



Archaeoleg Brython Archaeology

Fieldwork Report:
Archaeological Watching Brief, GI Works
A496 Llanbedr Airfield Access Improvements
Document Number B1508.03

A496 Llanbedr Airfield Access Improvements

Fieldwork Report:
Archaeological Watching Brief, Ground Investigation Works

Prepared for Ymgynghoriaeth Gwynedd Consultancy

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Crynodeb

Comisiynwyd Archaeoleg Brython Archaeology gan Ymgynghoriaeth Gwynedd Consultancy i gyflawni briff gwylio archaeolegol yn ystod archwiliad daearol ar gyfer datblygiad arfaethedig i wella cysylltiadau rhwng yr A496 a Maes Awyr Llanbedr. Yn ystod y briff gwylio arsylwyd gwaith cloddio ar chwech twll prawf ar lwybr y gwelliannau arfaethedig. Ni ddargafyddwyd unrhyw nodweddion archaeolegol ond canfodwyd ddyddodion llifwaddod yn y tir isel i'r gogledd a all breserfio tystiolaeth palaeoamgylcheddol. Argymhellir gweithredu lliniariad addas i atal effaith negyddol ar yr adnodd os yw'r cynllun yn symud ymlaen.

Summary

Archaeoleg Brython Archaeology were commissioned by Ymgynghoriaeth Gwynedd Consultancy to complete an archaeological watching brief during ground investigation for a proposed scheme to improve access between the A496 and Llanbedr Airfield. During the watching brief the excavation of six trial pits on the proposed route of the improvements were observed. No archaeological features were found but alluvial deposits were identified in low lying land to the north which could preserve palaeoenvironmental material. If the scheme progresses, it is recommended that appropriate mitigation measures are implemented to avoid negative impact on the resource.

1 Introduction

Archaeolog Brython Archaeology (ABA) were commissioned by Ymgynghoriaeth Gwynedd Consultancy (YGC) to undertake an archaeological watching brief during the excavation of ground investigation (GI) test pits to inform proposed improvements to the A496 at Llanbedr, Gwynedd (SH58262679).



Figure 1: Site location map (reproduced from Client document: A496 Llanbedr Access Improvement Ground Investigation Specification)

The proposed works consisted of the excavation of 9 machine dug trial pits and 16 cable percussive bore holes along the proposed route, see Figure 2 for locations. During the course of the works the number of trial pits was reduced to 6 due to access and logistical issues. The archaeological watching brief observed all trial pit excavations to identify any archaeological deposits which may have been present. The boring was not observed but the results will ultimately be used to inform the Environmental Impact Assessment for the scheme.

The watching brief was completed over two days on the 18th and 25th of January 2016 by Iwan Parry and Abby Cooper, conditions were good and no problems were encountered.

The watching brief was undertaken in accordance with the guidelines set out in Welsh national planning guidance (*Planning Policy Wales 2014*), Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*) and the Chartered Institute for Archaeologists' (CIfA) *Standard and Guidance for an Archaeological Watching Brief*.

2 Background

2.1 Project Background

Following the completion of the Planning and Appraisal (Stage 1) phases of a WeITAG study by YGC the proposed scheme has been selected as the preferred option to improve transport access for the Llanbedr airfield component of the Snowdonia Enterprise Zone (Jones 2015).

The study established the following Transport Planning Objectives (TPO's) to define solutions with which to address the transport problems identified in the area:

1. Reduce traffic congestion at the Mochras Road/A496 junction.
2. Reduce the negative impact of traffic on the community of Llanbedr.
3. Improve transport connectivity to and from Llanbedr Airfield.
4. Improve the efficiency and reliability of all transport to and from Llanbedr Airfield.
5. Improve the actual and perceived safety of travel for all travellers within Llanbedr and along Mochras Road.
6. Improve freight transport access to and from Llanbedr Airfield.
7. Improve travel opportunities for pedestrians and cyclists within Llanbedr and along Mochras Road.
8. Minimise the impact of transport improvements on local environmental and heritage features.
9. Be resilient to local effects of climate change, particularly future increases in flood events.

The current proposed route was deemed to be the optimal route which, of all the options considered, offers the largest contribution to achieving the TPO's whilst avoiding disadvantages associated with other researched options. As such it has been selected for further investigation.

The current assessment forms part of the investigation into the proposed route.

2.2 Topographic Description

The scheme is located within the Ardudwy Landscape of Outstanding Historic Interest (HLW Gw 2) which is described as 'A large, exceptionally archaeologically rich and well-studied landscape, situated on the western flanks of the Rhinog Mountains, containing extensive relict evidence of recurrent land use and settlement from prehistoric to recent times.' (Register of landscapes of outstanding historic interest in Wales, 1998). The Ardudwy historic landscape is sub divided into sub-character areas, the scheme lies within No.14 'Coastal plain behind RAE Llanbedr' which is described as the 'low-lying coastal floodplain behind Morfa Dyffryn and RAE Llanbedr, in effect to where the ground begins to rise. It includes land to the south and north of the Artro where it flows from the hillslopes across the plain and into the sea' (Thompson, 2003).

The area where the scheme is located is low lying which is in contrast to the uplands (above c.240m) which form the majority of Ardudwy (Thompson, 2003).

The coastal plain would have been, until relatively recently, intermittently flooded due to rising sea levels following the last glacial period. Evidence of forests and peat beds, now usually buried by sand and submerged, can occasionally be seen following winter storms which provide a glimpse of the prehistoric landscape. Radiocarbon dates from peat beds located approximately 35km to the south at Borth show that they date from around 5400 BP (Before Present) to 3900 BP and the

underlying salt marsh clay from around 6000 BP (Kelly, 1982). At Borth red deer and wild cattle bones have been found as well as Mesolithic artefacts which suggest even earlier dates for human activity than those indicated by radiocarbon dating.

The topography along the line of the proposed route suggest that the northern half crosses land which would have been in the flood plain whereas the southern half crosses higher ground which would have formed islands or peninsulas at its edge. These marginal areas can often produce evidence of prehistoric people who would have been attracted by the abundant availability of food along the coast and within estuaries. These areas also have the potential for extensive peat deposits which are a valuable source of environmental data which can provide an accurate narrative of the floral history of the area reaching back thousands of years.

The land is currently agricultural consisting of open 19th century fields which are laid to pasture with occasional disreet woods, possibly established during 19th century landscaping associated with local Estates.

2.3 Geology

The British Geological Survey's Geology of Britain viewer website shows that the superficial geology varies along the route. The southern part of the scheme up to Afon Artro has superficial deposits of Devensian – Diamicton Till which formed up to 2 million years ago in the Quaternary period which shows that the area was previously dominated by ice age conditions. North of Afon Artro the superficial deposits are tidal flat deposits of clay, silt and sand which were also formed up to 2 million years ago in the Quaternary period. The underlying geology along the entire route is the Llanbedr formation which consists of interbedded siltstone and mudstone which was formed in a deep sea environment approximately 508 to 528 million years ago in the Cambrian period.

2.4 Archaeological and Historic Background

The area surrounding the proposed scheme, especially the uplands of Arduwy, is regarded as one of the most important and best preserved archaeological landscapes in Wales if not Europe. Peat deposits along the shoreline also provides a wealth of information on the environmental history of the changing landscape and the impact which human activity had upon it. The proposed scheme is located in the coastal plain which would have been a threshold between these contrasting environments and as such is likely to have seen a constant human presence since the end of the last Ice Age, the evidence for which has been largely masked by continuing agricultural and domestic activity.

2.4.1 Palaeolithic (500,000BC – 10,000BC)

No sites of Palaeolithic date are recorded in the vicinity of the scheme, the nearest sites dating from this period are found on the Great Orme in Llandudno approximately 60km to the North East.

2.4.2 Mesolithic (10,000BC – 4,000BC)

No sites of Mesolithic date are recorded in the immediate vicinity of the scheme although it is almost certain that hunter-gatherer communities would have been present in the vicinity of the scheme during this period.

A flint scraper (PRN 28970) of probable Mesolithic date was found during the replacement of a raw water main to the west of Gerddi Bluog, approximately 5km to the north-west (Cooke *et al.* 2010).

The majority of other sites on the HER are also findspots of stone tools, a number of which are from coastal locations or within former estuary landscapes such as a shell midden at Garreg Hyllidrem Rock shelter (PRN 55789), Llanfrothen some 16.8m to the north-west.

Mesolithic artefacts have also been discovered in intertidal peats and underlying clay at Ynys-Las, Borth, which is located 34km to the south (Poucher 2009). Red Deer antler and Aurochs bone recovered from the deposits show that the area would have been a rich hunting ground. The submerged landscape represented by these peat deposits are known to have stretched up the coast at least as far as Llanbedr and as such were almost certainly utilised in the same way by hunter-gatherer communities during the Mesolithic.

2.4.3 Neolithic (4,000BC – 2,300BC)

It is during the Neolithic that humans first build features that can still be seen in the landscape today.

The study area contains a single recorded asset which dates from the Neolithic, an incised stone (PRN 4782) is now housed at St. Peter's Church, Llanbedr. The stone is a sub-rounded boulder of granite onto which a single spiral motif has been 'pecked'. The stone clearly does not originate from its current location and is known to have been moved a number of times in the recent past. It is said that the stone was found in hut circles above Llanbedr, believed to have been near Hendre Waelod in Cwm Nantcol, approximately 3.5km to the east of its current location (Smith 2001). The motif is similar to those associated with the Neolithic tombs of the Boyne Valley in County Meath, Ireland. On Anglesey similar motifs can also be found at Barclodiad y Gawres, Lanfaelog, a passage tomb which reflects those found in the Boyne Valley and indicates communication between both areas during the Neolithic. It is likely that the stone originated in a similar tomb which is currently unknown and probably destroyed in antiquity.

A number of Neolithic chambered tombs survive in the wider area surrounding the scheme. All of the local examples appear to have been within elongated cairns, evidence of which can still be seen at a number of the sites. The closest example is found 1.2km from the northern end of the scheme at Gwern Einion (PRN 1057), a second possible example is recorded 1.3km from the southern end of the scheme at Uwchlaw'r Coed (PRN 1058) although its interpretation has been questioned (Smith 2001). Further afield impressive examples can be seen; at Dyffryn Ardudwy (PRN 1067) two chambers were constructed, the smaller is earlier and would have originally been covered by a circular cairn which was incorporated into a long cairn following the construction of the larger chamber (Lynch 1995). Cors y Gedol (PRN 1083) is another example of a long cairn, the large capstone and two supporting uprights are still clearly visible but much of the cairn has been robbed. Approximately 6.5km south-east of the scheme on an upland plateau Carneddau Hengwm can be found, these are somewhat unusual as they are a pair of parallel long cairns in close proximity to each other. The southern cairn (PRN 1081) shows evidence of multi period activity and is likely to have originally been a portal dolmen into which a side accessed chamber of Cotswold-Severn tradition was added (Ibid). The northern cairn (PRN 1082) has been seriously disturbed over time but is clearly built in the tradition of Cotswold-Severn lateral chamber tombs, a tradition usually associated with South Wales and South-West England.

Although the dead of the Neolithic are clearly represented in the archaeological record for the area the living are a little more elusive. It is clear that well established communities were active in the area at this period but no evidence of settlement has been found to date. A number of small scrapers of possible Neolithic date were discovered during works associated with the construction of a new water treatment works and associated raw water main at Rhiw Goch over 4km to the north-east but none were associated with datable features (Cooke *et al.* 2010). Two polished stone

axes found in Barmouth (PRN 4172) and Friog (PRN 4880) are clearly Neolithic in date but are some distance from the current study area.

2.4.4 Bronze Age (2,300BC – 700BC)

Three assets dating to the Bronze Age are located within the study area.

The first are the Meini Hirion standing stones (PRN 1059) which are a designated Scheduled Ancient Monument (ME 056). The monument consists of two standing stones, the larger is a rectangular column 3.3m high, the other is a thin slab which stand less than 2m high. The antiquity of the smaller slab has been consistently questioned but there is no doubt that the larger is a prehistoric monument. The stones are located on low lying land and may have originally been on a low protrusion surrounded by marsh prior to the canalisation of the Artro and drainage of surrounding land (Smith 2001). It is also believed that the standing stones mark the start of a Bronze Age trackway, leading to Moel Goedog, Bryn Cader Faner and over the hills to Trawsfynydd, which is traceable by following other standing stones and was still the main road until the beginning of the 19th century (Lynch 1995).

Fragments of a cinerary urn (PRN 4783) are recorded as being discovered at Pensarn, approximately 450m from the northern end of the scheme, although the exact location of the discovery is not known. It is believed that the find location may have been Pensarn farm and as such a watching brief was implemented during the installation of a rising main between Llanbedr and Llandanwg. The watching brief did not encounter any features associated with the urn and the precise location of the original discovery remains unknown (Berks *et al.* 2005).

A bronze un-looped palstave blade (PRN 4792) is recorded as being discovered during the Second World War when excavating a deep cable trench near Llanbedr (Bowen & Gresham 1967). The exact location of the discovery is not known but it is likely to have been in the vicinity of RAF Llanbedr, cable laying at this time was probably associated with increased activity at the airfield.

Recorded sites within the wider landscape also demonstrates that the area was well occupied during the Bronze Age. As with the Neolithic many of the recorded assets dating to this period are funerary in nature. The uplands of Ardudwy are peppered with burial cairns dating to the Bronze Age, notable examples are found at Hengwm to the south and Moel Goedog to the north. It is also likely that many of the hut groups in the area may have their origins in the Bronze Age but the limited amount of recent excavation is yet to conclusively prove the theory.

Burnt mounds, the majority of which can be firmly dated to the Bronze Age, are features which have been interpreted in many ways from brewing sites to cooking sites and saunas, are also present in the vicinity of the scheme. The closest is recorded at Ystumgwern (PRN 14583), 1.7km south-west of the southern end of the scheme. These features, which consist of a mound of heat fractured stones which is usually accompanied by a trough for water, are probably the most common Bronze Age features encountered in North-West Wales yet their use is poorly understood and frequently debated. What can be said with certainty about the features is that they were used to boil water (and possibly other liquids) by repeatedly placing stones which were heated in a hearth into a container with the liquid to be heated, the process results in the stones fracturing and becoming unusable at which point they are discarded and over time form the mound.

2.4.5 Iron Age (700BC – 43AD)

No sites within the study area which are recorded on the Gwynedd HER are specifically noted as being Iron Age in date.

The nearest hut circles recorded within the wider area are Bron y Foel (PRN 14579), Pen y Bryn (PRN 14580), Uwch Glan (PRN 926), Uwchlaw'r Coed (PRN 14578) and a possible example at Coed Llety Walter (PRN 16238). Investigation of hut circles in the area, including at Hengwm (PRN 33549) have shown that many of these are likely to date from the Iron Age.

A number of hillforts and enclosures are also recorded within the wider landscape which are typically Iron Age. These include Pen Dinas (PRN 1106), Craig y Dinas (1107), Bryllysg (PRN 1070), Clogwyn Arllef (PRN 1061) and Moel Goedog (PRN 1000). Many of the upland field systems in the area are likely to date from the Iron Age, some of which are directly associated with hillforts and settlements.

Funerary rituals from this period are not fully understood and no monuments associated with burials or cremations are known.

2.4.6 Romano British (43AD – 450AD)

The only feature of this period recorded on the Gwynedd HER is a proposed route for the Roman Road between Dolgellau and Harlech (PRN 17825), this is however widely disputed and no firm evidence has ever come to light (Hopewell 2005 & *pers. comm.*).

It is also likely that many of the hut circles and settlements attributed to the Iron Age would have remained occupied during this period. Without a major Roman military influence it is likely that for many life would have continued largely unchanged with the exception of increased access to imported goods and limited Roman influence.

The nearest Roman fort would have been Tomen y Mur (PRN 5080), 17km to the north-east at Trawsfynydd. A Roman bathhouse (PRN 16876) which is likely to have been associated with a mansio or villa was located at Llidiart Ysptyty, Tremadog, 14km to the north on the route from Tomen y Mur to Segontium, Caernarfon.

A hoard of five bronze Roman vessels dating to the first century AD and a large amount of Roman coins were discovered on Ynys Gwrtheyrn farm around 1848 (PRN 4956). In recent years a number of Roman finds, including a silver denarius of Hadrian (2nd century AD), have been reported to the Portable Antiquities Scheme from the shore around Dyffryn Ardudwy (Flook 2011 *pers. comm.*).

2.4.7 Early Medieval & Medieval (450AD – 1547AD)

No sites of Early Medieval date are recorded within the study area, three sites of Medieval (1066AD – 1547AD) are recorded.

The Early Medieval is represented in the wider landscape by a number of features. As was the case during the Romano British period it is likely that a number of the hut circle settlements and defended sites established during the Iron Age remained in use during the Early Medieval.

Although the current church building at Llandanwg (PRN 6949, LB Grade I ID 4790) is Medieval, with elements dating to the 13th and 15th centuries with later alterations during the 17th and 19th centuries, it appears to have been established during the Early Medieval period. A number of incised stones and grave markers (PRN 4780, 24793, 4077 & 24794) which have been found, both incorporated into the fabric of the building and in the graveyard, suggest that the church has much earlier origins which may stretch back to 3rd to 6th century although it is unclear whether some of the stones were moved to the church at a later date.

It is documented that a Llywelyn ap Gruffydd had a wooden hall or Llys at Ystumgwern, Possibly Ael y Bryn (PRN 4013), 2.5km south of the scheme, which was set up in Harlech Castle, presumably

as a symbol of conquest (Davidson *et al.* 2005). It is also suggested that the place name of Faeldre (PRN 3409) is a corruption of Faerdref or Mardref, and could indicate the location of the Llys.

The first Medieval site recorded within the study area is the Grade II* listed parish church of St. Peter's in Llanbedr (ID 4782, PRN 6943). The earliest surviving elements of the current building are likely to date to the 15th and 16th centuries, however it is said that the dedication goes back to at least the 13th century (Davidson & Hopewell 2004).

The second is Ffynnon Delau (PRN 4784), a Medieval holy well which was said to have been located in a field known as Llwyn y Ffynnon Delau on Pandy Farm. Although the well has now been closed it was located around 420m west of the northern end of the scheme.

The third recorded site is a general number for the Medieval Township of Llanbedr (PRN 9829).

The most obvious and well known Medieval site in the area is Harlech Castle (PRN 2908) which lies approximately 4km north of the scheme. The castle is a Scheduled Ancient Monument (ME 044), Grade I Listed Building (ID 25500), and forms part of the Castles and Town Walls of Edward I in Gwynedd World Heritage Site. The castle was designed by Master James of St George and built between 1283 and 1289 as part of the conquest of Edward I following the death of Llywelyn ap Gruffydd in 1282 (Davidson 2010). Although no evidence has been found some believe that the site was the location of an early Llys as the site is first mentioned, and is clearly significant, in the tales of the Mabinogion. Although an English borough was established at the same time as the castle, no evidence remains of any walls or regular pattern of burgage plots within the town (*ibid*).

In the area immediately surrounding the scheme it is likely that the majority of the hut circle settlements had been abandoned by the Medieval period, however a similar pattern of scattered rural dwellings can be seen reflected in the distribution of long huts in the uplands. Areas of ridge and furrow ploughing, typically Medieval in date, throughout the area are a sign of the agricultural economy at this time.

2.4.8 Post Medieval & Modern (1547AD – Present)

A number of Post-Medieval and Modern sites are recorded within the study area.

During the Civil War the families of the area sided with the Royalists, the castle was garrisoned but fell in 1647 following a short siege. Orders were given to demolish the castle but they were never executed, leaving it fall into disrepair until the 18th century (Kenney 2009).

Pont Llanbedr (PRN 1582), which is a Scheduled Ancient Monument (ME 026) and Grade II Listed Building (ID 4783), dates to the Civil War period and includes a date stone of 1642. The bridge was largely reconstructed around 1850, Dolgellau archives also hold documents relating to repair works to the bridge in 1827 which were undertaken by Evan Williams and for which he is paid £7 10s (ZQS/H1828/10). Leading from the bridge to the north towards Harlech is the straight embankment and road of Sarn Hir, also the A496 (PRN 25045) and likewise dates to the mid-17th century. The bridge is still the main crossing point of Afon Artro on the A496. Also associated with the route is an 18th century milestone for Harlech and Barmouth which is located at the southern end of Llanbedr village and is Grade II listed (ID 82006),

The majority of the buildings within the village of Llanbedr date to the 19th and 20th centuries. Two examples are Listed Buildings, the 19th century Wenallt Stores building (ID 82016) and early 20th century Moriah Calvinist chapel (ID 18963).

Two houses, Cae Nest and Hafod y Bryn, and associated estates were dominant in Llanbedr during the 19th century although much of the land was owned by The Honourable Edward Mostyn Lloyd

Mostyn of the nearby, larger, Cors y Gedol estate. The proposed scheme will occupy land owned by all three estates during the 19th century, as shown in Tables 4, 5 & 6.

Cae Nest was the seat of the influential Poole family, the current house is a miniature mansion and associated outbuildings dating to the mid-19th century which occupies the site of an earlier house.

Hafod y Bryn was built by Samuel Pope Esq. QC, who had interests in mining in the area. As well as the main house the estate included a lodge and Hafod y Bryn home farm, which includes a Grade II Listed octagonal dairy (PRN 11882, ID 5202). The scheme will cross land which formed part of a landscaped park which includes two woods or 'plantations', one of which lies directly on the proposed route.

The Cambrian Coast Railway which passes to the west of the proposed scheme was opened in 1867 and was part of the railway which was intended to connect Aberystwyth and Porthdinllaen on the north coast of the Llyn Peninsula which William Madocks had hoped would become the main port for Ireland. The final section of the line was never constructed and the line was terminated in Pwllheli.

There are number of Post Medieval sites to the north of the proposed scheme associated with Pensarn Railway Station (PRN 25049). The majority of the Railway station buildings were destroyed in 1987 however the road giving access to Pensarn railway station are marked on the 1st ed 6" 1839-1840 OS map (PRN 59765). Pensarn Railway Bridge (PRN 7266) is a wooden pile, single-tracked railway bridge and is one of thirteen timber bridges on the former Cambrian system to Aberystwyth and to Pwllheli, which are among the last few surviving in Europe and the USA. The bridge was completed in 1867 and was likely designed by Henry Coneybeare, the Cambrians engineer.

Approximately 230m to the south-east of the southern end of the scheme a First World War prisoner of war camp is recorded (PRN 7880). Very little information is recorded on the HER and there are no associated features at the recorded location, there are however features which could be associated with such a camp visible at Tyddyn-Du, west of the recorded location.

The area to the west of the proposed scheme is dominated by Llanbedr Airfield, originally established as RAF Llanbedr (PRN 7267). The airfield became operational in 1941 and was controlled by RAF Valey as a base for fighter squadrons defending the Irish Sea. The long runway was constructed in 1955, possibly to accommodate V-force bombers which were part of the UK's strategic nuclear strike force.

Further features associated with the airfield and its defences are also present in the area. To the west of the scheme two pillboxes (PRN 59744 & PRN 59745) associated with the Second World War defences are recorded, and a later Royal Observation Corps subterranean monitoring post (PRN 58519) associated with the nuclear threat posed during the Cold War is located to the south-east.

In recent years the area has become popular with tourists resulting in the establishment of a number of static caravan sites along the coast. Although not necessarily aesthetically pleasing or significant in their design these are by now undoubtedly part of the historic narrative of the area.

3 Objectives

The main objectives of the archaeological watching brief were to:

- Identify and record any archaeological deposits encountered during the excavation of the trial pits.
- Create a comprehensive record of all identified features.
- As far as was possible, provide interpretation of all identified features and their relationship to previously identified archaeology.
- Increase understanding of the archaeology and historical development of the area.
- Inform future archaeological mitigation and management.

4 Methodology

A comprehensive watching brief was implemented during the excavation of all trial pits until the 'natural' geological deposits were encountered. None of the proposed trial pits were located on visible earthworks which may have been archaeological, one trial pit (TP9) was found to be located in the middle of a drainage ditch and was moved approximately 2m west.

The works were undertaken in a manner which allowed for immediate cessation in the event of the discovery of archaeological deposits requiring further investigation, recording and recovery. No such deposits were encountered but excavation was temporarily halted in order to take photographs once glacial deposits had been encountered.

4.1 Archaeological Watching Brief

The scope of a comprehensive watching brief is defined as constant archaeological supervision during all groundworks.

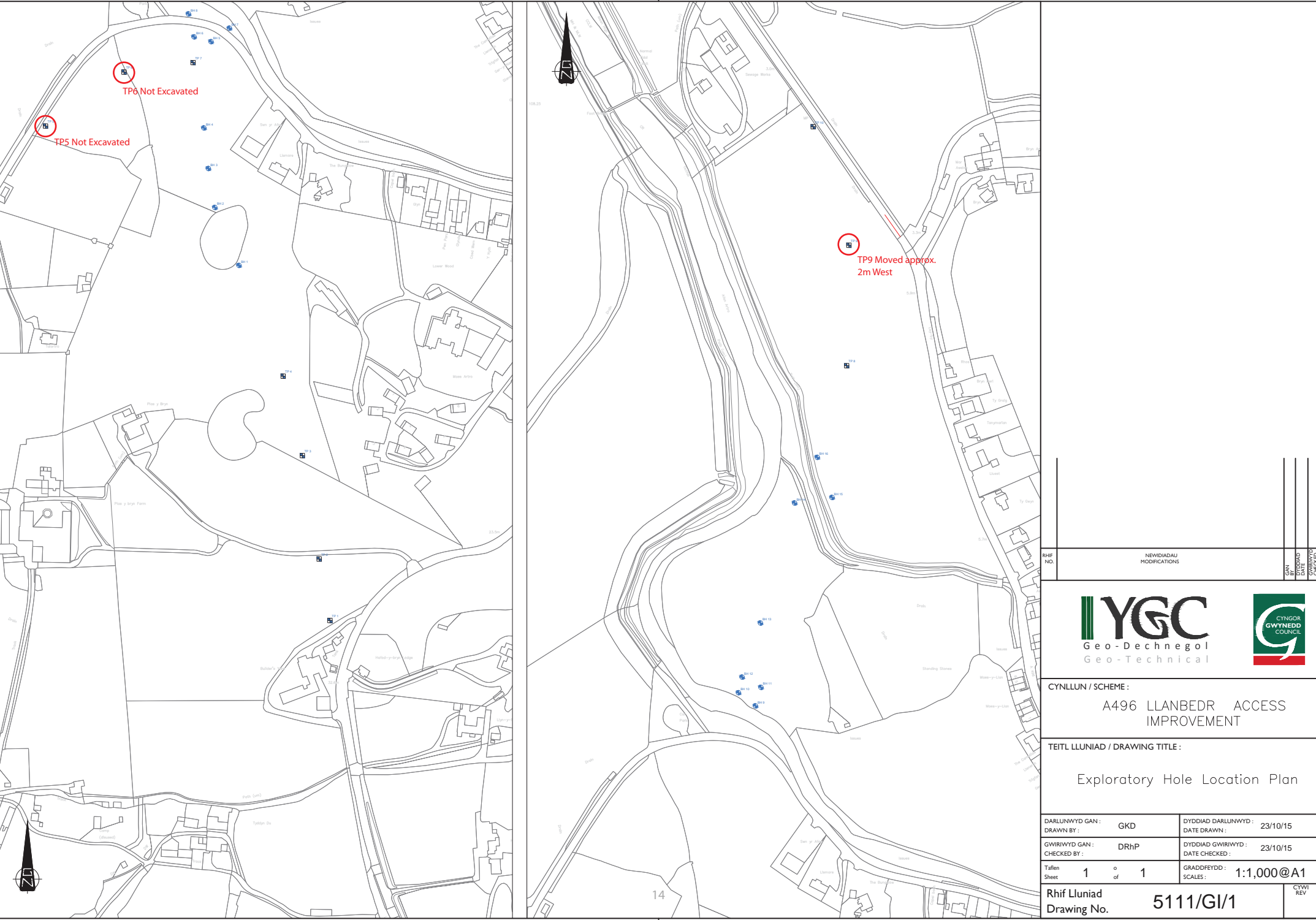
During the watching brief:



- An archaeologist was present during all invasive groundworks associated with the excavation of the trial pits.
- The excavator was fitted with a toothless ditching bucket for the excavation of the trial pits.
- A written description was made of the upper glacial deposits and all deposits above.
- A photographic record of progress was made with a Nikon DSLR camera, images were stored in .NEF/RAW format.
- No archaeological deposits were encountered but extensive alluvial deposits to the north of Afon Artro are potentially rich in significant palaeoenvironmental evidence of human impact on the local environment.

5 Results

No archaeological deposits were encountered in any of the trial pits excavated. Due to the desire to avoid impact to known archaeological features during the ground investigation works this was not an unexpected result. It was found that the depth of deposits overlying the 'natural' glacial deposits were fairly shallow to the south of Afon Artro and that deep alluvial deposits are present within the former flood plain to the north. The results from individual trial pits are presented below, the location of trial pits is shown in figure 2.

Figure 2: Client Drawing 5111/GI/1, Bore Hole and Trial Pit Locations



RHP NO.	NEWIDIADAU MODIFICATIONS	CAN BY DATE	GWYBODAETH DATE
 			
CYNLLUN / SCHEME: A496 LLANBEDR ACCESS IMPROVEMENT			
TEITL LLUNIAD / DRAWING TITLE: Exploratory Hole Location Plan			
DARLUNWYD GAN : DRAWN BY :	GKD	DYDDIAD DARLUNWYD : DATE DRAWN :	23/10/15
GWIRIWWYD GAN : CHECKED BY :	DRhP	DYDDIAD GWIRIWWYD : DATE CHECKED :	23/10/15
Taflen Sheet	1 of 1	GRADDFFEYDD : SCALES :	1:1,000@A1
Rhif Lluniad Drawing No.	5111/GI/1		CYWI REV

5.1 Trial Pit 1

TP1 was located at SH5828526435 close to the southern boundary of a generally flat field laid to pasture and measured 0.7m x 2.7m, orientated E-W. The 'natural' glacial subsoil was encountered at a depth of 0.4m, the maximum depth of the trench was 1.3m.

Topsoil consisted of a 0.3m thick dark orange-brown sand rich clay-silt with a high concentration of roots. There was an interface of approximately 0.1m between the topsoil and glacial subsoil.

A possible cut feature was present at the eastern end of the pit, however there was no charcoal or any other indication that the feature represented an archaeological deposit. Upon consultation with the geologist it was decided that the feature was simply a variation in the colour of the glacial subsoil.

As expected the 'natural' subsoil was confirmed to be glacial till which varied in colour from orange-brown to light brown-grey and consisted of gravelly sand-clay.



Plate 1: TP1 at glacial interface, view from the North, scale 1m

5.2 Trial Pit 2

TP2 was located at SH5827526489 south of the track leading to Plas y Bryn within the same field as TP1. It measured 0.7m x 2m and was orientated WNW-ESE. The 'natural' glacial subsoil was encountered at 0.5m and the pit reached a maximum depth of 1.6m.

The topsoil consisted of mid orange-brown sand rich clay-silt which was moderately stony, containing sub rounded to rounded pebbles measuring $>0.05\text{m}$. There was an interface of approximately 0.1m between the topsoil and 'natural' glacial subsoil.

The 'natural' subsoil consisted of yellow-grey gravelly sand-clay.

No archaeology was identified within the pit.



Plate 2: TP2 at glacial interface, view from the South, scale 1m

5.3 Trial Pit 3

TP3 was located at SH5826126578 which is at the base of an eastern facing slope, below an estate planted wood, within a field laid to pasture. The pit measured 0.7m x 2.6m and was orientated N-S. The 'natural' glacial subsoil was encountered at a depth of 0.45m and the pit was excavated to a maximum depth of 1.8m.

The topsoil consisted of a 0.4m thick layer of dark orange-brown silt-clay which contained a moderate amount of sub-rounded stones >0.1m.

Below the topsoil was a 0.2m thick subsoil of mid brown-orange clay-silt containing a moderate amount of sub-rounded to sub-angular stones >0.1m.

The 'natural' glacial subsoil was mottled grey-orange gravelly sand-clay which included fairly substantial sub-rounded stones >0.5m at the interface with the deposits above.

No archaeology was identified within the pit.



Plate 3: TP3 at glacial interface, view from the West, scale 1m

5.4 Trial Pit 4

TP4 was located at SH5824426646 within the same field as TP3, on a steep east facing slope. The pit measured 0.7m x 2m and was orientated E-W. The 'natural' glacial subsoil was encountered at a depth of 0.45m, the pit was excavated to a maximum depth of 1.3m.

The topsoil consisted of a 0.38m thick deposit of dark orange-brown clay-silt which included occasional sub-rounded to round stones >0.05m. Between the topsoil and 'natural' subsoil there was an interface of approximately 0.1m.

The 'natural' subsoil consisted of grey-yellow shale rich sand-clay.

No archaeology was identified within the pit.



Plate 4: TP4 at glacial interface, view from the South, 1m scale

5.5 Trial Pit 7

TP7 was located at SH5816726917 within the same field as TP3 and TP4, on a north facing slope on towards the northern boundary. The pit measured 0.7m x 2.9m, the 'natural' glacial subsoil was encountered at 0.6m, the pit was excavated to a maximum depth of 2m.

The Topsoil consisted of a 0.4m thick deposit of dark orange-brown clay-silt. Below this was a 0.2m thick deposit of mid brown-orange clay-silt subsoil.

The 'natural' subsoil consisted of grey stony gravel rich sand-clay.

No archaeology was identified within the pit.



Plate 5: TP7 at glacial interface, view from the Southwest, scale 1m

5.6 Trial Pit 8

TP8 was located to at SH5826527275 which is within the former flood plain to the north of Afon Artro, the field in which the pit was located is low lying, flat and laid to pasture. The pit measured 0.7 x 3m and was orientated NW-SE, the 'natural' glacial subsoil was encountered at a depth of 1.7m and the pit was excavated to a maximum depth of 2.55m.

The topsoil consisted of a 0.35m thick deposit of mid brown-grey sand rich clay-silt. Below this was a 1.3m thick mixed deposit of mottled grey-brown sand rich clay. A 0.8m thick alluvial deposit of mid grey-brown clay was present below the upper deposits, banding within the deposit showed good evidence of formation and frequent organic inclusions were present throughout. The 'natural' glacial subsoil was identified at a depth of 1.7m, this consisted of light grey stony gravel rich clay.

No archaeological features were present within the pit but the alluvial deposit was shown to include a large amount of preserved organic material which could provide information on the environmental development of the local area and indicate that organic artefacts may be preserved in the former flood plain.



Plate 6: TP5 showing upper deposits, view from the East-southeast, scale 1m



Plate 7: TP8 at final depth, view from the Southeast

5.7 Trial Pit 9

TP9 was initially found to be within a drainage ditch so was moved approximately 2m west to SH5826427379, essentially within the same field as TP8 but on the opposite side of the drainage ditch. The pit measured 0.7m x 3.4m and was orientated N-S, the 'natural' glacial subsoil was identified at approximately 3m with the final depth being 3.1m.

The topsoil consisted of a 0.3m thick deposit of dark grey-brown sand rich clay-silt. Below this was a 2.5m thick alluvial deposit of mid grey-brown clay with frequent organic inclusions which had clearly been deposited in bands from a depth of approximately 1m the colour notably changed to blue-grey. The 'natural' glacial subsoil consisting of grey stony gravel rich clay was identified at a depth of 3m.

No archaeological features were identified within the pit but as with TP8 the presence of organic material within the alluvial deposits indicates that there is potential for valuable palaeoenvironmental information and survival of organic artefacts.



Plate 8: TP9 at a depth of 1m, view from the North-northwest, scale 1m



Plate 9: TP9 at final depth, working shot, view from the North

5.8 Trial Pit 10

TP 10 was located at the northern corner of the same field as TP8 & TP9 at SH5823527481. The pit measured 0.7m x 3.2m orientated NW-SE, it was excavated to a maximum depth of 3.7m without reaching glacial deposits.

The topsoil consisted of a 0.2m thick deposit of mid grey-brown clay-silt. Underlying the topsoil was an alluvial deposit which consisted of a 1.4m thick deposit of clay which varied in colour from a slightly mottled dark brown-grey to blue-grey, organic material was present throughout. Below this was a 2m thick deposit of blue-grey fine silt which also contained organic material.

No archaeological features were identified but a small amount of charcoal flecks were present within the alluvial clay at a depth of 0.5-0.7m which could indicate human activity in the area. Without radiocarbon dating it will not be possible to determine what period the sediments at that level may have been deposited. As with TP8 & TP9 the presence of deep alluvial deposits containing preserved organic remains suggest that a wealth of palaeoenvironmental information could be gained from further analysis of the deposits in this area.



Plate 10: TP10 at approximately 1.2m, view from the West-northwest, scale 1m



Plate 11: TP10 at final depth, view from the North-northwest

6 Conclusion

The archaeological watching brief did not identify any archaeological features during the excavation of the ground investigation trial pits. This was not an unexpected result as the archaeological features identified in the archaeological desk based assessment and subsequent geophysical survey were intentionally avoided.

The excavation of TP8, TP9 & TP10 in the former flood plain have demonstrated the presence of extensive alluvial deposits which have the potential to hold significant palaeoenvironmental information which could provide an extremely important narrative of the environmental development of the area. These deposits should in effect be treated as an archaeological resource which will be impacted by the proposed scheme, as such appropriate mitigation against the impact should be implemented if the scheme is to progress.

The excavation of TP1-TP4 to the South of Afon Artro have shown that the topsoil and subsoil are relatively shallow making it unlikely that extensive deep stratified archaeological deposits will be encountered if the scheme is to progress.

7 Archive

A copy of this report will be lodged with Snowdonia National Park, the Gwynedd Historic Environment Record, Bangor and the National Monuments Record of Wales which is the public record of the Royal Commission on the Ancient and Historic Monuments of Wales, Aberystwyth.

The archive produced during the watching brief, including written record and photographs, will be lodged with the National Monuments Record of Wales, Aberystwyth.

ABA will hold a digital copy of the archive indefinitely.

The results of the watching brief do not warrant further publication, they will however be used to inform the Environmental Impact Assessment for the proposed scheme.

8 Bibliography and Sources Consulted

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Client Drawing G5111/GI/1: Exploratory Hole Location Plan (Reproduced as Figure 2)

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