Maps 40). The field is undulating with a gentler south-east to north-west slope. It is bounded to the east by the raised walkway (site 6), to the south by 'Penrhyn style' estate fencing (slate slabs held together with twisted wire), and to the north and west by the drive to Plas y Coed with its former chain-linked pilasters and the outbuilding to the house itself. The field is overgrown, with grass to waist height in places. It was not possible to identify any archaeological features within it on the field visit or from aerial photographs (Fig. 4), however the amount of archaeology known from the surrounding area suggests that there may be moderate to high potential for the survival of archaeological remains.		
NGR: SH 59297247		
Recommendations for further assessment: Geophysical Survey potentially followed by Trial Excavation		
Mitigation Recommendations: Await the results of the evaluation		

5. SUMMARY OF ARCHAEOLOGICAL POTENTIAL

5.1 Location Summary

The proposed development site at Plas y Coed, formerly known as Lime Grove, lies close to Porth Penrhyn and approximately 1 km east of the city of Bangor, located between the former Penrhyn Quarry Railway and the former slate works. It is bounded west by a lane which formed the track bed of the former quarry railway and to the north by the road leading to Porth Penrhyn and the Penrhyn Castle demesne. The site is located within the parish of Llandygai and lies at approximately 10m OD, sloping slightly westwards towards the Afon Cegin, which is close by to the west.

5.2 Environmental Remains and Soil Morphology

The soil morphology within the proposed development site and its potential to preserve environmental remains is currently unknown. However, it is likely that there will be a higher level of preservation towards the western part of the site where the soils are less free-draining. Archaeological work close by on the same plateau at Parc Bryn Cegin (Kenny 2009), suggests that the soils would consist of Brown Earths with a clayey silt texture, which may be quite deep in places.

5.3 Artefactual Potential

The potential for the survival of artefacts is unknown, but prehistoric and medieval artefacts may survive in association with prehistoric or medieval features on the site. Isolated and unstratified finds of post-medieval and modern artefacts are likely to be recovered, along with material associated with the occupation of Plas y Coed from the 18th century onwards, perhaps in the form of middens.

6. IMPACT AND RECOMMENDATIONS

6.1 Direct Physical Impact

Seven sites have been identified as being within, or in close proximity to, the proposed development area. It is expected that the proposed development at Plas y Coed will have a direct physical impact upon five of these sites. Two are considered to be of *regional (B)* importance (sites 1 and 2), two are considered to be of *local (C)* importance (sites 4 and 6), and one site is considered to be needing further investigation to determine its importance (site 7). It is expected that the proposed development will have a *Minor* impact on one site (site 6), a *Moderate* impact upon two sites (1 and 2), and a *Major* impact on two sites (4 and 7). Two sites will remain unaffected by the proposed development (sites 3 and 5).

The proposed conversion of the Grade II listed Plas y Coed (site 1) and attached Grade II listed former stable block (site 2) into 12 self-contained flats is expected to have a *moderate* direct physical impact upon the

buildings. This impact level should be seen as preliminary as there is currently insufficient information regarding the proposed internal alteration of both listed buildings, and indeed an internal inspection has not currently been made to ascertain the quantity and survival of internal fixtures and fittings relating to the historical development of both buildings. However, the information as so far supplied implies that the external and internal alterations will be sympathetic in nature and will utilise like for like building materials and forms. It is presumed that there will be some surviving internal fabric relating to the buildings historical use as the house for the Penrhyn Estate agent, and for its utilisation as a residential home for the elderly. For these reasons it is anticipated that the direct physical impact upon both buildings will be *moderate* although there is the possibility for this to increase or decrease as further information is obtained. It is recommended that a detailed record (commensurate with a level 3/4 building record) be taken prior to alteration and that a watching brief is maintained during ground-works in this area in case there are any buried remains at foundation level of the earlier property of Lime Grove.

The proposed development is expected to have a *major* direct physical impact upon the outbuildings at Plas y Coed (site 4). These consist of a two storey building, possibly an estate keeper's house, with a long east west range with a modern extension attached. The original building appears to be late 19th century in date and a building depicted to the northeast of Plas y Coed on the 1803 Penrhyn Estate map (figure 2) may be an earlier building which was either demolished or extended into the existing range of outbuildings. These buildings will be demolished as part of the proposed programme of works, however it is recommended that a basic record be taken (commensurate with a level 2/3 building record) prior to demolition and a watching brief maintained during ground-works in this area.

The proposed development is expected to have a *major* impact upon any unknown buried archaeological sites within the proposed development field to the west. The exact nature of these deposits is currently unknown, however it is recommended that a programme of geophysical survey and trial trenching is undertaken to help inform this.

The proposed development is expected to have a *minor* impact upon the raised walkway (site 6). The development will avoid the southern and raised section of the feature but will impact upon the eastern section which connects with the kitchen garden. A *basic record* of the trackway is recommended prior to the commencement of groundworks, and *avoidance* of the raised section of trackway is recommended.

The proposed development is not expected to have a direct physical impact upon the kitchen garden (site 3) or Lodge (site 5) and thus *avoidance* of these sites has been recommended. It is the responsibility of the client to avoid these sites during enabling works and construction, and provide any protection required prior to the commencement of works.

6.2 Indirect Impact

The grounds and house of Plas y Coed forms an important part of the registered Dyffryn Ogwen / Ogwen Valley landscape of outstanding historic interest in Wales (Ref. HLW (Gw) 10) and are historically significant as they formed the landscaped setting to the house, which was built as the home of the Penrhyn Estate's agent. Cadw's *Conservation Principles* (2011) defines the setting of a heritage asset as being 'the surroundings in which an historic asset is experienced, its local context, embracing present and past relationships to the adjacent landscape.'

Setting is the surroundings in which an asset is experienced. The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust and vibration; by spatial associations; and by our understanding of the historic relationship between places (English Heritage. 2011).

The majority of the proposed new housing units would be situated within open ground well screened from the surrounding area by woodland belts. Moreover, this area appears to have not been part of the landscaped grounds of either of the two houses that were built on the site – Lime Grove and Plas-y-coed, and as such the alteration of the historic landuse, for the most part, is expected to have little impact. The deviation from the historic landuse is more pronounced to the northeast, where part of the development will infringe upon land which did originally form the landscaped grounds of the house. This alteration from landscaped grounds to housing development is expected to have a *moderate* impact upon the setting of the Lodge.

It is expected that a further impact upon the setting of the Lodge in relation to the main house will occur, with the proposed construction of houses between the two historically linked buildings. This impact is expected to be *minor* however, as the historic visual and contextual link was originally frustrated by the construction of the outbuildings in the 20th century.

The proposed development area is reasonably discreet and will not be visible from the main house, whose primary façade faces south, with views to the parkland of Penrhyn Castle. These would not be impeded by the proposed development. The proposals involve very little tree felling, and those that would have to be removed are mostly small self-sown trees.

The walled kitchen garden forms an integral part of the historic setting of the main house, and any development in this area should be avoided to help retain the historic character of the property. The proposed renovation of the main house and stable block, if carried out sympathetically, should have a *minor* beneficial impact towards the setting of the property, as it should bring the historic buildings back from a state of semi dereliction.

It is expected that the proposed development will have an impact upon the registered historic landscape, although this is believed to be *minor* due to the discreet location, visual screening by trees, and small scale of the proposed development.

7. SUMMARY OF RECOMMENDATIONS

7.1 Summary of Specific Recommendations

Number	Name	Importance	Impact	Recommendation for further evaluation	Mitigation recommendations
1	Plas y Coed	B	Moderate	None	Detailed recording
2	Stables at Plas y Coed	B	Moderate	None	Detailed recording
3	Kitchen Garden	C	No change	None	Avoidance
4	Outbuildings at Plas y Coed	C	Major	None	Basic Recording
5	Lodge at Plas y Coed	B	No change	None	Avoidance
6	Raised Walkway	C	Minor	None	Basic recording and Avoidance
7	Pasture Field	E	Major	Geophysical Survey and Trial Excavation	Await results of evaluation

7.2 General Recommendations

The study area forms part of the grounds of Plas y Coed, a country house built in 1878 for the agent of Penrhyn Estate. Within the study area are the walled garden and a range of outbuildings contemporary with the house. Both the house and the adjoining stable are Grade II Listed Buildings. The development should avoid any direct impact on the listed buildings (Listed Building Consent will be required if direct impact is to take place). The proposed building and landscape design will need to take into account the setting of the Listed Buildings to ensure indirect impact is minimised. It is important also that whilst there will be an affect on the essential setting of the Penrhyn Castle Registered Park and Garden, that this is minimised.

Although no buried archaeological remains are known from within the study area itself, there has been a considerable amount of evidence recovered from the surrounding area, particularly on the nearby Parc Bryn Cegin and Llandygai Industrial Estate sites (Lynch and Musson 2004; Kenney 2009). It is felt that the potential for the recovery of archaeological information within the undeveloped parts of the study area is **high**, based on both the substantial amount of archaeological evidence recovered from work in the surrounding area and that there are a number of known sites within Penrhyn Park itself.

A programme of archaeological evaluation is recommended across the open areas of the site where this is practicable, which would include the kitchen garden area and the pasture field. This should be a phased programme of evaluation, of which the first phase would be **geophysical survey** across the entire site. This may be followed by **trial excavation** at a density to be confirmed once the results of the geophysical survey

are known, but potentially at 5% sample of the area. Recommendations for the mitigation of any archaeological remains identified would follow the archaeological evaluation.

8. CONCLUSIONS

The study area forms part of the grounds of Plas y Coed, a country house built in 1878 for the agent of Penrhyn Estate. The house and adjoining stable are listed grade II. The areas to be developed include a large paddock to the west, and a range of outbuildings to the north of the house.

Plas y Coed replaced Lime Grove, a villa designed by Samuel Wyatt in the late 18th century and occupied by his brother Benjamin, agent to Lord Penrhyn.

It is recommended that the designs reflect the setting of the listed buildings and the Registered Park and Garden, that the listed buildings themselves are not directly impacted, and that a programme of basic recording of the outbuildings is undertaken before development.

No known buried archaeological features have been identified within the study area, although archaeology of national importance has been noted close by at Parc Bryn Cegin and the Llandygai Industrial Estate, and there is thought to be moderate to high potential for the survival of archaeological remains. A programme of geophysical survey and trial excavation is recommended in the area to be developed where this is practicable.

9. ARCHIVE

The archive consists of historic maps, plans and aerial photographs, along with notes and digital images taken on the field visit. The archive is currently held by GAT under project code **G2210**.

One copy of the bound report will be sent to the GAPS archaeologist, and a further copy sent to the HER Archaeologist at the curatorial division of Gwynedd Archaeological Trust, Bangor, for deposition in the Regional HER. A copy of the report will be provided to the National Monument Record, Royal Commission on the Ancient and Historic Monuments of Wales, Aberystwyth.

10. REFERENCES AND OTHER SOURCES CONSULTED

GAT Historic Environment Record

Bangor University Archives

Penrhyn MS Maps 40 *Estate Maps*

Central Register of Aerial Photography, Welsh Government

RAF 106G/UK 655 frame 4034, taken 13th August 1945

Gwynedd Archives, Caernarfon

Tithe maps for the parish of Llandygai (1841)

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Cadw/ ICOMOS 1998b *Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales; Conwy, Gwynedd & The Isle of Anglesey. Part I: Parks and Gardens*

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Davidson, A. 2007 *Ports and Harbours; Port Penrhyn, Bangor, Gwynedd*. GAT Report

Smith, S, 2005 *Parc Bryn Cegin, Bangor: Revised Archaeological Assessment* GAT Report No. 565

APPENDIX 1

Sites Listed on the Gwynedd HER within 200m of the Development Area (Fig. 1)

PRN 11401

NAME Pen-y-Bryn Farm

NGR SH58977232

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION 18th Century. 2 storey and attic. Stucco. Slate roof. Central block with gabled wings. Central 6 panel door with fan light.

STATUS Listed Building LB II

PRN 11402

NAME Pen-y-bryn House

NGR SH59057245

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION 18th Century. 2 storey and attic. Stone. Cartwheel window in tympanum. 6 panel door. 1 storey wing.

STATUS Listed Building LB II

PRN 11434

NAME Port Lodge

NGR SH59307260

COMMUNITY Llandygai

PERIOD AND TYPE Post-Medieval

DESCRIPTION West entrance to Penrhyn Park. Circa 1840. Stone medieval style. Battlemented tower. Carriage entrance with pointed arch S.

STATUS Listed Building LB II

PRN 11497

NAME Tan-y-coed

NGR SH58947246

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION 18th Century late. Stone. 2 storey. Slate roof. Central 6 panel door with rectangular fan flanking 1 storey pavilions.

STATUS Listed Building LB II

PRN 11679

NAME Bridge Nr. Pen-y-bryn Terrace

NGR SH59037246

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION Possibly 18th century. 1 segmental arch. Stone. Wreathed coping. Solid parapet. All stone work with tooled edges.

STATUS Listed Building LB II

PRN 12078

NAME Cottage N.E. of Port House

NGR SH59027206

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION 17th century, relined 18th century stone, 2 storey. Some thick walls. Int. stairs, panelled doors. Said to be the oldest cottage in Bangor. Engraved stone 1593-G (Capt. in time of Drake Pearsegriffidd)

STATUS Listed Building LB II

PRN 12123

NAME Entrance Arch of Destroyed; Pen-y-Bryn Arms Hotel

NGR SH59027250

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION Doric stone portico with 2 pairs of columns. Moulded entablature with blocking course. Tooled edges to stonebank.

STATUS Listed Building LB II

PRN 12143

NAME Cegin Viaduct, Penrhyn Estate, Bangor

NGR SH59267239

COMMUNITY Bangor

PERIOD AND TYPE Post-Medieval

DESCRIPTION This monument is a well-preserved example of an early railroad bridge, built between 1798 and 1800 to carry the Penrhyn railroad over the lower reaches of the Afon Cegin. It is likely that the Cegin Viaduct is the oldest known multi-arched railway bridge to survive above ground in Wales and possibly the world. It is a stone-built three-arched railway bridge measuring about 26m in length between each abutment and 5m in width and 3.2m in height. Each arch has a span of between 5m and 6m and a height of about 1.8m. The arches are well-constructed, with each voussoir of similar size and shape and with even soffits. There is a slate-roofed sluice at the north end (measuring 1.2m in width and 2m in height) and an artificial pitched stone surface to the riverbed beneath the bridge and extending east, immediately upstream. The earliest known record of the bridge is found in an estate map of 1803, which shows the Penrhyn railroad crossing the Afon Cegin on the site of the present bridge. Work had begun on the railroad in 1800 and comprised laying a then very ambitious length of cast iron rails (designed for use with double-flanged wheel). This edge railway was a longer construction than those already in existence in the South Wales valleys and, as such, marks an important stage in the evolution of the modern railway system. The bridge was almost certainly constructed sometime between 1798 and 1800 and it has been suggested as typical of the work of the local architect and builder, John Foulkes (c.1765 - 1850). The new Penrhyn Quarry Railway (with a new bridge, the pillars of which still stand immediately to the west, carrying a timber footbridge) superseded the Penrhyn railroad in 1879.

STATUS Scheduled Ancient Monument CN380

PRN 12689

NAME Port Penrhyn,communal Lavatory

NGR SH59167284

COMMUNITY Llandygai

PERIOD AND TYPE Post-Medieval

DESCRIPTION Mid to late 19th century circular structure, concrete slate roof; stone blocks: 6 brick circular lunettes.

STATUS Listed Building LB II

PRN 14621

NAME Cored Cegin

NGR SH59737290

COMMUNITY Llandygai

PERIOD AND TYPE Medieval, FISH WEIR

DESCRIPTION A single row of round posts, some standing to a height of 0.6m at the inner end, each with a diameter of about 0.1m. The row of stakes runs out from the shore to close to the tidal channel of the straits. Not used within living memory but shown on 1st ed. OS and 1920s OS with modifications to accommodate new dock.

SOURCES

HOPEWELL,D. 2000 , An Assessment of Coastal Fish Weirs and Traps, G1589, REPORT 363

PRN 15856

NAME Port Penrhyn - Landscape

NGR SH59407250

COMMUNITY Llandygai

PERIOD AND TYPE Multi-period

DESCRIPTION Port Penrhyn Historic background: a port for the shipping of slate built from the late eighteenth century onwards around an earlier coastal settlement. The area includes a number of items of industrial infrastructure such as a bonded warehouse, locomotive shed, port office and limekilns. Key historic landscape characteristics: port An outstanding example of a nineteenth century port landscape. It is also an unusual example of an industrial area in which polite architectural influence is apparent in a number of buildings. The port itself and the majority of the buildings are constructed out of Penmon limestone. Conservation priorities and management: preservation of nineteenth-century port infrastructure as an intact whole. The shipping point for Penrhyn Quarry slates from the end of the eighteenth until the second half of the twentieth, Port Penrhyn contains a variety of structures associated with the quarry and its railways, and with the Castle. The earliest part of the harbour is believed to date from 1798; it is likely that this includes the part under the warehouse complex on the west side of the Cegin at SH 5915 7261 and the port office of c. 1832 on the quayside immediately opposite. The harbour was extended in 1803 and again in 1829-1830. The final additions came in 1855 when the furthest extremity of the present western arm and the whole of the eastern arm were constructed. Buildings are marked on the site of the warehouse as early as 1804. Other structures include locomotive and carriage sheds, which remain intact, as does a circular privy for the loaders. On the eastern side of the complex the lime-mortar kilns for the building of the Castle can be seen. Originally pack-horses brought the slate down, but carts began to make the journey from 1790. A path and cycle way alongside the course of the Afon Cegin follows the route of the original 2' gauge railway to the slate quarry, one of the earliest iron edge-railways in Britain, opened for traffic in 1801, and superseded by a steam route in the 1870s. At SH 5926 7239 the railway's bridge over the Cegin survives; this is believed to be the oldest surviving multi-arch railway viaduct in Britain.

SOURCES

GWYN,D. & THOMPSON,D. 2000 , Historic Landscape Characterisation: Ardal Arfon, G1584, REP. NO. 351

PRN 2370

NAME Roman Site, Home Farm, Llandegai

NGR SH59757180

COMMUNITY Llandygai

PERIOD AND TYPE Possibly Roman

DESCRIPTION A road and curved bank can be seen in some Aerial Photographs of Penrhyn Park.

PRN 24769
NAME Enclosure, Penrhyn Park
NGR SH5962072040
COMMUNITY Llandygai
PERIOD AND TYPE Unknown

DESCRIPTION Oval cropmark enclosure defined by narrow ditch. Enclosure measures c. 148m E-W by c. 84 N-S, and tapers to the W, towards the summit of a low ridge. Within the E part of the enclosure is a small, square enclosure at c. SH 5954 7204.

SOURCES

Driver, T. Royal Commission on Ancient and Historic Monuments 2005 RCAHMW Aerial Reconnaissance 2005, Archaeology in Wales, Vol. 45 p.113 & p.148

Driver, T. Royal Commission on Ancient and Historic Monuments 2005 , PRN 24769, AP-2005-1521 & AP-2005-1524

PRN 6490
NAME Port House, Penrhyn
NGR SH59227264
COMMUNITY Bangor
PERIOD AND TYPE Post Medieval

DESCRIPTION 1840 office building on site of old storehouse. Ashlar limestone. Advanced centre with clock in tympanium. Wide "Doric" entrance porch.

STATUS Listed Building LB II

Key to Abbreviations and Terms

GAT: Gwynedd Archaeological Trust; PRN : Primary Reference Number, each site is given a unique PRN;

APPENDIX 2 Listed Buildings within 200m of the study area

Number	Name	Eastings	Northings	Grade	Description
23361	Former Locomotive Shed	259279	372795	II	<p>Built in 1876 as part of the new narrow gauge railway line of 1' 10 3/4" (0.6m) running from the Penrhyn Quarry through Tregarth, along the Afon Cegin valley to its terminus at Porth Penrhyn. The Penrhyn Railway continued to operate a passenger service for the quarrymen until 1951 and ceased work in 1962 at which time the rails were taken up.</p> <p>Long rectangular building in 2 sections, that to rear lower and slightly recessed. Irregularly coursed rubblestone with quoins and reddish brown and yellow brick dressings; slate roofs. Main section has twin round-headed locomotive entrances to front gable end with slate-infilled roundel to apex, all with brick surrounds, reddish brown to inner ring, yellow to outer; long walls in 4 symmetrical bays with plain plinth and piers forming recessed panels in which are set tall rectangular windows (sheeted over at time of Survey) with brick dressings and slate cills and lintels. Lower section has 3 similar windows in plain long walls.</p> <p>Included as a well-preserved example of a late C19 narrow gauge locomotive shed of some architectural distinction on the old Penrhyn Railway, having strong group value with other structures at Porth Penrhyn.</p> <p>Reference: C E Lee, The Penrhyn Railway (1972), pp11-12, 29; J Lindsay, A History of the North Wales Slate Industry (1974), pp47-50, 172.</p>
23362	Pont Penrhyn (partly in Bangor community). Penrhyn Bridge including parapet walls on the approach road to Penrhyn Castle	259206	372565	II	<p>Spanning the Afon Cegin just south of the present main approach to the docks at Porth Penrhyn, the road carried by the bridge leads to the Port Lodge entrance to Penrhyn Castle.</p> <p>The original bridge was built by George Hay Dawkins-Pennant, probably to the designs of Benjamin Wyatt (architect to the Penrhyn Estate) in order that the horse tramway from the Penrhyn Quarry could pass directly on to the wharf at Porth Penrhyn. The 2 railway arches beneath the road were inserted in 1876 as part of the new narrow gauge railway line of 1' 10 3/4" (0.6m) running from the quarry through Tregarth, along the Afon Cegin valley to its terminus at Porth Penrhyn. The Penrhyn Railway continued to operate a passenger service for the quarrymen until 1951 and ceased work in 1962 at which time the rails were taken up. There was formerly a</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>cast-iron bridge immediately to the north of Pont Penrhyn. This was built in 1852 to carry the branch line linking the wharf with the Chester-Holyhead railway line opened in 1849 but has since been replaced by the present road bridge in the same position. The Afon Cegin here marks the boundary between Llandygai and Bangor communities.</p> <p>River and railway bridge spanning both the Afon Cegin and former railway tracks. Regularly coursed rubblestone with massive chamfered slate-stone coping to main structure (each coping stone in 2 pieces to section over river and in single pieces to parapet over railway) and with stone-on-edge coping to abutments. Single segmental arch over river with voussoirs, keystone and arch-ring terminated by rectangular piers with round-headed niches; iron plate to arch has superscription "GHDP/1820" and balustrade above is of decorative ironwork. Beneath the roadway at the eastern end of the bridge are the 2 segmental arches over the former railway, eastern infilled, both with brick soffits and iron gate hinges for original gates.</p> <p>Included as a distinctive and well-detailed early C19 bridge forming an integral feature of the remarkable late C18 and C19 industrial port complex at Porth Penrhyn. The bridge has strong group value with the other structures here, in particular Port House and Hen Swyddfa'r Porthladd (Old Port Office).</p> <p>Reference: J I C Boyd, Narrow Gauge Railways in North Caernarfonshire, Vol. 2 (1985), passim; National Trust Guide to Penrhyn Castle (1991), p84; J Lindsay, A History of the North Wales Slate Industry (1974), pp171-2, 190.</p>
23363	Hen Swyddfa'r Porthladd (Old Port Office)	259215	372596	II	<p>Located approximately 20m to the south-west of Port House immediately to the north of Pont Penrhyn.</p> <p>Probably built at about the same time as Port House, designed by Baxter, as part of the continuing development of Porth Penrhyn. A photograph of c1913 shows the building at the intersection of the Penrhyn Railway and the branch line opened in 1852 linking it with the Chester-Holyhead line; there is a small timber booth attached to the now blank west wall and a large ridge stack (now also gone) to the pedimented section.</p> <p>Small single-storey building of rendered rubblestone or brick; hipped slate roof with deep eaves and pedimented section to</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>west. East wall has boarded door to left and infilled window to right; multi-paned tripartite sash window in north wall; south and west walls blank except for plain cornice to pediment on latter.</p> <p>Included as an integral feature of the remarkable late C18 and C19 industrial port complex at Porth Penrhyn, the building has strong group value with the other structures here, in particular Port House and Pont Penrhyn.</p> <p>Reference: J Lindsay, A History of the North Wales Slate Industry (1974), pp47-9, 109, 190 et passim.</p>
23364	Dockmaster's Office	259180	372707	II	<p>Located on the western quayside of New Dock at Porth Penrhyn towards its southern end.</p> <p>Probably built c1860 as part of the continuing development of Porth Penrhyn, the building is still in its original use as harbour master's office.</p> <p>Small single-storey building of tooled granite rubble blocks; hipped slate roof. Front (east) wall has wide tripartite horned sash window with stone lintel and cill roughly to centre; doorway on left. Right return has narrower tripartite sash window, also with stone lintel and cill; blank rear wall and left return, except for purple brick shaft to integral stack on former.</p> <p>Included as an integral feature of the remarkable late C18 and C19 industrial port complex at Porth Penrhyn, the building has strong group value with the other structures here, in particular the Grade II* listed New Dock on the eastern quay of which it sits.</p> <p>Reference: J Lindsay, A History of the North Wales Slate Industry (1974), pp47-9, 109, 190 et passim.</p>
23365	Penrhyn Estate Office	259269	372639	II	<p>Situated directly to the east of Port House and approximately 30m north-west of Port Lodge; low rubblestone wall in front with privet hedge following curve of road and ashlar gate piers aligned on main entrance.</p> <p>Built c1860 as Estate office for the Penrhyn Estate, a function the building still serves.</p> <p>Interior: Retains complete set of panelled window shutters; polished Penrhyn Quarry slate fireplace in main office.</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>Exterior: Single-storey building in free Italianate style. Regularly coursed and dressed rubblestone blocks with tooled and rusticated quoins and ashlar door and window surrounds; part gabled and part hipped slate roof with deep eaves. Main section of front elevation has slightly projecting gable to centre with carved single-purlin and wall-plate ends to deep verges above tripartite sash window in segmental-headed surround with keystone; porch to left is very slightly recessed from gable and has hipped slate slab roof with bracketed cornice; 4-panel inner door. 4-paned sash window in segmental-headed surround with keystone to right of gable and another in return to left of porch, to left of which is another projecting gable with tripartite sash window as in front gable; tall ridge stack with moulded capping to right of front gable and another narrower stack to rear. Long recessed range to right of main section has 6-panel door with curved and glazed top panels to left and two 4-paned sashes; ridge stack to centre and integral end stack to right, both truncated.</p> <p>Included as an essentially unaltered mid-C19 Estate office in free Italianate style; group value with Port Lodge (western entrance to Penrhyn Castle) and Port House.</p>
23370	Plas y Coed	259389	372472	II	<p>Located at end of drive-way running south-eastwards from the area in front of Port Lodge; tarmac area on north used for car parking; garden to south overlooks Penrhyn Park.</p> <p>Built 1878 (date on hopper heads) as house for agent to Penrhyn Estate, at that time Captain Pennant Lloyd, a use in which it remained until the Second World War. It is now a residential home for the elderly, run by Gwynedd County Council. Pennant Lloyd was agent of the estate during the strike of 1874, resolved by the so-called Pennant Lloyd Agreement. Plas y Coed replaced Lime Grove, a classical villa of "chasteness and technical" purity, itself built by Samuel Wyatt for the agent to the Penrhyn Estate a century before.</p> <p>Interior: Large dog-leg staircase in hall has 2 pointed arches with painted floral capitals to lower flight, which has panelling to sides; hall itself with encaustic tile floor and original fireplace. Principal ground-floor rooms on south, facing garden, both with cornices, one room (the dining room), now sub-divided and the larger (the former drawing room) on east also with elaborate classical-style fireplace; 6-panelled doors.</p> <p>Exterior: Heavy High Victorian Gothic-style building, the main range of 2 storeys and attics aligned east-west with entrance</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>front on north. Irregularly coursed rubblestone with Anglesey limestone tooled ashlar quoins and dressings, the main stonework on the south front (except for the right gable) rock-faced; slate roof with coped verges, gabled kneelers and stone crosses to apexes. North front is an essentially asymmetrical composition of 2:1:1:1:3:2 bays, that to the left of the 3-bay section and the outer 2 bays taking the form of full-height gables, that to right considerably projecting. Fenestration virtually entirely of 2- or 4-paned sashes in stone surrounds, some surrounds forming mullioned and transomed windows, others simply to paired windows; entrance is through recessed 9-panel door in Tudor-arched doorway with overlight immediately to left of inner gable; dummy balcony with balustrade directly above. Trefoil-shaped window to attic of inner gable and 2 gabled dormers breaking eaves in 3-bay section. Chimneys are another significant feature, gable ends of outer gables with semi-external stacks plus 5 irregularly spaced stacks to ridges or roof slope elsewhere, all tall with quoins and moulded capping, some with pierced quatrefoils. Cast-iron hopper heads dated "1878". South (garden) front is similar in style but of more ordered form in 2:2:1:3:1 bays, that to the left of the 3-bay section and the outer bays again taking the form of full-height gables. Right gable has 2-storey canted bay window with sloped slab roof, and prominent external lateral stack to right; slate-roofed verandah immediately to left has 3 timberwork trefoil arches over 3 tall French windows with single horizontal glazing bars. Left gable has truncated end stack with C20 fire escape abutting right return.</p> <p>Included as a large high Victorian house retaining much of its original character intact and illustrative of the architectural tastes of the Penrhyn Estate at this period.</p> <p>Reference: J Lindsay, A History of the North Wales Slate Industry (1974), pp214-17; National Trust Guide to Penrhyn Castle (1991), pp17, 19, 86; Information from resident of home, July 1999.</p>
23371	Former Stables at Plas y Coed	259363	372469	II	<p>Attached to west end of house at Plas y Coed forming small U-shaped courtyard.</p> <p>Stables built contemporaneously with the house at Plas y Coed. Range in front of courtyard on west side added in late C20.</p> <p>Single-storey ranges of building forming U-plan around small courtyard. Snecked rubblestone; hipped slate roof. Centre</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>range has boarded opening to front with conical ventilator to left on ridge; similar ventilator to front of east range. West range has one doorway (to left), 2 windows with stone cill and integral lateral stack to east wall. Gate piers to inner front corners of east and west ranges, former truncated, latter retaining moulded stone cap. West range extended to north of original courtyard.</p> <p>Included as an integral part of the late C19 house at Plas y Coed with which it has strong group value.</p>
23376	Parapet/Boundary Walls on Port Lodge approach to Penrhyn Castle. Penrhyn Bridge including parapet walls on the approach road to Penrhyn Castle	259250	372580	II	<p>Eastern continuation of abutments to Pont Penrhyn, on the north side running down the lane between the Penrhyn Estate Office and Port House and on the south side towards Port Lodge; the walls also continue to west of the bridge in Bangor community.</p> <p>Built simultaneously with Pont Penrhyn and altered simultaneously with the various changes to the bridge.</p> <p>Roughly coursed rubblestone with stone-on-edge coping and regularly spaced low piers. On the north side the wall sweeps up over a garden door and curves back to end in a large square pier adjoining Port House; to the south the wall continues eastwards from the bridge, finishing at a gate to a field on the south side of the road. The walls to the west of the bridge are described under Bangor community.</p> <p>Included as an integral feature of the remarkable late C18 and C19 industrial port complex at Porth Penrhyn, the walls have strong group value with the other structures here, in particular Port House, Port Lodge and Pont Penrhyn.</p>
23394	Penrhyn Park Boundary Wall (partly in Llanllechid community)	259520	372660	II	<p>Encloses the historic parkland of Penrhyn Castle to form Penrhyn Park.</p> <p>Work on the park wall appears to have begun in 1819 under the supervision of William Baxter, clerk of works to the Penrhyn Estate, and to have continued during the 1820s. The park itself was extended east of the Afon Ogwen at this period.</p> <p>Park wall enclosing roughly circular-shaped park. Roughly coursed rubblestone (in 2 distinct bands) from the Cochwillan and other quarries with a coping of irregular Penrhyn Quarry slate slabs set on edge; the wall is approximately 11km in length and, at its tallest, 4m in height. On the west side the wall runs from the Grand Lodge entrance to the park beside</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>the main A 5122 road and past Home Farm towards Bangor, leaving the road close to the municipal cemetery to run north-eastwards along the park boundary towards Port Lodge and Porth Penrhyn, which it skirts just to the east and where it meets the sea. To the east of Grand Lodge the wall follows the driveway to the castle, the estate village of Llanygai lying immediately to its south, joining the road between the village and Tal-y-bont (the old main road from Bangor to Conwy) just to the west of the bridge over the Afon Ogwen. East of the river the wall is in Llanllechid community, runs past the lodge at the south-east entrance to the park and leaves the road again at the point where it crosses the Chester-Holyhead railway; from here the wall runs north-eastwards to join the minor road to Aber-Ogwen, which it passes on the west, meeting the sea once more just to the west of the river, back once more in Llandygai community, where the wall becomes a sea retaining wall.</p> <p>Included as an important example of a complete early C19 boundary wall and for its contribution to the historic character of a major country house and park of the period. Group value with Grand Lodge and other listed items in Penrhyn Park.</p> <p>Reference: Cadw Register of Parks and Gardens in Wales: Conwy, Gwynedd and the Isle of Anglesey (1998), p252; National Trust Guide to Penrhyn Castle (1991), p23.</p>
23439	New Dock (quay)	259125	372880	II*	<p>Built on Bangor flats at the mouth of the Afon Cegain which flows into the Menai Strait at this point.</p> <p>Although shipments of slate were being sent to Ireland from Abercegin (the original name for the area) as early as 1713, it was not until 1790 that Benjamin Wyatt, agent to the Penrhyn Estate since 1786, supervised the building of a stone wharf here, activity on which rapidly increased after the opening of the horse-drawn tramway from the Penrhyn Slate Quarry in 1801. The wharf was further extended in 1829-30 with a final extension in 1855 when the breakwater was added on the eastern side, forming an inner basin.</p> <p>Wharf constructed of finely jointed large Anglesey limestone blocks with iron cramps, the inner basin curved to its southern end and with a breakwater at the north-eastern end curving inwards to protect the entrance to the harbour. There are 2 C19 cranes on the dock, one at the southern end of the inner basin, the other on the western side of the main quay. There are also a large number of bollards, both of stone (the earlier</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>type) and cast-iron, to secure vessels along the western side of the main quay and around the inner basin.</p> <p>Listed at II* as a remarkably well-preserved late C18 dock associated with the rapid expansion of the slate industry and for its importance as the main centre for the export of its products until well into the C20.</p> <p>Reference: J Lindsay, A History of the North Wales Slate Industry (1974), pp47-9, 109; http://www.portpenrhyn.co.uk.</p>
3662	Port Lodge, west entrance to Penrhyn Park	259298	372595	II	<p>Located at west (Porth Penrhyn) entrance to Penrhyn Castle; the park wall continues to north and south; Virginia creeper grows over the higher part of the lodge.</p> <p>The lodge was built as part of work on the park wall, which appears to have begun in 1819 under the supervision of William Baxter, clerk of works to the Penrhyn Estate, and to have continued during the 1820s. The hand of Thomas Hopper is less noticeable than at Grand Lodge but it is quite possible that he played some part in its design and the building's plainer appearance may simply result from the fact that this was a subsidiary entrance to the park.</p> <p>2- and 3-storey entrance lodge in a simpler version of the neo-Norman style of Penrhyn Castle. Anglesey limestone ashlar on moulded battered plinth; roof concealed by battlemented parapet. 3-storey rectangular tower on left with slightly projecting square turret to its left corner has paired round-headed windows with recessed 2-paned sashes on ground and first floors of main part with splayed slit window above; 2 similar but smaller slit windows to turret. Steeply-pointed archway to paved carriage entrance immediately to right of tower has ribbed double gates and corbelled projection above with to its right a square corner turret. Soffit of entrance arch is ribbed in 2 bays with ribbed door in pointed doorway to tower in left wall. Rear elevation has 2-paned sash in splayed opening on each floor to tower, to right of which is a single-storey flat-roofed section (concealed by park wall on entrance side) with C20 half-glazed door to left and window on right.</p> <p>Included as a well-preserved lodge of simple neo-Norman style contemporary with and attached to the complete C19 park boundary wall notable for its contribution to the historic character of a major Welsh country house and park.</p>

Number	Name	Eastings	Northings	Grade	Description
					Reference: Cadw Register of Parks and Gardens in Wales: Conwy, Gwynedd and the Isle of Anglesey (1998), pp252-3; National Trust Guide to Penrhyn Castle (1991), p23.
3666	Port House	259226	372629	II	<p>Located at the southern end of the harbour at Porth Penrhyn on junction of the two approach roads; small slate-paved forecourt with low wall and marks of former railings; garden to rear (south) bounded by high rubblestone walls.</p> <p>Built in 1840 by William Baxter, reputedly on the site of an old store house, as the Porth Penrhyn harbour master's house for the Penrhyn Estate, which was continuing to develop the port at this time. The building is now (July 1999) used as an office by the University of Bangor. Baxter was clerk of works at Penrhyn Castle between 1819 and his death in 1840.</p> <p>Interior: Converted to modern office use, retains original staircase in central entrance hall; rises along back wall with open iron treads, scrolled balusters and turned newel to foot; 6-panel doors.</p> <p>Exterior: Classical style. Rubblestone, rendered to sides and rear with fine granite ashlar front on plain plinth; hipped slate roof behind parapet with moulded eaves cornice and plain blocking course above. 2-storey, symmetrical 3-bay front with central bay forming slight pedimented break with clock in tympanum; horned 16-paned sash windows on first floor with stone lintels and similar tripartite sashes (unhorned) on ground floor in segmental-headed arches. Central wide Doric entrance porch with moulded entablature over 6-panel double doors (now joined as one) with glazing bars in square panes to side lights and segmental-headed fanlight. Prominent red brick axial ridge stack with stepped capping directly in line with entrance. Rear (garden) elevation essentially a mirror image of front except that 'porch' has paired sash windows rather than door; further sash windows to 2-bay returns, including painted dummy window to upper right on right return.</p> <p>Included as a fine building in dignified Classical style at the heart of the important C19 planned dock community of Porth Penrhyn.</p> <p>Reference: Lindsay, A History of the North Wales Slate Industry (1974), pp47-9, 109 et passim; National Trust Guide to Penrhyn Castle (1991), pp22, 28.</p>
3667	The Cottage, North-east of Port	259252	372652	II	Located to the north-east of Port House and immediately

Number	Name	Eastings	Northings	Grade	Description
	House				<p>north-west of the Penrhyn Estate Office; the cottage has a small garden in front and is approached from the west by a short flight of steps.</p> <p>Late C18 or early C19 cottage, probably incorporating parts of an earlier building. Datestone (see Exterior) relates to Pearse Griffiths, naval captain of the late C16, but this is reset. At the time of Survey the Georgian 6-panel door had recently been replaced by a new 6-panel door and the cottage was in the process of being repointed.</p> <p>Interior: Contains staircase (in line with entrance) with thin columnar newels, swept rail, and closed string; cupboard below has H-hinges with short straps.</p> <p>Exterior: 2-storey main range, aligned roughly east-west with recessed range on same alignment set back to right (east) and extended considerably to rear. Roughly coursed rubblestone (roughcast to recessed range); slate roof. Main range has gable to right with 2-light windows on each floor, that to first floor of reduced proportions, both with slate cills and lintels; entrance immediately to left of gable and flush with it (the gable slightly projects from the remainder of the main range) has 6-panel door in round-headed arch with square panes to fanlight; left gable end has projecting centre section with 2-light window on first floor and 3-light window on ground floor; reset datestone above former inscribed "1593/ PG". Tall C19 red brick ridge stack with stepped capping directly to left of entrance and external lateral stack with similar shaft to right return of gable.</p> <p>Included as a late C18 or early C19 cottage, probably with earlier origins, which retains its modest vernacular character substantially intact.</p>
4084	PONT MARCHOGLIAN,LLANDEGAI ROAD	259275	372399	II	<p>Reached along the footpath (dismantled railway) below the road.</p> <p>Spanning the River Cegin near the Old Wharf. Wooded site below the modern Glantraeth estate; at a splayed angle to the later railway bridge with which it converges at N end.</p> <p>Built before 1790/1; began as part of the old tramroad, designed by Benjamin Wyatt, running from the newly constructed Port Penrhyn up to Nant Ffrancon. Incorporated the Llandegai Tramway which was the first of its kind in North West Wales and included a balance incline. The Penrhyn</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>railroad development out of this - opened in 1801, also by Benjamin Wyatt. This became a major tourist attraction and was 'Wales' first narrow gauge slate railway. The bridge has been disused since the closing of the Railroad in October 1879.</p> <p>Low and narrow coursed rubble bridge; 3 segmental arched with voussoirs and arch rings; small square headed opening at the N end. Overgrown at the time of inspection (December 1987).</p> <p>Reference: J I C Boyd, "Narrow Gauge Railways in North Caernarvonshire, vol 2 The Penrhyn Quarry Railways". (1985).</p>
4085	INCLINE COTTAGE,LLANDEGAI ROAD	259309	371919	II	<p>Reached up a short farm road, on the edge of Penrhyn Park.</p> <p>Designed by Benjamin Wyatt, ca 1790. The name derives from its position at the head of the Marchogian Incline on the Llandegai Tramway, later the Penrhyn Railroad, which took slate carrying horse drawn wagons down to the newly constructed Port Penrhyn - it was the first railway of its kind in North-West Wales. The balance incline was operated from the house and serves as a 'gateway' under which the tracks passes. To the left the rubble boundary wall bows out where the winding drum was formerly sited and a horse was stabled on this side to operate the incline, probably by gin. One side of the building served as day time quarters and the other as night time. Closed in 1879 and subsequently converted into a private house; modern alterations.</p> <p>2-storey rectangular structure with roughly hewn rubble elevations, slate stone voussoir lintels and slate roofs. The entrance is on the 2-window W side with blocked openings below with deeply recessed modern doors. The 3-bay main approach elevation faced N with the outer bays open pedimented. The small pane sash windows, only to the 1st floor, are set in broad recesses with semicircular arched heads springing from the pediment bases; 24-pane to left, 16-pane to right and later 12 pane to centre inserted after 1879. The central bay is rendered to 1st floor and pebbledash to the infilled ground floor. 2-window W side as on the corresponding entrance front but with 12-pane Gothic headed sash windows to ground floor; modern narrow window to centre. The design of the rear elevation is as on the N side with modern alterations including the rendering of the window recess and the addition of a kitchen extension and 2-storey</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>bay to centre.</p> <p>Some slate stave fencing retained.</p> <p>Reference: J I C Boyd, "Narrow Gauge Railways in North Caernarvonshire, volume 2 The Penrhyn Quarry Railways, (1985)".</p>
4086	TAN-Y-BRYN LODGE	259110	372423	II	<p>Set into the hillside at the base of the drive to Tan-y-Bryn house; at a splayed angle to the main road.</p> <p>Dated 1830 to gable and initialled J H C. However, masonry breaks indicate that it probably began as a single storey lodge shortly after the c1810 Tan-y-Bryn House built by Rev James Henry Cotton; the 1st floor was then added in 1830 and the building later extended to rear.</p> <p>2-storey structure with snecked rubble 1st floor and random rubble ground floor and rear. Slate roof, plain bargeboards and overhanging eaves to sides; octagonal rubble chimney stacks including cross roofed lateral chimney breast to N side. Casement windows. The main E elevation is a gable end facing the road; 3-light window with voussoirs and Tudor label over a splayed oriel window with slate hood and wooden shutters. Below the cill is a band with Gothic lettering reading "Latrat Canis, Cavear Latro. Lle bo ci, lleidr a ffu" and the bracketed base has the carved figure of Cerberus, the 3-headed guard dog of the Under-world. This is a particularly unusual feature and was intended to warn off the thieves who were stealing the shrubs from the driveway. The left hand side has a central cross gable just above the eaves and some modern alterations; gabled porch near the front corner.</p> <p>Reference: I E Davies, Dog at the window keeps the thief at bay, Country Quest, December 1967; Information from Mr V Hughes.</p>
4093	REVTMENT WALLS AND RAILINGS TO OLD HOLYHEAD ROAD CUTTING,PENYBRYN	259036	372476	II	<p>Short sunken section of the former London to Holyhead Turnpike road cut through the hillside. Reached off the Llandegai Road opposite the road to Port Penrhyn and off the High Street beside Tan y Coed.</p> <p>The road was constructed by Thomas Telford following pressure by Irish MP's. The Shrewsbury to Bangor section was begun in 1815 and reached Bangor in 1817. The road was then realigned in 1934 taking the traffic away from the High Street thereby isolating this section.</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>Tarmacadamed road with pavement to S side. Bounded by tall and battered rubble walls; that to S side begins at the E end, full height with an end pilaster. It is topped by late Georgian iron railings with urn finials bordering the drive to The Old Farmhouse and Penybryn House and continuing across the bridge. Ramps down steeply beyond the bridge and continues with vertically laid coping, partly broken and overgrown; steps up immediately before Tan-y-Coed in front of which the revetment wall is coursed rubble and topped by iron railings; terminated at the gated entrance.</p> <p>The N side begins lower at either end, especially to E. Ramps upwards towards the bridge with vertically laid coping stones; partly rebuilt. At the far W end a low plinth carried iron railings with spearhead finials and curved around to terminating pier.</p> <p>Group value with Penybryn House, The Old Farmhouse, Penybryn Bridge and the Portico to the former Penrhyn Arms Hotel.</p> <p>Reference: Ellis Jones, "Bangor" pp 20 and 53.</p>
4094	PENYBRYN BRIDGE,INCLUDING RAILINGS & LAMP STANDARDS (FORMERLY LISTED AS BRIDGE ACROSS SUNK ROAD FROM	259164	372552	II	<p>Carried the lane up to the Golf Club, over the sunken section of the old Holyhead road just below The Old Farmhouse.</p> <p>The road was constructed by Thomas Telford following pressure by Irish MPs. The Shrewsbury to Bangor section was begun in 1815 and reached Bangor in 1817.</p> <p>Ca 1817. Segmental arched coursed rubble bridge with voussoirs, stringcourse, impost band and freestone coping. Curves out at either end terminating in battered pilasters and with the revetment walls of the cutting continuing beyond.</p> <p>Late Georgian iron railings, with urn finials, to parapets; at left continuous with those to the front of The Old Farmhouse and Penybryn House. Fluted lamp standards at N end, with curved brackets retained to NE and modern lamp to NW.</p> <p>Group value with the old road cutting, Penybryn House, The Old Farmhouse, and the Portico to the former Penrhyn Arms Hotel.</p>
4095	PORTICO TO THE FORMER PENRHYN ARMS HOTEL(FORMERLY LISTED	259034	372491	II	<p>At the side of the lane leading up to the Golf Club; retained as a feature in the Penybryn gardens.</p>

Number	Name	Eastings	Northings	Grade	Description
	UNDER HIGH STREET AS THE ENTRANCE ARCH OF O				<p>Formerly the portico at the main entrance to the Penrhyn Arms Hotel built in 1799 by Benjamin Wyatt. Owned by Bicknell family in earlier C19 and then in 1884 it became the first home of the University College of North Wales. Additions were made by Richard Davies, architect of Bangor. The University moved to new buildings in 1926 and the hotel was later demolished to enable the A5 to be re-routed slightly to the N.</p> <p>Freestone Tuscan Doric portico set against a coursed rubble arched entrance that formed part of the long Georgian front. Voussoirs to archway and sockets for beams for porch roof. Paired columns to the front of the portico, pilasters to the block; plain entablature with slate plaque reading: "1799-1884 Yma Y Safai Gwesty'r "Penrhyn Arms" Cartref Cyntaf Coleg Prifysgol Gogledd Cymru 1884-1926".</p> <p>Group value with Penybryn House, The Old Farmhouse, Penybryn Bridge and the old road cutting.</p> <p>Reference: M L Clarke, "University College of North Wales, Bangor. An Architectural History and Guide" p 2(nd).</p>
4096	THE OLD FARMHOUSE (FORMERLY LISTED UNDER HIGH STREET AS PENYBRYN FARM) PENYBRYN	259041	372463	II	<p>Situated on the terrace above the sunken section of the old Holyhead road cutting and reached by the road by the Golf Club. Penybryn House detached to left.</p> <p>Late C18, symmetrical. 5-bay, 2-storey scribed cement render front with attics to advanced gabled bays at either end. Slate roof with wide eaves to gables and brick chimney stacks. 12-pane sash windows, one dummy to centre over 6-panel door with oval traceried fanlight; arched headed sash windows to attic and modern windows in inner return walls of gabled bays. Rubble boundary walls attached to either end with boarded doors; to left bordering with Penybryn House. Small pane sash windows at rear including 2 arched headed window to centre and sliding sash on right hand cross range.</p> <p>Late Georgian iron railings dating from the construction of the old Holyhead road (ca 1817) curve around from Penybryn Bridge and continue along the terrace wall to the left.</p> <p>Modernised interior in conversion to two houses.</p> <p>Group value with Penybryn House, Penybryn Bridge, the old road cutting and the Portico to the former Penrhyn Arms Hotel.</p>

Number	Name	Eastings	Northings	Grade	Description
4097	TAN-Y-COED (FORMERLY LISTED UNDER LLANFAIRFECHAN ROAD) PENYBRYN	258920	372479	II	<p>Elevated above the road with broad views across the Menai Straits; at the W end of the old Holyhead road cutting.</p> <p>Dated 1810, (opened 25 October). Built by Benjamin Wyatt, architect to Penrhyn Estate, as the Caernarfonshire and Anglesey dispensary; commissioned by Dean Warren. Said to have been converted into a private house in 1847; the right hand cross range had been added by 1854 and the 1987 OS map shows the building much as it is today. In 1960's it was the office of Howell and Doherty, architects.</p> <p>2-storey, 3-window coursed rubble symmetrical front with band course over ground floor. Slate roof and rendered end chimney stacks. Small pane sash windows, 16-pane except for that over the porch with parapet and cornice; segmental entrance with 6-panel door; modern inner door. In the porch are 2 slate tablets describing the history of the building, one states that it was sited here to be clearly visible from Anglesey.</p> <p>Advanced at either end are single storey screen walls with boarded doors in round arched headed entrances giving access to the cross ranges. French windows on the left gable end; right end it scribed rendered. Slate paves courtyard to rear with cross ranges stepped out from gable ends and extending back to Castle Bank. That to the left retains small pane sash windows, including one horizontally sliding; the large pebbledash chimney stack may represent the former extend of this range before enlargement. The right hand range retains the Victorian larder with slate shelving.</p> <p>Dressed stone gate piers to the front; slate steps and plain iron railings.</p> <p>The interior retains 6-panel doors, segmental hallway arch and tightly winding staircase with turned newel. The 1st floor was originally undivided and used as the hospital ward.</p> <p>Group value with the old road cutting.</p> <p>References: Ellis Jones, "Bangor" p 62 Captain Johnson's 1854 map.</p>
4098	PENYBRYN HOUSE (FORMERLY LISTED UNDER HIGH STREET) PENYBRYN	259068	372460	II	<p>Situated on a terrace above the sunken section of the old Holyhead road and reached by the lane up to the Golf Club; approached from the right past The Old Farmhouse.</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>Built 1779, almost certainly by Benjamin Wyatt. At one time the home of the Penrhyn estate manager. Some alterations in 1962 and sold off in 1978. Georgian symmetrical 2-storey, 3-bay coursed rubble front with plinth and eaves band. Slate roof and brick chimney stacks. Central bay has pedimented gable with circular 8-pane window. 12-pane sash windows below with voussoir lintels, those to the ground floor have lead cills and are set into tall arched recesses. Slate coping to porch with arched entry, voussoirs and impost band; recessed entrance with double 3-panel doors and 5-pane fanlight. Rubble left gable end with 6-pane sashes and ground floor bay window at back. Single storey 2-window range extends to left with scribed cement render and sash windows, that to right is small pane tripartite. Garage attached at right angles at extreme left end. Rubble right gable end with small pane sashes; upper sash glazing bars removed on ground floor.</p> <p>Late Georgian iron railings dating from the construction of the Holyhead road (ca 1817) continue along the terrace wall from The Old Farmhouse; similar gate across the drive at right end.</p> <p>The interior is partially modernised but retains panelled shutters and 6-panel doors; arched recess to the Drawing Room at left of the broad entrance hall.</p> <p>Group value with The Old Farmhouse, Penybryn Bridge, the old road cutting and the Portico to the former Penrhyn Arms Hotel.</p> <p>Reference: Information from the owner.</p>
4099	PENRHYN BRIDGE, INCLUDING PARAPET WALLS ON THE APPROACH ROAD TO PENRHYN CASTLE PORT PENRHYN	259128	372488	II	<p>Spanning the Afon Cegin at the inner end of Penrhyn Docks. Reached off the Llandegai road and carrying the rear drive into the Penrhyn Estate.</p> <p>Dated 1820 and initialled GHDP; probably by Benjamin Wyatt, architect to the estate. Coursed rubble. Single segmental arch with voussoirs, keystone and arch ring; iron plaque over the raised lettering. The parapet appears to have been rebuilt and has ironwork balustrade. Advanced piers at either end with tall concave recess and swept out bases; the roadway is carried to either side by revetment walls slightly swept out.</p> <p>The parapets continue on the E bank towards the entrance to Penrhyn Castle with regularly spaced low piers; on the N side the parapet sweeps up over a garden door and curved back to end at a large square pier adjoining the Customs House; on</p>

Number	Name	Eastings	Northings	Grade	Description
					<p>the S side the parapet continues as far as the gate into the adjoining field. To W end the wall ramps down on N side and sweeps up to end on S side joining boundary wall rising to Llandegai Road. Old photographs show that the bridge had iron gates at the W end.</p> <p>At the E end below the roadway are 2 segmental arched openings with boarded doors; one to N side partly bricked up. These were originally the arches through which the LNWR Port Siding and Penrhyn Quarry Railway passed - the tracks led directly to the harbour.</p> <p>References: J I C Boyd, "Narrow Gauge Railways in North Caernarfonshire Volume 2. The Penrhyn Quarry Railways" 1985.</p>
4135	Former Communal Lavatory on Western Quay at Port Penrhyn	259155	372847	II	<p>Built as part of the development of the harbour at Porth Penrhyn in the early C19.</p> <p>Single-storey circular plan. Tooled and dressed rubblestone blocks with reddish brown brick dressings to windows and door; conical graded slate roof surmounted by pyramidal-shaped ventilator with ball finial. Segmental-headed doorway with recessed plank door on north side and 6 port-hole windows below eaves.</p> <p>Included as a distinctive and well-preserved building representative of a particularly unusual building type.</p> <p>Reference: J Lindsay, A History of the North Wales Slate Industry (1974), pp47-9, 109 et passim.</p>

APPENDIX 3

Categories of importance

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

Category A - Sites of National Importance.

Scheduled Ancient Monuments, Listed Buildings of grade II* and above, as well as those 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 or county importance.

Grade II listed buildings and sites 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.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened.

Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category.

For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

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

Definition of field evaluation techniques

Field evaluation is necessary to fully understand and assess most class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching. Topographic survey may also be employed where sites are thought to survive as earthworks.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil. Other forms of geophysical survey, including resistivity survey and ground penetrating radar might also be of use.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

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:

This requires a full photographic record and measured survey 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.

Strip, Map and Sample:

The technique of Strip, Map and Sample involves the examination of machine-stripped surfaces to identify archaeological remains. The stripping is undertaken under the supervision of an archaeologist. Stripping and removal of the overburden is undertaken in such a manner as to ensure damage does not take place to surfaces that have already been stripped, nor to archaeological surfaces that have not yet been revealed.

Stripping is undertaken in as careful a manner as possible, to allow for good identification of archaeological features. A small team of archaeologists will be responsible for subsequently further cleaning defined areas where necessary. Complex sites which cannot be avoided will need to be fully excavated.

Watching brief:

This is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

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.

APPENDIX 4

Project Design

PLAS Y COED, BANGOR

**PROJECT DESIGN FOR
ARCHAEOLOGICAL ASSESSMENT**

Prepared for

Watkin Jones

July 2011

**Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust**

PLAS Y COED, BANGOR, GWYNEDD

PROJECT DESIGN FOR ARCHAEOLOGICAL ASSESSMENT (G2210)

Prepared for **Watkin Jones**, July 2011

1. INTRODUCTION	39
2. ARCHAEOLOGICAL AIMS	39
3. ARCHAEOLOGICAL BACKGROUND	40
4. PROGRAMME OF WORK	40
4.1 Introduction	40
4.2 Desk-based assessment.....	40
4.3 Field survey	41
4.4 Field Evaluation.....	41
4.5 Data processing and report compilation.....	42
4.6 Definition of category of importance.....	42
5. DISSEMINATION AND ARCHIVING.....	42
6. PERSONNEL	43
7. MONITORING AND TIMING	43
8. HEALTH AND SAFETY	43
9. INSURANCE	43
10. OTHER.....	43
COST ESTIMATE	Error! Bookmark not defined.

PLAS Y COED, BANGOR, GWYNEDD

PROJECT DESIGN FOR ARCHAEOLOGICAL ASSESSMENT (G2210)

Prepared for *Watkin Jones*, July 2011

1. INTRODUCTION

Gwynedd Archaeological Trust has been asked by Watkin Jones to provide a cost and project design for carrying out an archaeological assessment of a c.5500m² L-shaped development area located to the immediate west of the former Plas y Coed elderly residence complex (centred on NGR **SH59297246**). The Plas y Coed complex includes a main structure and several ancillary buildings to the north; the main structure is listed (Grade II: **23370** and **23371** – main building and stable block respectively). The L-shaped area is located partly within a large irregular shaped field to the immediate west of the complex and partly across an access track and courtyard belonging to Plas y Coed.

The development includes:

- 17 new residential dwellings;
- Residential access;
- Demolition of building within northern portion of the Plas y Coed complex;
- Partial demolition of the courtyard wall belonging to the Plas y Coed main building/stable block (demolition length c.55.0m)
- Landscaping within the L-shaped development zone

The archaeological assessment will be completed as part of a planning application.

This design will conform to the guidelines specified in the brief and in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 2001, 2008). A mitigation brief has not been prepared for this scheme by Gwynedd Archaeological Planning Services (GAPS); it is recommended that the content of this design is approved by GAPS.

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” (IFA 2008, 2)

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.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of geophysical survey or trial excavation, although measured survey is also a possible option. 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 is for the first **three** phases only, and recommendations will be made for any field evaluation required.

3. ARCHAEOLOGICAL BACKGROUND

The site is part of the Penrhyn Estate/Port Penrhyn landscape (PRN 15,856) and is adjacent to the quarry railway, slate works/industrialised dock area. The development area is c.17.0m northeast of to Scheduled Ancient Monument **Cn380**: Quarry Railway Viaduct.

According to information within the local Historic Environment Record (Gwynedd Archaeological Trust, Garth Road, Bangor, Gwynedd LL57 2RT), Plas y Coed (Grade II listed building **23370**) was built in 1878 as a house for to Penrhyn Estate agent Captain Pennant Lloyd, a use in which it remained until the Second World War. Most recent function has been as a residential home for the elderly, run by Gwynedd County Council. The stables (Grade II Listed building and **23371**) was built contemporaneously with Plas y Coed.

Whilst there is no known earlier archaeological activity within the development area, but within the local area, archaeological activity has included a square barrow cemetery (**PRN 24776**) within the grounds] of Penrhyn Castle.

Extensive archaeological investigations have also been carried out by Gwynedd Archaeological Trust (GAT) c.175.0m to the southwest of the site, at Parc Bryn Cegin and Llandygai Industrial Estate. These have recorded extensive multi-period remains including early neolithic timber buildings, a mid Neolithic pit group, a late neolithic ceremonial complex (scheduled monument **Cn153**), an early bronze age barrow, burnt mounds, settlement of the mid iron age and late iron age/Roman periods, early medieval smithing activity, an early medieval cemetery, and medieval and post-medieval features.

4. PROGRAMME OF WORK

4.1 Introduction

The project will develop an archaeological deposit model, which will take into account:

- The history of the site
- The potential impact of development on archaeological remains
- The potential impact of development on the setting of sites of archaeological importance
- The requirements for further assessment in the form of non-intrusive and intrusive field evaluation.

The project will be undertaken in four stages:

- Desk-based assessment
- Field visit
- Report compilation
- Project archive

4.2 Desk-based assessment

The desk-based assessment will involve a study of the following records

The regional Historic Environment Register (HER, GAT, Craig Beuno, Bangor, Gwynedd LL57 2RT)) will be examined for information concerning the study area. This will include an examination of the core HER, 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 RCAHMW, National Monuments Record of Wales, Plas Crug, Aberystwyth, SY23 1NJ) will be checked for sites additional to the HER, and if required additional supporting information will be examined at the NMR.

Information about Listed Buildings and Scheduled Ancient Monuments from Cadw will be examined in the regional HER, with supporting information from Cadw if required. The Register of Outstanding and Special Historic Landscapes and the Register of Parks and Gardens will be checked, and also the location of World Heritage Sites.

Secondary sources will be examined, including the Inventories of the Royal Commission on Ancient and Historical Monuments for Wales, and works held within the regional libraries. Indices to relevant journals, including county history and archaeology society journals and national society journals such as *Archaeologia Cambrensis* will be checked. Also at this stage 19th century topographical dictionaries, antiquarian tours and trade directories will be examined where relevant.

Evidence from aerial photographs will be collated. Vertical and oblique collections held by the NMR, CCW and Welsh Assembly Government will be considered for examination. All photographs examined will be listed in the assessment report.

Archive maps, where relevant, will be consulted in the regional archive (Gwynedd Archives: Caernarfon Record Office, Swyddfa'r Cyngor, Caernarfon, Gwynedd LL55 1SH), the National Library of Wales at Aberystwyth, and at the archives of the University College of Wales, Bangor (Archives Department, College Road, Bangor, LL57 2DG). This will include the relevant estate maps and tithe maps and information from Land Tax Assessments. Where relevant antiquarian prints and photographs from the national and regional archives will be examined.

Results from previous archaeological work within the area will also be reviewed.

4.3 Field survey

This part of the assessment will involve a walkover of the study area and assessing the sites identified during the desk-based study. Any additional sites noted will also be assessed. The location of potentially well-preserved environmental deposits will be noted.

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
- assess the potential for the preservation of below-ground archaeology
- assess the impact upon the historic landscape
- photograph and record the present condition of all sites noted.

Access onto land is to be arranged by the Clients.

4.4 Field Evaluation/Further Works

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.

This might include a methodology for non-intrusive survey and or 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.

Field evaluation needs to be carefully targeted in response to proposed impact and archaeological potential. It would usually be undertaken in stages, and might typically include:

- geophysical survey.
- a programme of trenching and/or test pits to investigate the deposit model in more detail.

Recommendations for any field evaluation considered necessary will be contained within the assessment report; ditto for any building recording for the structures scheduled for demolition as part of the development. Specific attention will be paid during the assessment as to the suitability of the vegetation and geology for geophysical survey.

The varying potential for the survival of archaeological remains will be identified as part of the assessment and these will be fed through to the design team so that direct impact of development will, where possible, be kept to areas of low archaeological potential, and areas of high archaeological potential avoided. Methods of the protection of remains *in situ*, will, if necessary, be considered.

4.5 Data processing and report compilation

Following completion of the stages outlined above, a report will be produced incorporating the following:

Non-technical summary

1. Introduction
2. Aims and purpose
3. Specification and Project Design
4. Methods and techniques, including details and location of project archive
5. Archaeological Background
6. Results of assessment in the form of a gazetteer
7. Assessment of impacts
8. Proposals for field evaluation and/or mitigation
9. Summary and conclusions
10. List of sources consulted.

Illustrations will include plans of the location of the study area and archaeological sites. Historical maps, when appropriate and if copyright permissions allow, will be included. Photographs of relevant sites and of the study area where appropriate will be included.

A draft copy of the report will be sent to the regional curatorial archaeologist and to the client prior to production of the final report.

4.6 Definition of category of importance

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 (Grade I and II*) as well as those sites which would meet the requirements for scheduling (ancient monuments) or listing (grade I and II* and certain grade II) 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, but may include Listed Buildings at grade II. They are sites 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. Sites that are Listed have legal protection, and it is recommended that all listed buildings are preserved *in situ*.

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 the most appropriate mitigation is often rapid recording either in advance or during destruction.

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. This category can also apply to areas as well as to individual sites.

5. DISSEMINATION AND ARCHIVING

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled, and cross-referenced, and lodged in

an appropriate place within six months of the completion of the project. The location is to be agreed with the Curatorial Archaeologist.

Copies of the report will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd LL57 2RT).

6. PERSONNEL

The work will be managed by John Roberts, Acting head of Contracts. The work will be undertaken by one of the Trust's Archaeologists experienced in the relevant skills/periods required. Full details of personnel involved, with *curricula vitae*, can be supplied upon request.

7. MONITORING AND TIMING

Monitoring visits can be arranged during the course of the project with the clients and with the appropriate Development Control archaeologist.

8. 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** (2006). Risks will be assessed prior to and during the work.

9. INSURANCE

Liability Insurance - Aviva Policy 24765101CHC/00045

- Employers' Liability: Limit of Indemnity £10m in any one occurrence
- Public Liability: Limit of Indemnity £5m in any one occurrence
- Hire-in Plant Insurance: £50,000.00 any one item;
£250,000.00 any one claim

The current period expires 21/06/12

Professional Indemnity Insurance – Markell A30664/0710

- Limit of Indemnity £5,000,000 in the aggregate

The current period expires 23/07/11

10. OTHER

Any queries concerning the above should be directed to John Roberts at the Gwynedd Archaeological Trust Offices, Garth Road, Bangor. Telephone (01248) 352535ext234.

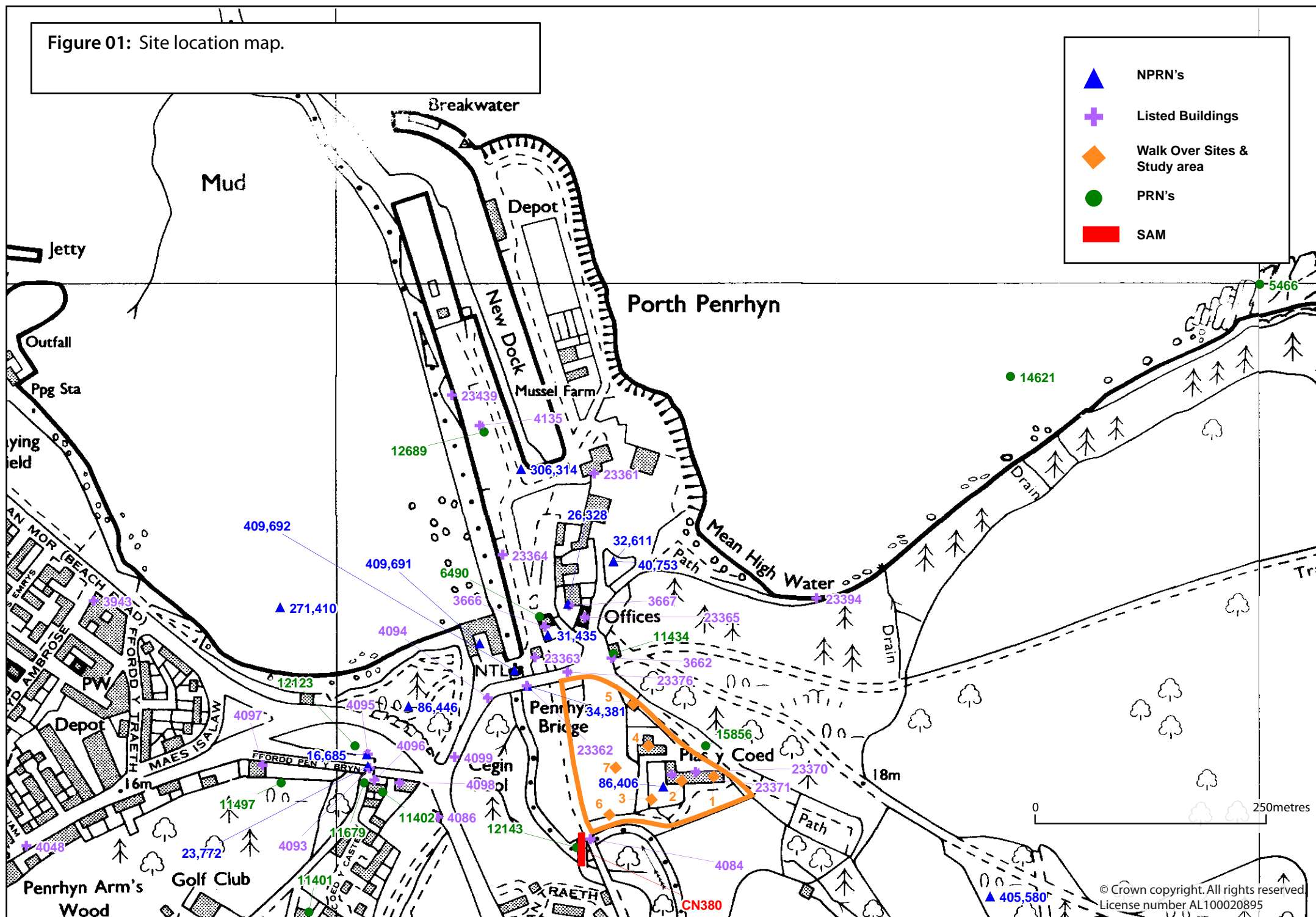
11. SOURCES CONSULTED

Standard and Guidance for Archaeological Desk-based Assessment (Institute of Field Archaeologists, 1994, rev. 2001 & 2008)

Davidson, A. 2006. GAT Report **681** *Bangor Town survey*

APPENDIX V

Figure 01: Site location map.



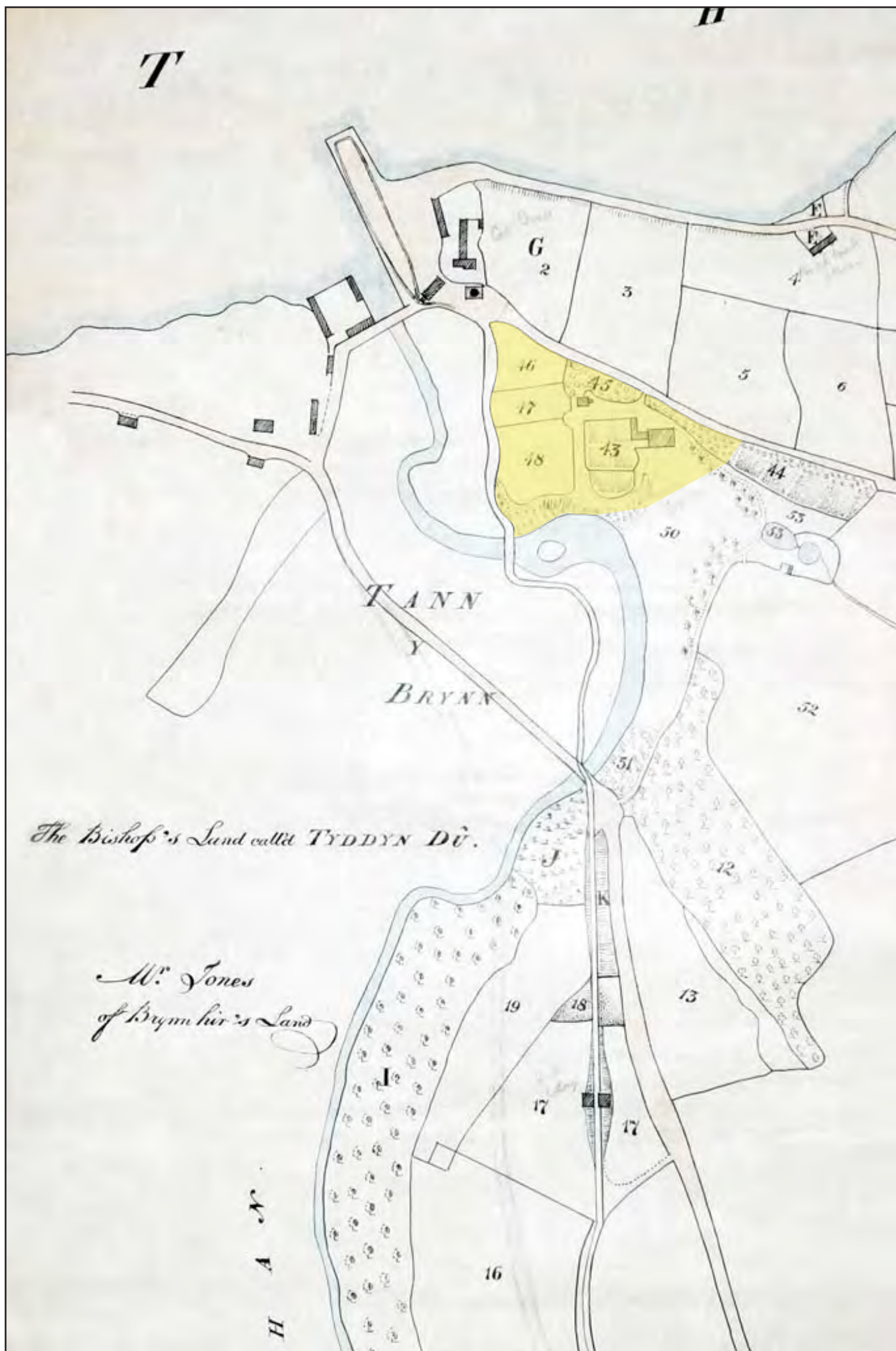


Figure 02: Penrhyn Estate map of 1803 (Bangor Archives Maps 40) Study area highlighted in yellow

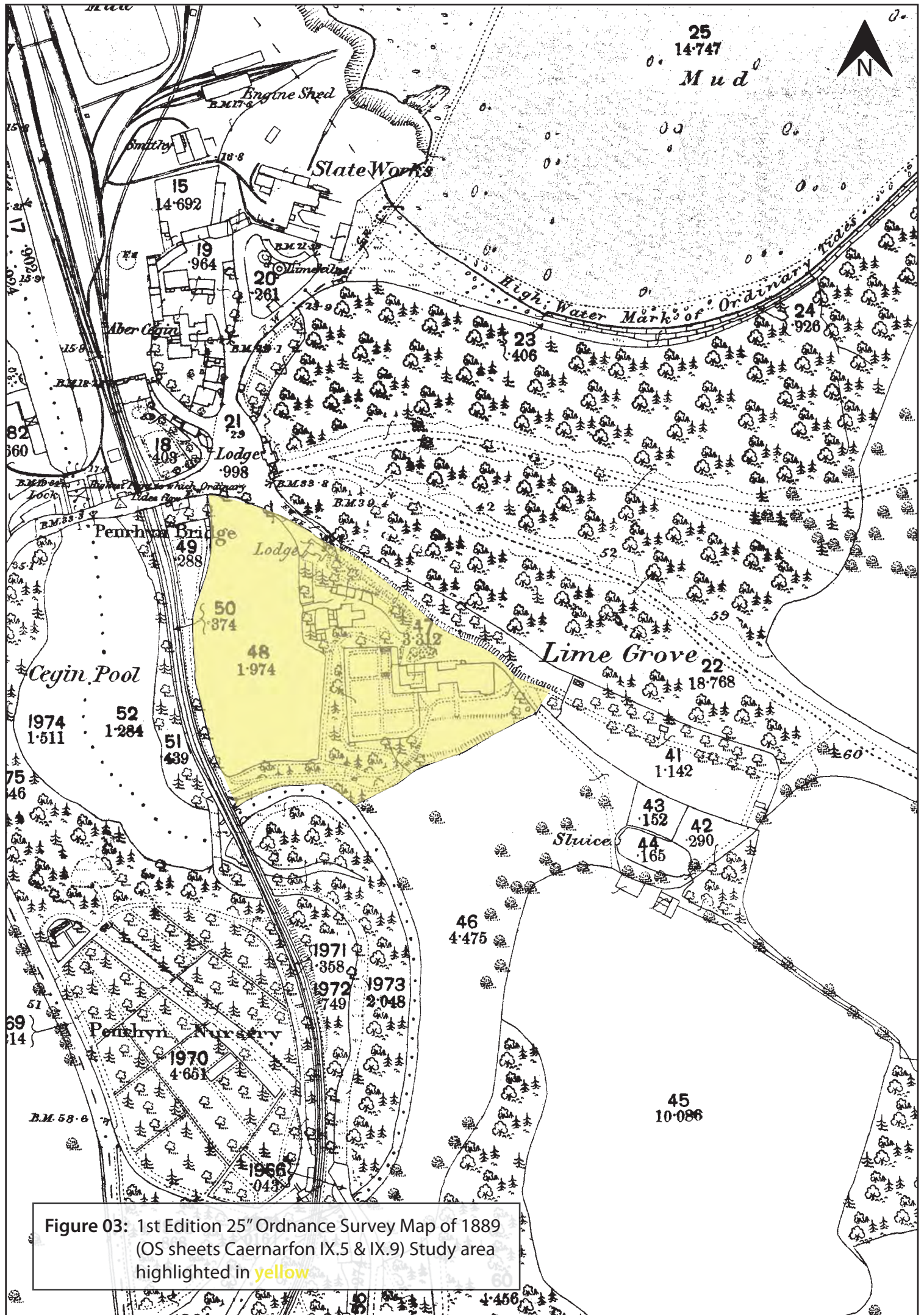


Figure 03: 1st Edition 25" Ordnance Survey Map of 1889
 (OS sheets Caernarfon IX.5 & IX.9) Study area
 highlighted in yellow



Figure 04: Aerial photograph of 1945 (106G/UK655 frame 4034) Study area highlighted in yellow



Figure 05: The villa of Lime Grove, near Bangor 1800 (Published by permission of the Librarian, R.I.B.A., taken from Jones 1981)



Plate 01: View of Plas Y Coed lodge. Photograph taken from the north east



Plate 02: Rear elevation of Plas Y Coed house. Photograph taken from the north east



Plate 03: Front elevation of Plas Y Coed house. Photograph taken from the south east



Plate 04: View of entrance to service range. Photograph taken from the north



Plate 05: View of the kitchen garden walls (entrance at north west corner) Photograph taken from the north



Plate 06: View of raised walkway heading south from the south east corner of the kitchen garden. Photograph taken from the south



Plate 07: View of the pasture field from the west. Photograph taken from the west

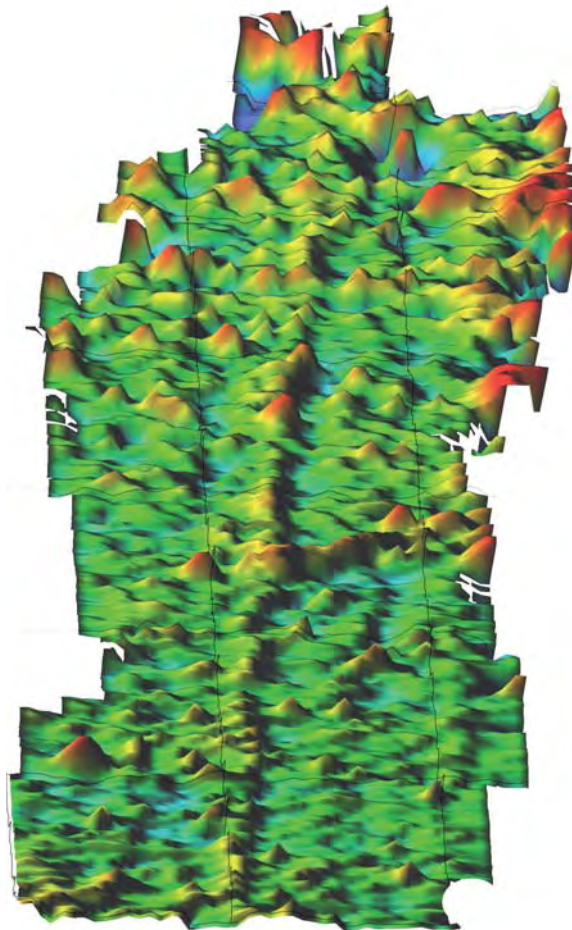


Plate 08: View of the gateway into Penrhyn Castle Demesne from Plas Y Coed Bryn lodge. Photograph taken from the east

Plas y Coed Port Penrhyn, Bangor

Archaeological Assessment

Geophysical Survey



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Plas y Coed Port Penrhyn, Bangor

Archaeological Assessment: Geophysical Survey

Project No. G2210

Report No. 1051

Prepared for : Watkin Jones

May 2012

Written by: David Hopewell

Illustration by: David Hopewell

Cover illustration: 3D rendering of geophysical survey data

Cyhoeddwyd gan Ymddiriedolaeth Archaeolegol
Gwynedd
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Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)
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Contents

Introduction	1
Project Brief & Specification	1
Methods & Techniques	1
Results	3
Conclusions and Recommendations	3

Figures

Fig. 1: Fluxgate gradiometer survey, grey-scale plot

Fig. 2: Fluxgate gradiometer survey, interpretation

G2210 PLAS Y COED GEOPHYSICAL SURVEY

1. INTRODUCTION

Gwynedd Archaeological Trust has been asked by *Watkin Jones Group* to carry out an archaeological assessment of a development area located close to Porth Penrhyn and approximately 1 km east of the city of Bangor, at the former Plas y Coed Grade II listed building complex (centred on NGR SH 59297246). A geophysical survey was specified as part of the assessment process. This report contains the results of the geophysical survey and further recommendations arising from its findings.

2. DESIGN BRIEF AND SPECIFICATION

A detailed brief has not been prepared for this scheme, however an archaeological desk-based assessment report was requested by the Gwynedd Archaeological Planning Service

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*, IFA 2001, 2).

The aims of the assessment as given in the specification 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.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of geophysical survey or trial excavation, although measured survey is also a possible option. A full programme of assessment and evaluation may therefore consist of:

- Desktop study
- Field walkover
- Initial report
- Field evaluation
- Draft report
- Final report

This phase of the project comprises the first stage of the field evaluation in the form of a geophysical survey of the 0.75ha field at the west of the development area.

3. METHODS AND TECHNIQUES

Fluxgate gradiometer survey provides a relatively swift and completely non-invasive method of surveying large areas and is ideal for detecting large-scale features such as ditches, banks, industrial remains and areas of occupation.

The 0.75 ha field had been lying fallow for several years and had recently been mown and strimmed. There were, however, still patches of brambles and long grass that will have added a small amount of noise and inaccuracy to parts of the survey. The edges of the field were obscured by low branches and uncut undergrowth and could not be surveyed.

3.1 Instrumentation

The survey was carried out using a Bartington Grad601-2 dual Fluxgate Gradiometer. This uses a pair of Grad-01-100 sensors. These are high stability fluxgate gradient sensors with a 1.0m separation between the sensing elements, giving a strong response to deeper anomalies.

The Grad601 detects variations 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 backfilled or silted with topsoil therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns because fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread into the soil leading to a more generalised magnetic enhancement around settlement sites.

Not all surveys can produce good results as anomalies can be masked by large magnetic variations in the bedrock or soil or high levels of natural background "noise" (interference consisting of random signals produced by material within the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features. It must therefore be stressed that a lack of detectable anomalies cannot be taken to mean that there is no extant archaeology.

The Bartington Grad601 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 1.0m apart. Their Mumetal cores are driven in and out of magnetic saturation by an alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output.

The gradiometer can detect anomalies down to a depth of approximately one metre. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT; typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The instrument is capable of detecting changes as low as 0.1nT.

3.2 Data Collection

The gradiometer includes an on-board data-logger. Readings in the surveys were taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval was 1.0m and readings were logged at intervals of 0.25m along each traverse giving 1600 readings per grid. This is the standard resolution for general archaeological prospection. The grid was set out using a Trimble R6 GPS system to an accuracy of +/- 30mm. The coordinates of the ends of the baseline are A=259266.120E 372569.140N and B=259293.968E 372431.938N (see Fig. 1)

3.3 Data presentation

The data is transferred from the data-logger to a computer where it is compiled and processed using ArchaeoSurveyor 2 software. The data is presented as a grey-scale plot (Fig.1) where data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. This is supplemented by an interpretation diagram (Fig. 2) showing the main features of the survey with reference numbers linking the anomalies to descriptions in the written report. It should be noted that the interpretation is based on the examination of the shape, scale and intensity of the anomaly and comparison to features found in previous surveys and excavations etc. In some cases the shape of an anomaly is sufficient to allow a definite interpretation e.g. a Roman fort.

In other cases all that can be provided is the most likely interpretation. The survey will often detect several overlying phases of archaeological remains and it is not usually possible to distinguish between them. Weak and poorly defined anomalies are most susceptible to misinterpretation due to the propensity for the human brain to define shapes and patterns in random background 'noise'. An assessment of the confidence of the interpretation is given in the text.

3.4 Data Processing

The data is presented with a minimum of processing although corrections are made to compensate for instrument drift and other data collection inconsistencies. High readings caused by stray pieces of iron, fences, etc are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. The data on some noisy or very complex sites can benefit from 'smoothing'. Grey-scale plots are always somewhat pixellated due to the resolution of the survey. This at times makes it difficult to see less obvious anomalies. The readings in the plots can therefore be smoothed using the "graduated shade" function in ArchaeoSurveyor 2. This calculates a continuously interpolated value for every pixel. Each pixel value is calculated by generating cubic spline curves from all the data points in both the X and Y axes. This reduces the perceived effects of background noise thus making anomalies easier to see. Any further processing is noted in relation to the individual plot.

4. RESULTS

The survey produced good results with low to moderate levels of background noise. There was a scatter of ferrous anomalies caused by stray pieces of iron such as nails and other rubbish in the soil. These are visible as small half black and half white anomalies representing magnetic dipoles on the grey-scale plot. Other anomalies are listed below and numbered on the interpretation plan (Fig. 2).

1. A somewhat diffuse linear anomaly running through the centre of the survey area. This is best interpreted as either a former track or a former boundary. Given its location it could also be associated with the former railways in the area.
- 2 and 3. Anomaly 2 is a linear feature running from the boundary of Plas y Coed to anomaly 1. It may form an enclosure with anomaly 2 and perhaps also with anomaly 1. Interpretation is, however, uncertain.
4. A linear anomaly, possibly a former subdivision of the field. This boundary can be seen on the Penrhyn Estate map of 1803.
5. A faint linear anomaly, possibly another former subdivision of the field. This boundary can be seen on the Penrhyn Estate map of 1803.
6. A row of small discrete anomalies that do not obviously appear to be ferrous and may be pits or post holes associated with possible boundary 4.
7. A large ferrous anomaly caused by an iron manhole cover. The associated linear anomalies on either side presumably indicate a pipe. A large ferrous anomaly on the western side is probably another manhole.
- 8 and 9. Ferrous anomalies caused by a fence.
10. Ferrous anomaly, probably buried rubbish.
- 11, 12 and 13. Three similar ferrous anomalies. All are longer than the usual pieces of scrap iron or steel producing anomalies in the topsoil. They are almost certainly scrap but may be larger items possibly associated with the railways or docks.
- 14 and 15. Small discrete anomalies, probably pits.

5. CONCLUSIONS AND RECOMMENDATIONS

The geophysical survey detected several linear features which are probably former boundaries and a possible trackway. There was no indication of any buildings within the surveyed area and the relatively featureless nature of the southern two thirds of the survey suggests that there has been little activity associated with the port and railways in this area.

The exact nature, date and phasing of the anomalies cannot, however, be determined by geophysical survey. It is therefore recommended that a programme of trial trenching should be undertaken prior to

the commencement of development in order to further investigate the features identified in the geophysical survey.



Fig. 1 Fluxgate gradiometer survey, grey-scale plot



Fig. 2 Fluxgate gradiometer survey, interpretation



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