

# Anafon Hydro Electric Scheme, Afon Anafon, Abergwyngregyn, Feasibility Study

## Archaeological Assessment



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Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust





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## Archaeological Assessment

Project No. G2311

Report No. 1135

Prepared for: National Trust and Abergwyngregyn Regeneration Trust

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# Figures

**Figure 01:** Location of proposed scheme route, intake and powerhouse (highlighted red) with known archaeological sites and the location of features identified along the route (cf. paragraph 5.1) (based on Ordnance Survey sheets SH66 and SH67; scale 1:15000@A3).

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## SUMMARY

*An archaeological assessment has been carried out by the Gwynedd Archaeological Trust on land for a proposed new Hydro Electric scheme alongside the Afon Anafon at Abergwyngregyn, Gwynedd. The proposed scheme is to start at an upland section of the Afon Anafon will consist of a weir and intake point connected to a buried pipe to a Powerhouse – with two options for the location of this under consideration. No information has been provided regarding the electric cabling which will run out of the Powerhouse. A 100m wide assessment corridor centred on the proposed route was surveyed, and thirty sites of archaeological interest were found to lie within the assessment zone. Of these, it is expected that mitigation will be required on eleven sites, including field boundary walls, sheepfolds and prehistoric settlement sites.*

*GAT recommends an intensive watching brief should be carried out where the pipe route passes in close proximity or over the archaeological features listed within the recommendation. A partial watching brief should be carried out along the remainder of the route.*

## 1. INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by *National Trust* to undertake an archaeological assessment of land to the south east of the village of Abergwyngregyn, Gwynedd in advance of the proposed development of a Hydro Electric scheme being carried out in partnership between *National Trust* and *Abergwyngregyn Regeneration Company*. The scheme is located on the Afon Anafon between NGR **SH 26890 37105** and **SH 26680 37180**, in the river valley between Ffridd Ddu to the south west and Foel-ganol and Foel Dduarth to the north east.

The scheme is approximately 2.7km long consisting of an intake weir with coanda intake screen at **SH 26890 37105** and a 400-450mm buried pipe running down the mountain to **SH 26652 37181**, where the scheme will either end at **SH 26634 37183** (Powerhouse option 1) or **SH 26646 37187** (Powerhouse option 2). No information has been provided about the size of the Intake Weir, Powerhouse or the associated electrical Sub Station.

The proposed pipe route is on *National Trust* land within the Carneddau and Glyderau Estate, from **SH 26890 37105** to **SH 267846 370973**, where it crosses into the Coedydd Aber National Nature Reserve, owned by *Natural Resources Wales*. The respective exit points for the pipeline out to Powerhouse option 1 and Powerhouse option 2 out of the Reserve are **SH 26640 37182** and **SH 26650 37184** respectively.

The proposed pipe route has been surveyed by *Wayne Evans Surveying Ltd.* and provided to GAT as a .dwg file. Kathryn Laws, *National Trust* archaeologist provided a Site Plan within the Project Brief to GAT.

The line of the pipeline trench will be stripped to a width of 1m wide and to a depth of 950mm throughout the length of the proposed scheme. The scheme working corridor will be between 6 and 7m wide. Site access will be along the existing *National Trust* and *Natural Resources Wales* trackways.

It is recommended that the content of this assessment is approved by the Snowdonia National Park Authority Archaeologist.

This assessment will conform to the guidelines specified in *Standard and Guidance for historic environment desk-based assessment* (Institute of Field Archaeologists, 1994, rev. 2001, 2009 and 2011 [http://www.archaeologists.net/sites/default/files/node-files/DBA2010working%20draft\\_0.pdf](http://www.archaeologists.net/sites/default/files/node-files/DBA2010working%20draft_0.pdf)).

## **2. METHODS AND TECHNIQUES**

### **2.1 Definition**

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 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;

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 project will be undertaken in four stages:

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

### **2.2 Desk top study**

The desk-top study included the following elements:

- The regional Historic Environment Record (HER, GAT, Craig Beuno, Bangor, Gwynedd LL57 2RT)) was examined for information concerning the study area. This included an examination of the core HER, and secondary information held within the record which includes unpublished reports and the 1:2500 County Series Ordnance Survey maps.
- Information on Listed Buildings and Scheduled Ancient Monuments were examined within the regional HER.
- Information at the archives of the University College of Wales, Bangor (Archives Department, College Road, Bangor, LL57 2DG) was also consulted.
- Information at the Gwynedd archives Caernarfon Record Office, Swyddfa'r Cyngor, Caernarfon, LL55 1SH was also consulted.

### 3. TOPOGRAPHY AND GEOLOGY

#### 3.1 Introduction and Topography

The Afon Anafon has as its source a series of springs and the former reservoir known as Llyn Anafon at **SH 27006 36990**. These rise approximately 1km north east of Llwytmor, a peak which is part of the Carneddau mountain range. It flows north westwards until it meets the Afon-Rheadr Fawr at Bont Newydd **SH 26633 37185**. The river then is known as the Afon Aber until it flows into the Menai Straits to the north west of the village of Abergwyngregyn at **SH 26487 37364**.

The proposed development scheme is located between **SH 26890 37105** (3.5km) and **SH 26680 37180** (1.5km) south east of the village of Abergwyngregyn. The river at the intake weir is at 311m OD and the Powerhouse options are situated at approximately 125m OD. The development is mostly on the south western side of the Afon Anafon, apart from approximately 500m of the upper section on the north eastern side from the intake weir at **SH 26890 37105** to the elevated river crossing at **SH 26841 37116**.

#### 3.2 Geology

The underlying geology consists of differing drift geology including Devensian Sand and Gravel - Glaciofluvial Sheet Deposits; Superficial Alluvium; Superficial Alluvial Fan Deposits; Superficial Head Deposits; and Devensian Till over Nant Ffrancon Subgroup Siltstone (British Geological Survey Mapping). <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

#### 3.3 Statutory and non-statutory designations

The nearest scheduled ancient monument to the proposed development is a Prehistoric Hut Group (Ref. **Cn135**) **SH 26746 37143**, approximately 130m to the northeast on the north eastern bank of the Afon Anafon. Four other scheduled ancient monuments lie between 300m and 600m of the proposed development, on the higher ground above the north east bank of the Afon Anafon. The proposed development lies entirely within the *Snowdonia National Park*.

## 4. ARCHAEOLOGICAL RESULTS

### 4.1 Walkover Survey

The archaeological walkover survey was carried out on the 3<sup>rd</sup> of April 2013 (within the Coedydd Aber National Nature Reserve) and on the 1<sup>st</sup> May 2013 (within the National Trust Carneddau and Glyderau Estate). The methodology for the site walkover was set out in the Project Brief prepared by Kathryn Laws, *National Trust* Archaeologist. Notes were taken, sketches and measurements were taken of sites of potential archaeological interest and a photographic record was made. Weather was suitable for a site visit, although ground conditions were poor in certain areas of the site but sufficient to carry out the walkover and observe any potential standing earthworks. The walkover survey results are discussed from upstream to downstream (south east to north west).

### 4.2 Archaeological and Historical Background

#### 4.2.1. Previous Work

Surveys of the valley of the Afon Anafon and surrounding area have been previously undertaken by W.B. Lowe, published in Volume 79, Part I of *Archaeologia Cambrensis* (1924); by the *Royal Commission on the Ancient and Historical Monuments of Wales*, published in 1956 and 1964; by S. Jones & D. Thompson for the *Deserted Rural Settlement Survey 1997-98* in 1998; P. Frost & D. Thomas in 1998 for the *Forest Enterprise Welsh Heritage Assets Survey*; J. Roberts for the *Coedydd Aber NNR Harms Survey* in 2001 and by P. Schofield for the *Uplands Initiative Field Projects 2003-4 Eastern Snowdonia Survey Area, Penmaenmawr to Rowen* in 2004.

Gwynedd Archaeological Trust carried out surveys in 1983 and 1985 and subsequently in 1998 for the *Hut Circle Settlement Survey* and 2002 for the *Prehistoric Funerary and Ritual Monuments: West Conwy/North Gwynedd Survey*. *Glastir HEF Management Reports* were prepared for **PRN 342** and **PRN 816** in 2012. Aerial photography mapping of sites has been carried out by Gwynedd Archaeological Trust in 1997 and 1998 and the *Royal Commission on the Ancient and Historic Monuments of Wales* have flown reconnaissance surveys from 1986 onwards, including coverage of the land surrounding and including the valley of the Afon Anafon. The *National Trust* also maintain an Historic Buildings, Sites and Monuments Record available at <http://ads.ahds.ac.uk/catalogue/collections/blurbs/328.cfm>

Although numerous surveys have been undertaken, comparatively few archaeological sites have been identified between the Afon Rheadr-Fawr and the Afon Anafon within the area now occupied by the Coedydd Aber National Nature Reserve. Although previous surveys have identified numerous archaeological sites in the surrounding area, the south west bank of the Afon Anafon between **SH 26783 37099** and **SH 26680 37180** has only eight recorded archaeological sites compared to more than twenty for the north east bank of the Afon Anafon over the same comparable distance, and over thirty-five for the east bank of the Afon Rheadr-Fawr approximately 300m to 1000m away. This disparity raises some questions about the nature of the land use in the area, and the lack of archaeological survey and evaluation of the sites identified to date could be addressed.

#### 4.2.2. Prehistoric and Roman sites

This assessment has highlighted the paucity of evidence for prehistoric settlement, in the form of houses on the southern side of the Afon Anafon in the lee of Ffridd Ddu. Where examples have been identified, they have been situated to make the best of the local

topography in order to ensure that they receive the greatest amount of natural light possible. The route of the proposed Hydro Electric scheme pipeline passes close to two previously recorded but not scheduled Hut Circle groups. The first at **SH 26840 37115 NPRN 302954 / PRN 342** (*Plate 01*) and the second at **SH 26789 37099 NPRN 302936 and SH 26788 37101 NPRN 303032** (*Plate 02*). These are the only recorded prehistoric settlement activity on the southern side of the valley of the Afon Anafon and neither has been archaeologically excavated, although they have been surveyed prior to this walkover, most recently in 1998 (Smith 1998).

Within the Coedydd Aber National Nature Reserve, hut circles dated to the prehistoric period have been located at **SH 26733 37126 PRN 341; SH 26728 37134 PRN 336 and SH 26695 37162 PRN 338**. All three were recorded in the 1950s by the RCAHMW when their condition was described as 'poor'; 'poor' and 'almost destroyed' respectively.

**PRN 341** is on the line of a Forestry Commission trackway and was not observed during the walkover. The line of the proposed Hydro Electric scheme pipeline would cross this monument and evidence may be recorded during any archaeological works. It is also in close proximity to **SH 26732 37129 PRN 8899** (Post-Medieval Hafod y Gelyn Sheepfold). **PRN 336** is within the Forestry Commission plantation and was not visible (felling was in progress in this area, with standing as well as felled trees covering the location). **PRN 338** was not observed during the walkover survey, suggesting its condition has deteriorated further since the 1950s survey. It was not found during the 1998 GAT survey.

#### *4.2.3 Medieval*

The use of the upland areas of the Afon Anafon in the medieval period is characterised by transhumance and the use of *Hafodydd* as temporary upland occupation sites during the summer months. Although connected to the Royal occupation of the *Llys* site at Abergwyngregyn by occupying the same geographic space, the disparity between their social statuses is evidenced by the lack of secure datable archaeological evidence from settlements of this type. Examples of Medieval long huts, used by shepherds as accommodation in the summer months, are recorded at **SH 26895 37095 PRN 821; SH 26896 37093 PRN 352 and SH 26896 37092 PRN 824**. All of these are opposite the intake point for the proposed Hydro Electric scheme pipeline on the south bank of Afon Anafon (*Plate 03*).

Between the intake point and where the proposed Hydro Electric scheme pipeline crosses into the Coedydd Aber National Nature Reserve another five examples have been recorded at **SH 26881 37103 PRN 831; SH 26875 37104 PRN 833; SH 26875 37111 PRN 825 and SH 26847 37123 PRN 818**.

The medieval long hut **PRN 818 SH 26847 37123** was recorded during the *Wayne Evans Surveying Ltd.* Survey and is within the specified working corridor dimensions. The line of the corridor should be adjusted accordingly at this point (*Plate 04*).

Features related to this hafodydd land use were also noted on the HER as the Meurn Isaf Platforms **SH 26730 37130 PRN 8902** and the Meurn Uchaf and Meurn Isaf Boundary wall survives in part at **SH 26742 37126 PRN 8898**. The line of the proposed Hydro Electric scheme pipeline crosses the Meurn Uchaf and Meurn Isaf Boundary at **SH 26756 37108** and evidence may be recorded during any archaeological works.

#### *4.2.4 Post-Medieval and Modern*

The creation of larger multi-cellular Sheepfolds in the post-medieval period was an example of farmers working as a collective, in this case to ensure a healthy breeding stock. Two



examples survive at **SH 26893 37101 NPRN 400711** (*Plate 05*) and **SH 26818 37112) NPRN 24393** (*Plate 06*). This type of sheepfold is characteristic of this part of north west Wales and other similar examples are also to be found in the Ogwen Valley.

Five other sheepfolds of either single or twin cell construction are recorded on the 1<sup>st</sup> edition Ordnance Survey map of 1889 at **SH 26793 37103; SH 26780 37103 NPRN 24401; SH 26733 37129; SH 26694 37164** and **SH 26633 37183**.

The examples at **SH 26793 37103** and **SH 26780 37103** survive only two or three courses high and are visible most clearly on aerial photographs. The example at **SH 26733 37129 PRN 8899** known as the Hafod y Gelyn Sheepfold has been removed completely above ground and a forestry access track has been built across the site (*Plate 07*). The line of the proposed Hydro Electric scheme pipeline crosses this monument and evidence may be recorded during any archaeological works. This monument is also in close proximity to the location of a prehistoric hut circle **SH 26733 37126 PRN 341**.

The example at **SH 26694 37164 PRN 8900** known as the Wern Pandy sheepfold is 60m north of the line of the Hydro Electric scheme pipe and the example at **SH 26633 37183** is in close proximity to the suggested location of Powerhouse 1.

Other features which have been assigned a post-medieval date are four sections of walling, all in various states of disrepair but originally forming part of the sub division of Meuryn Isaf. The sections recorded run from **SH 26647 37184** to **SH 26649 37184; SH 26652 37184** to **SH 26651 37185** and then continuing from **SH 26652 37185** to **SH 26655 37185; SH 26733 37127** to **SH 26728 37128** and a point taken on a wall at **SH 26724 37145**. The wall dividing the *National Trust* and *Natural Resources Wales* lands at **SH 26783 37108** (*Plate 08*) will be breached as the line of the proposed Hydro Electric scheme pipeline crosses this monument.

The *Wayne Evans Surveying Ltd* Survey recorded a collapsed wall at **SH 26870 37110** on the line of the proposed Hydro Electric scheme pipeline. This wall cannot be clearly assigned an existing **NRPN / PRN /NTHBSMR** reference and may well be part of the spread of a larger group of stones (*Plate 09*).

An examination of the relevant Ordnance Survey mapping for the proposed Hydro Electric scheme pipeline route indicates that the planting of coniferous trees and creation of the associated trackways has damaged several of the sites within the Coedydd Aber NNR now owned by *Natural Resources Wales*. By contrast, the *National Trust* land has seen little development and the condition of the sites appears relatively unaltered.

## 5 ARCHAEOLOGICAL AND HISTORICAL ASSESSMENT

### 5.1 Site Gazetteer

<b>1</b>	<b>Intake Weir Construction Area</b>		
<b>Assessment of Importance</b>	<b>E</b>	<b>Impact:</b> Unknown	<b>Mitigation:</b> Basic recording prior to development
<b>Description:</b> Part of the north riverbank of the Afon Anafon below a multi cellular sheepfold at SH 26893 37101 NPRN 400711			
<b>NGR</b>	SH 26893 37101 E		

<b>2</b>	<b>Trackway</b>		
<b>Assessment of Importance</b>	<b>D</b>	<b>Impact:</b> Unknown	<b>Mitigation:</b> Basic recording prior to development
<b>Description:</b> Trackway along Western and Southern slopes of Foel Dduarth and running eastwards along the north bank of the Afon Anafon leading to Llyn Anafon. Visible on 1 <sup>st</sup> edition OS maps onwards. Unsurfaced, compacted ground.			
<b>NGR</b>	SH 26868 37118 to SH 26850 37124 D		

<b>3</b>	<b>Prehistoric Hut Circles</b>	NPRN 302954 / PRN 342	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Two hut circles perhaps the remains of a larger settlement on a natural level shelf at about 274m above OD on S side of Afon Anafon. The larger hut (1) is made of earth and small stones faced on both sides with orthostats, now much displaced. Hut 2 is of similar construction, lies 23m to NW of hut 1. On the E a 1.2m wide gap leads to a mass of displaced orthostats which seem to indicate a porch or annex 3m long and on the NW another 1.5m gap is flanked by large boulders. A wall of large orthostats up to 0.75m high 6.4m W of the larger hut, extends for 7.6m in a curve concave to the E. Fragmentary traces of other enclosure walls occur at other parts of the shelf.			
<b>NGR</b>	SH 26840 37115 B		

<b>4</b>	<b>Prehistoric Hut Circle</b>	PRN 343	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Hut circle 8.3m in diameter, on a small level natural platform on the S side of Afon Anafon 228m above OD. The wall is 1m, thick of stone faced on both sides with large boulders, these being particularly large on the N. The SE side is destroyed.			
<b>NGR</b>	SH 26789 37099 B		



<b>5</b>	<b>Prehistoric Hut Circle</b>	NPRN 303032	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Hut circle of 8m in diameter on the S bank of Afon Anafon			
<b>NGR</b>	SH 26788 37101 B		

<b>6</b>	<b>Prehistoric Hut Circle</b>	PRN 341	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Hut circle of 8.3m in diameter on a small natural shelf on the S bank of a small stream above 700ft OD. The wall is about 1.2m thick, apparently faced with stone on both sides but much ruined. There is an entrance of uncertain width on the E.			
<b>NGR</b>	SH 26733 37126 B		

<b>7</b>	<b>Prehistoric Hut Circle and Field System</b>	PRN 336	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Round huts and field. Circular hut 8.5m in diameter on a level natural shelf above 210m OD above a steep fall to the Afon Anafon on the NE. The 1.2m thick wall is faced on both sides with large boulders. The hut lies on what appears to be a contemporary field wall. Similar walls and lynchets remain on the shelf, but have been much damaged by later ploughing.			
<b>NGR</b>	SH 26728 37134 B		

<b>8</b>	<b>Prehistoric Hut Circle and Lynchet</b>	PRN 338	
<b>Assessment of Importance</b>	<b>D</b>	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Round hut and lynchet. Circular hut, about 7.3m in diameter, forming a level shelf at about 152m above OD on ground falling towards the N. To the S a short lynchet runs WSW-ENE. Now destroyed by forestry road.			
<b>NGR</b>	SH 26695 37162 D		

<b>9</b>	<b>Medieval Long Hut</b>	PRN 821	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Remains of a long hut aligned north-south. South and west walls survive to a height of 0.5m. Other walls may have been robbed to build PRN 352.			
<b>NGR</b>	SH 26895 37095 B		

<b>10</b>	<b>Medieval Long Hut</b>	PRN 352	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Long hut of dry stone masonry on level ground S of Afon Anafon on the W bank of a small stream at about 304m above OD. It measures 6.7m by 3.3m with an E-W axis. The walls are 1m thick and 0.3m high and there is a partition wall 0.6m thick 1.5m from the W wall. There are entrances to both rooms on the N. That to the E is 0.6m wide, and a wall projects externally on the W of this for 2m.			
<b>NGR</b>	SH 26896 37093 B		

<b>11</b>	<b>Medieval Long Hut</b>	PRN 824	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Fairly level platform bounded by blocks of stone on east, north and west. Dimensions 10m by 7m.			
<b>NGR</b>	SH 26896 37092 B		

<b>12</b>	<b>Medieval Long Hut</b>	PRN 831	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Long hut 12m long, aligned NW-SE. Two compartments. Dividing wall adjacent to PRN 823.			
<b>NGR</b>	SH 26881 37103 B		

<b>13</b>	<b>Medieval Long Hut</b>	PRN 833	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Long hut 10m by 4m. Aligned NE-SW. Walls 1m thickness, 1m height in places. Two compartments.			
<b>NGR</b>	SH 26875 37104 B		

<b>14</b>	<b>Medieval Long Hut</b>	PRN 825	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Small, rectangular hut cut in the side of a terrace. Levelled platform is aligned NW-SE, built up to 3 sides, scarped along NE side.			
<b>NGR</b>	SH 26875 37111 B		

<b>15</b>	<b>Medieval Long Hut</b>	PRN 818	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Long hut constructed of dry stone walling 9m by 5.5m. Raised platforms at eastern corners.			
<b>NGR</b>	SH 26847 37123 B		

<b>16</b>	<b>Meuryn Isaf Platforms</b>	PRN 8902	
<b>Assessment of Importance</b>	<b>C</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b>			
<b>NGR</b>	SH 26730 37130 C		

<b>17</b>	<b>Meuryn Isaf and Meuryn Uchaf Boundary Wall</b>	PRN 8898	
<b>Assessment of Importance</b>	<b>C</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Boundary wall dividing Meuryn Isaf from Meuryn Uchaf. Likely to have medieval origins but now incomplete. Originally ran from SH 267605 371110 to SH 267098 370684			
<b>NGR</b>	SH 26742 37126 C		

<b>18</b>	<b>Multi Cellular Sheepfold</b>	NPRN 400711	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> Likely	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> A complex stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set hard by the N bank of the Afon Anafon; at least ten cells are set about a central yard.			
<b>NGR</b>	SH 26897 371015 B		

<b>19</b>	<b>Multi Cellular Sheepfold</b>	NPRN 24393	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> A complex stone-walled sheepfold, depicted on 1 <sup>st</sup> Edition OS map, set close to the S bank of the Afon Anafon, comprising at least a dozen cells set about a central yard			
<b>NGR</b>	SH 26818 37112 B		

<b>20</b>	<b>Sheepfold</b>	PRN 37925	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Single cell stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set on the S bank of the Afon Anafon.			
<b>NGR</b>	SH 26793 37103 B		

<b>21</b>	<b>Sheepfold</b>	NPRN 24401	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Twin celled stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set on the N bank of the Afon Anafon.			
<b>NGR</b>	SH 26780 37103 B		

<b>22</b>	<b>Hafod y Gelyn Sheepfold</b>	PRN 8899	
<b>Assessment of Importance</b>	<b>D</b>	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Single cell stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set on the W bank of the Afon Anafon close to PRN 341.			
<b>NGR</b>	SH 26732 37129 D		

<b>23</b>	<b>Wern Pandy Sheepfold</b>	PRN 8900	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Single cell stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set on the W bank of the Afon Anafon.			
<b>NGR</b>	SH 26694 37164 B		

<b>24</b>	<b>Sheepfold</b>	PRN 37926	
<b>Assessment of Importance</b>	<b>B</b>	<b>Impact:</b> None	<b>Mitigation:</b> Avoidance
<b>Description:</b> Single cell stone-walled sheepfold, depicted on 1 <sup>st</sup> edition OS map, set on the S bank of the Afon Anafon.			
<b>NGR</b>	SH 26633 37183 B		

25	Wall (sub-dividing Meuryn Isaf)	PRN 37927	
<b>Assessment of Importance</b>	C	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Internal wall dividing Meuryn Isaf. Likely to have medieval origins.			
<b>NGR</b>		SH 26647 37184 to SH 26649 37184 C	

26	Wall (sub-dividing Meuryn Isaf)	PRN 37928	
<b>Assessment of Importance</b>	C	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Internal wall dividing Meuryn Isaf. Likely to have medieval origins.			
<b>NGR</b>		SH 26652 37184 to SH 26651 37185 C	

27	Wall (sub-dividing Meuryn Isaf)	PRN 37929	
<b>Assessment of Importance</b>	C	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Internal wall dividing Meuryn Isaf. Likely to have medieval origins.			
<b>NGR</b>		SH 26652 37185 to SH 26655 37185 C	

28	Wall (sub-dividing Meuryn Isaf)	PRN 37930	
<b>Assessment of Importance</b>	C	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Internal wall dividing Meuryn Isaf. Likely to have medieval origins.			
<b>NGR</b>		SH 26733 37127 to 26728 37128 C	

<b>29</b>	<b>Wall (sub-dividing Meuryn Isaf)</b>	PRN 37931	
<b>Assessment of Importance</b>	<b>C</b>	<b>Impact:</b> Unknown	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Internal wall dividing Meuryn Isaf. Likely to have medieval origins.			
<b>NGR</b>	SH 26724 37145 C		

<b>30</b>	<b>Wall dividing National Trust and Natural Resources Wales lands</b>	PRN 37932	
<b>Assessment of Importance</b>	<b>C</b>	<b>Impact:</b> Significant	<b>Mitigation:</b> Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
<b>Description:</b> Boundary wall enclosing Meuryn Uchaf from unenclosed upland. Likely to have medieval origins. Originally ran from SH 267789 371001 to SH 267977 370401			
<b>NGR</b>	SH 26783 37108 C		

## 6 DISCUSSION

### 6.1 Summary of Detailed Recommendations

Feature	Name	Importance	Impact	Recommendation for further evaluation	Mitigation recommendations
1	Intake Weir Construction Area	E	Unknown	None	Basic Recording
2	Trackway	D	Unknown	None	Basic Recording
3	Prehistoric Hut Circles	B	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
4	Prehistoric Hut Circle	B	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
5	Prehistoric Hut Circle	B	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
6	Prehistoric Hut Circle	B	Unknown	None	Avoidance
7	Prehistoric Hut Circle and Field System	B	Unknown	None	Avoidance
8	Prehistoric Hut Circle and Lynchet	D	Unknown	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation

					dependent on results, e.g. excavation
9	Medieval Long Hut	B	None	None	Avoidance
10	Medieval Long Hut	B	None	None	Avoidance
11	Medieval Long Hut	B	None	None	Avoidance
12	Medieval Long Hut	B	None	None	Avoidance
13	Medieval Long Hut	B	None	None	Avoidance
14	Medieval Long Hut	B	None	None	Avoidance
15	Medieval Long Hut	B	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
16	Meuryn Isaf Platforms	C	None	None	Avoidance
17	Meuryn Isaf and Meuryn Uchaf Boundary Wall	C	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
18	Multi Cellular Sheepfold	B	Likely	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
19	Multi Cellular Sheepfold	B	None	None	Avoidance
20	Sheepfold	B	None	None	Avoidance
21	Sheepfold	B	None	None	Avoidance
22	Sheepfold	D	Unknown	None	Avoidance if possible or



					detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
23	Wern Pandy Sheepfold	B	None	None	Avoidance
24	Sheepfold	B	None	None	Avoidance
25	Wall (sub-dividing Meuryn Isaf)	C	Unknown	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
26	Wall (sub-dividing Meuryn Isaf)	C	Unknown	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
27	Wall (sub-dividing Meuryn Isaf)	C	Unknown	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
28	Wall (sub-dividing Meuryn Isaf)	C	Unknown	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
29	Wall (sub-dividing Meuryn Isaf)	C	Unknown	None	Avoidance if possible or detailed recording

					if affected. Followed by appropriate mitigation dependent on results, e.g. excavation
30	Wall dividing National Trust and Natural Resources Wales lands	C	Significant	None	Avoidance if possible or detailed recording if affected. Followed by appropriate mitigation dependent on results, e.g. excavation

## 6.2 General Discussion and Recommendations

In addition to the specific mitigation in section 6.1 the following recommendations are made.

Carneddau and Glyderau Estate: An intensive watching brief should be carried out where the pipe route is situated within the line of the track between **SH 26868 37118** and **SH 26850 37124** and also in the vicinity of the two groups of hut circles at **SH 26839 37116** and **SH 26789 37098**. The river crossing at **SH 26841 37119** should also be watched. The medieval long hut **PRN 818 SH 26847 37123** was recorded during the *Wayne Evans Surveying Ltd.* survey and is within the specified working corridor dimensions. The line of the corridor should be adjusted accordingly at this point.

Coedydd Aber: An intensive watching brief should be carried out where the pipe trench breaches the dividing wall between *National Trust* and *Natural Resources Wales* lands at **SH 26783 37108** and on the line of the Meuryn Uchaf and Meuryn Isaf dividing wall at **SH 26756 37108**. The pipe is planned to cross the site of the former sheepfold known as Hafod y Gelyn at **SH 26732 37129**, work which may also encounter a Hut Circle at **SH 26733 37126 PRN 341**. A hut circle and field system at **SH 26695 37162 PRN 338** may also have extended southwards across the line of the modern track and should also therefore be watched. Should Powerhouse option 2 be selected, the river crossing at **SH 26646 37186** should also be watched. Both the location of Powerhouse 1 (*Plate 15*) and Powerhouse 2 (*Plate 16*) should be subject to an intensive watching brief. The remainder of the route should have a partial watching brief carried out on it.

## 7. SOURCES CONSULTED

### 7.1 Primary and Cartographic Sources

#### Gwynedd Archives, Caernarfon

Ordnance Survey 1:2500 1<sup>st</sup> Edition Caernarvonshire Sheet LXXI.12  
Ordnance Survey 1:2500 2<sup>nd</sup> Edition Caernarvonshire Sheet LXXI.12  
Ordnance Survey 1:2500 3<sup>rd</sup> Edition Caernarfonshire Sheet LXX1.12  
Ordnance Survey 1:10560 1<sup>st</sup> Edition Caernarvonshire Sheet VII.ne  
Ordnance Survey 1:10560 1<sup>st</sup> Edition Caernarvonshire Sheet VII.se  
Ordnance Survey 1:10560 1<sup>st</sup> Edition Caernarvonshire Sheet VIII.nw

### 7.2 Published Sources

British Geological Survey Mapping <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Lowe, W.B. 1924 'Prehistoric Remains in North Carnarvonshire', *Archaeologica Cambrensis* **79.1**, pp80-112.

RCAHMW 1956 *Caernarvonshire: East I*: An Inventory of the Ancient Monuments in the County, HMSO, London.

RCAHMW 1964 *Caernarvonshire: West III*: An Inventory of the Ancient Monuments in the County, HMSO, London.

### 7.3 Unpublished Sources

Burnett, A. 2012 *Glastir HEF Management Report: PRN 342* (Unpublished Gwynedd Archaeological Trust Report).

Burnett, A. 2012 *Glastir HEF Management Report: PRN 816* (Unpublished Gwynedd Archaeological Trust Report).

Dutton, L. A. 1983 *Anafon Survey* (Unpublished Gwynedd Archaeological Trust Report).

Frost, P. & D. Thomas 1998 *Forest Enterprise Welsh Heritage Assets Survey* (Unpublished Forestry Commission Report).

Jones, S & D. Thompson 1998 *Deserted Rural Settlement Survey 1997-98* (Unpublished Gwynedd Archaeological Trust Report).

Roberts, J. 2001 *Coedydd Aber NNR Harms Survey* (Unpublished Countryside Council for Wales Report).

Schofield, P. 2004 *Uplands Initiative Field Projects 2003-4 Eastern Snowdonia Survey Area, Penmaenmawr to Rowen* (Unpublished RCAHMW Report).

Smith, G. 1998 *Hut Circle Settlement Survey* (Unpublished Gwynedd Archaeological Trust Report).

Smith, G. 2002 *Prehistoric Funerary and Ritual Monuments: West Conwy/North Gwynedd Survey* (Unpublished Gwynedd Archaeological Trust Report).

#### *7.4 Unpublished Surveys*

Wayne Evans Surveying Ltd. Undated *Survey of Proposed Hydro Electric Scheme Pipeline*



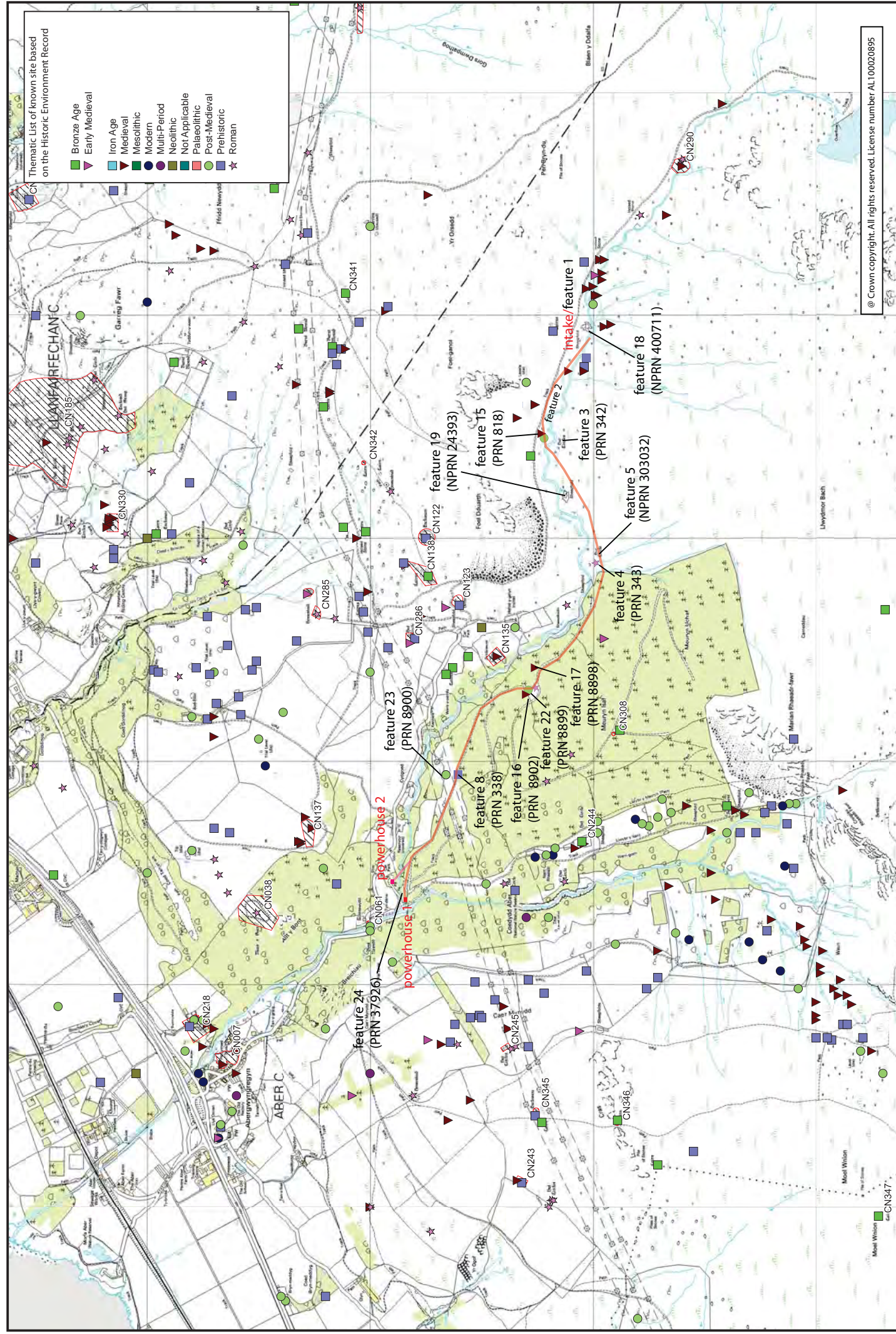


Figure 01.: location of proposed scheme route, intake and powerhouse (highlighted red) with known archaeological sites and the location of features identified along the route line (cf. paragraph 5.1) (based in Ordnance Survey sheets SH66 and SH67; scale 1:15000@A3)



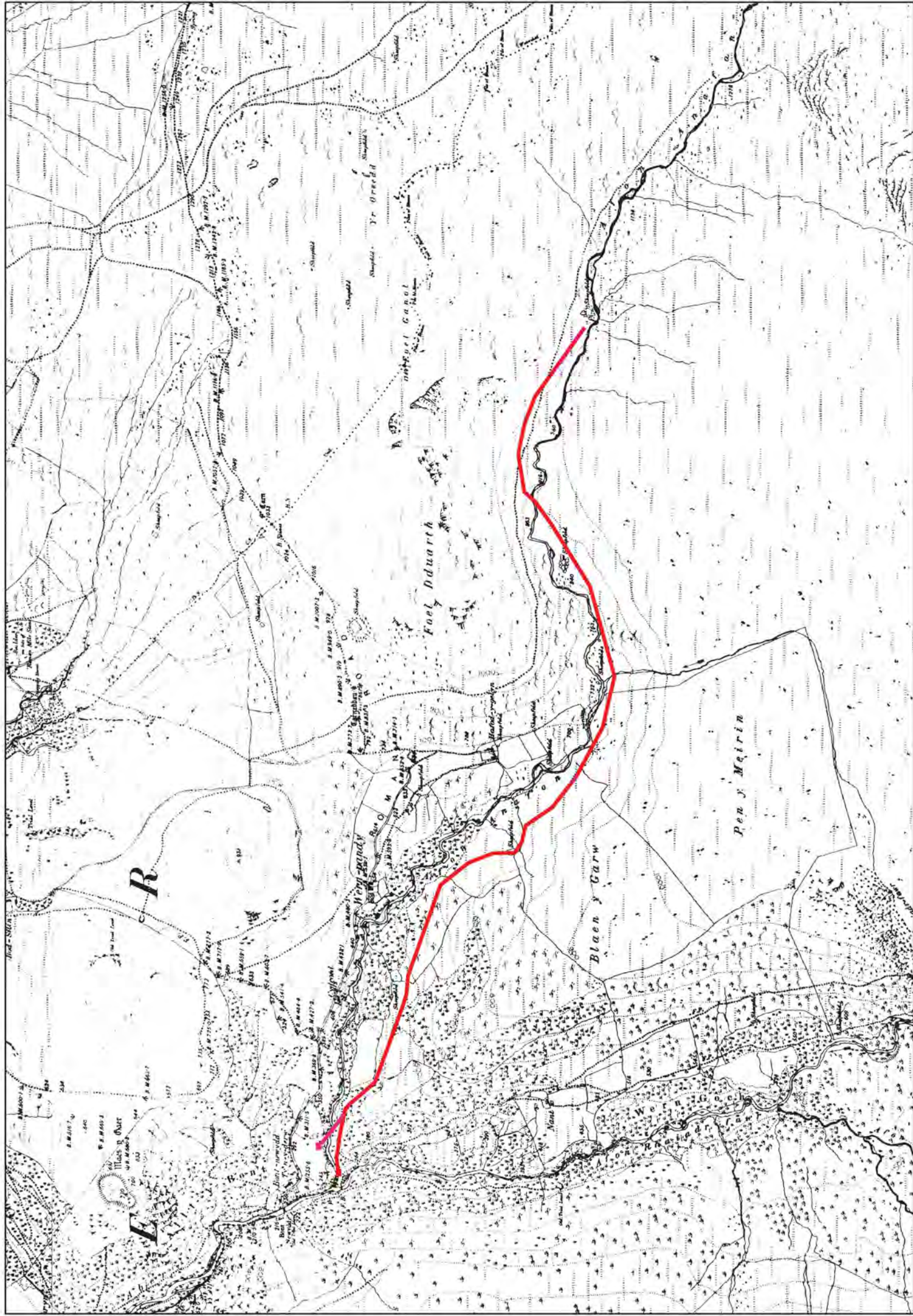


Figure 02: Reproduction of Ordnance Survey 6-inch to 1 mile map sheets VII. ne (1891), VIII.nw (1891) and VIII.sw (1891), VII.se (1889), with the location of the proposed scheme route, intake and powerhouse (highlighted red) superimposed for reference (not to scale)





Plate 01 - Location of Prehistoric Hut Circle NPRN 302954 / PRN 342 (SH 26840 37115) (*outlined in yellow*) and proposed Hydro Electric scheme pipeline crossing point at (SH 26841 37119) (*outlined in green*).



Plate 02 - Location of Prehistoric Hut Circles PRN 343 (SH 26789 37099) (*outlined in yellow*).





Plate 03 - Location of three Medieval Long Huts PRN 352, PRN 821 and PRN 824 (outlined in yellow) on south bank of Afon Anafon opposite proposed Hydro Electric scheme Intake Weir (outlined in green) and Multi Cellular Sheepfold NPRN 400711 (SH 26897 37101) (outlined in red).



Plate 04 - Location of Medieval Long Hut PRN 818 (outlined in yellow) (SH 26748 37123).





Plate 05 - Multi Cellular Sheepfold NPRN 400711 (*outlined in yellow*) (SH 26893 37101). The Intake Weir for the proposed Hydro Electric scheme pipeline will be constructed behind the large boss of rock in the centre left of the image.



Plate 06 - Multi Cellular Sheepfold NPRN 24393 (SH 26818 37112). The proposed hydro electric scheme pipeline will be within the marked corridor (*outlined in yellow*).





Plate 07 - Line of proposed Hydro Electric scheme pipeline within a forestry track (*marked in yellow*). PRN 8899 Hafod y Gelyn Sheepfold (SH 26733 37129) and PRN 341 Prehistoric Hut Circle (SH 26733 37126) lie on or close to this line in the centre left of the image.



Plate 08 - Proposed Hydro Electric scheme pipeline breaching point of wall dividing *National Trust* and *Natural Resources Wales* lands (*outlined in yellow*) (SH 26783 37108).





Plate 09 - Spread of stones on north bank of Afon Anafon (*outlined in yellow*) which the proposed Hydro Electric scheme pipeline will cross (SH 26870 37110).



Plate 10 - Boundary wall sub-dividing Meuryn Isaf (SH 26724 37145).





Plate 11 - Terraced forestry track immediately west of PRN 338 Prehistoric Hut Circle and Lynchet and PRN 8899 Hafod y Gelyn Sheepfold (SH 26733 27126).



Plate 12 - Wern Pandy Sheepfold PRN 8900 (SH 26694 37164).





Plate 13 - Field Boundary sub-dividing Meuryn Isaf (SH 26652 37184).



Plate 14 - Field Boundary wall sub-dividing Meuryn Isaf (SH 26647 37184).





Plate 15 - Proposed location for Powerhouse option 1(SH 26634 37183).



Plate 16 - Proposed location for Powerhouse option 2 (SH26646 37187).



## APPENDIX 1

### Definitions of terms used within the report

#### 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 Impact

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

##### *None:*

There is no construction impact on this particular site.

##### *Slight:*

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

##### *Unlikely:*

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

*Likely:*

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

*Significant:*

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

*Considerable:*

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

*Unknown:*

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

*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.



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