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**Ty Tandderwen Water Main  
Replacement, Corwen, Gwynedd.  
May 2014**

aeon archaeology



Archaeological Watching Brief  
Project Code: A0037.1  
Report no. 0038

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# **Ty Tandderwen Water Main Replacement, Corwen, Gwynedd. May 2014**

Report no. 0038 v1.0

Archaeological Watching Brief  
Aeon Archaeology  
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Project Code: A0037.1

Date: 18/05/2014

Client: Dwr Cymru/Welsh Water

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## **1.0 NON-TECHNICAL SUMMARY**

Aeon Archaeology was commissioned by Dwr Cymru/ Welsh Water to carry out an archaeological watching brief during the excavation of launch/reception pits and connection pits during the replacement of the existing water main at Ty Tandderwen, Corwen, Gwynedd.

The archaeological watching brief did not identify any archaeological remains or artefacts during any part of the works. In terms of the overall contribution of the project to the regional research agenda the mitigatory works can be seen as being disappointing. The lack of archaeological remains is likely to be a result of the steep topography and thin soils which were not conducive to early habitation. Moreover, where areas of archaeological potential were identified they had already been disturbed through the installation of historic utilities.

## 2.0 INTRODUCTION, AIMS AND PROJECT DESIGN

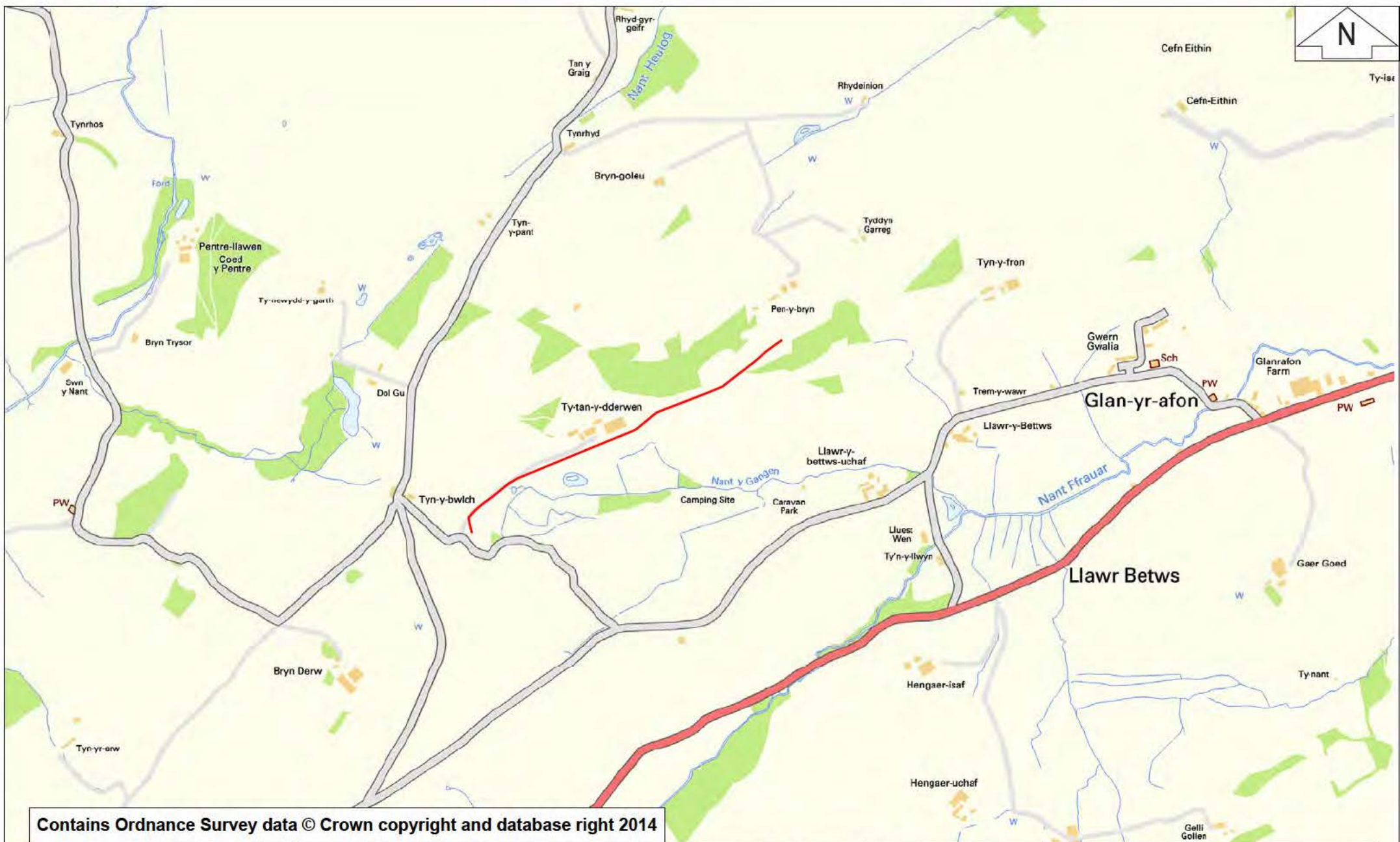
Aeon Archaeology was commissioned by Dwr Cymru/ Welsh Water to carry out an archaeological watching brief during the excavation of launch/reception pits during the renewal of the existing water main at Ty Tandderwen, Corwen, Gwynedd, LL21 0HF. The watching brief was also maintained during the excavation of connection trenches between existing water points and the new main.

The length of water main replaced measured approximately 758.0m and ran from southwest to northeast through fields to the immediate south of Ty Tannderwen farm (**NGR SH 00859 / 42261 – SH 01490 / 42652**).

A mitigation brief was not prepared for this work by The Gwynedd Archaeological Planning Services (GAPS), but GAPS requested that an archaeological watching brief be maintained during the excavation of the launch/reception pits for the directional drill and during any additional trenching work (figure 1).

The site lies within or in proximity to the following designated areas:

- Approximately 123.0m north of the prehistoric *Enclosure, possible, S of Pen y Bryn, Llandderfel* earthwork (PRN:34149);
- Approximately 160.0m north of the post-medieval *Llawr-y-Betws Chapel site* (NPRN:43850);
- Approximately 1.0km northeast of the prehistoric hillfort of *Caer Euni Camp* Scheduled Ancient Monument (ME015).



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Figure 01: Location of water main replacement (pipe route shown in red).  
Scale 1:10,000 at A4.

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### 3.0 PROJECT AIMS

The aim of the works was to monitor and where relevant characterise the known, or potential archaeological remains uncovered during the excavation of the launch/reception pits for the directional drill and during any inspection or connection trenches. A design brief was not produced by the Gwynedd Archaeological Planning Service (GAPS), but GAPS stated in an email to Welsh Water dated 15<sup>th</sup> October 2013 that:

*‘...all of the excavation works will need to be subject to a watching brief – the holes for pipe-bursting are closer to the recorded enclosure (and therefore have potential for associated remains) and the lower end has better potential for presently unknown remains. (Emmett, J. 2013).*

The broad aims of the archaeological watching brief were:

- To determine, as far as is reasonably possible, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains on the site, the integrity of which may be threatened by the site works.
- To assess the degree of archaeological survival of buried deposits of archaeological significance.

The detailed objectives of the archaeological watching brief were determined to be:

- Insofar as possible within methodological constraints, to explain any temporal, spatial or functional relationships between the structures/remains identified, and any relationships between these and the archaeological and historic elements of the wider landscape.
- Where the data allows, identify the research implications of the site with reference to the regional research agenda and recent work in Gwynedd.

An Archaeological Written Scheme of Investigation (WSI) (appendix I) was written by Aeon Archaeology and submitted to GAPS in April 2014. This formed the basis of a method statement submitted for the work. The archaeological watching brief was undertaken in accordance with this WSI.

The management of this project has followed the procedures laid out in the standard professional guidance *Management of Archaeological Projects* (English Heritage, 1991), *Management of Research Projects in the Historic Environment Project Manager's Guide* (English Heritage 2006), and in the Institute for Archaeologists *Standard and Guidance for an archaeological watching brief* (1994 rev. 2001 and 2008). Five stages are specified:

- Phase 1: project planning
- Phase 2: fieldwork
- Phase 3: assessment of potential for analysis and revised project design
- Phase 4: analysis and report preparation
- Phase 5: dissemination

The current document reports on the phase 4 analysis and states the means to be used to disseminate the results. The purpose of this phase is to carry out the analysis identified in phase 3 (the assessment of potential phase), to amalgamate the results of the specialist studies, if required, with the detailed site narrative and provide both specific and overall interpretations. The site is to be set in its landscape context so that its full character and

importance can be understood. All the information is to be presented in a report that will be held by the Gwynedd Historic Environment Record (HER) and The Royal Commission on the Ancient and Historic Monuments in Wales (RCAHMW) so that it can be accessible to the public and future researchers. This phase of work also includes archiving the material and documentary records from the project.

## 4.0 METHODOLOGY

### 4.1 Watching Brief

(Reproduced from IFA. 2001. *Institute for Archaeologists 1994 rev. 2001 and 2008 Standard and Guidance for an archaeological watching brief*)

The definition of an archaeological watching brief 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.

This definition and standard does not cover chance observations, which should lead to an appropriate archaeological project being designed and implemented, nor do they apply to monitoring for preservation of remains *in situ*.

An archaeological watching brief is divided into four categories according to the IFA. 2001. *Institute for Archaeologists 2001 Standard and Guidance for an archaeological watching brief*:

- comprehensive (present during all ground disturbance)
- intensive (present during sensitive ground disturbance)
- intermittent (viewing the trenches after machining)
- partial (as and when seems appropriate).

An **intensive** watching brief was maintained during the excavation of launch/reception pits and connection trenches at Ty Tandderwen, Corwen.

### 4.2 Data Collection from Site Records

A database of the site photographs was produced to enable active long-term curation of the photographs and easy searching. The site records were checked and cross-referenced and photographs were cross-referenced to contexts. These records were used to write the site narrative and the field drawings and survey data were used to produce an outline plan of the trench locations.

All paper field records were scanned to provide a backup digital copy. The photographs were organised and precisely cross-referenced to the digital photographic record so that the Gwynedd Historic Environment Record (HER) can curate them in their active digital storage facility.

### 4.3 Artefact Methodology

All artefacts were to be collected and processed including those found within spoil tips. Finds numbers would be attributed and they would be bagged and labelled as well as any preliminary identification taking place on site. After processing, all artefacts would be cleaned and examined in-house at Aeon Archaeology. If required, artefacts would be sent to a relevant specialist for conservation and analysis.

The recovery policy for archaeological finds was kept under review throughout the watching brief. Any changes in recovery priorities would be made under guidance from an appropriate specialist and agreed with the GAPS Archaeologist. There was a presumption against the disposal of archaeological finds regardless of their apparent age or condition.

#### **4.4 Environmental Samples Methodology**

The sampling strategy and requirement for bulk soil samples was related to the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant features would be sampled. The aim of the sampling strategy was to recover carbonised macroscopic plant remains, small artefacts particularly knapping debris and evidence for metalworking.

Advice and guidance regarding environmental samples and their suitability for radiocarbon dating, as well as the analysis of macrofossils (charcoal and wood), pollen, animal bones and molluscs would be obtained from Oxford Archaeology if required.

#### **4.5 Report and dissemination**

A full archive including plans, photographs and written material resulting from the project was prepared. All plans, photographs and descriptions were labelled, and cross-referenced. Copies of the report will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd LL57 2RT), and the Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW Aberystwyth).

## 5.0 THE HISTORICAL CONTEXT

In 1291 *Llawr-y-bettws* was noted to be an outlying chapelry belonging to Llanfor parish (and hence St Deiniols; St Mor's Church, Llanfor (NPRN: 43869). This possible chapel site was known as *Erw'r Capel* ('church acre') at the beginning of the eighteenth century. It is located some 280.0m west of Llawr Betws farm, and some 150.0m northwest of Llawr-y-Bettws Uchaf, and is situated in the west hedge of a field formerly known as *Ffridd ucha*. In 1913 it was noted that a darker green semi-circle of grass was visible in spring, which was regarded locally as the old churchyard. It was also noted that former outbuildings at Llawr-y-Bettws Ucha were reported to contain ancient beams and couplings of the type associated with old churches, and were said to have been paved with gravestones. The site is situated some 450.0m west of a later prehistoric defended enclosure (NPRN: 404710) and the two sites may be associated.

In addition a possible prehistoric circular enclosure (PRN: 34149) was identified using Lidar data approximately 123.0m to the south of the proposed water main renewal route. This site is yet to be confirmed but could indicate a spread of settlement enclosures from the east.

Approximately 544.0m to the east lies the site of a large oval-shaped compound (PRN: 24777), shown on John Evans Map of North Wales (1795). It is possible to trace the outline of the site in the existing field boundaries, though it has been disturbed to the east, by the present school building and Gwern Gwalia. Its function is unknown, although it may be the site of a prehistoric enclosure, as the field names (*Cyttiau*) could refer to prehistoric round houses or a possible Roman fortlet (Gwynedd HER).

## **6.0 QUANTIFICATION OF RESULTS**

### **6.1 The Documentary Archive**

The following documentary records were created during the archaeological watching brief.

Context sheets	0
Watching brief day sheets	10
Drawings	0
Digital photographs	84

### **6.2 Environmental Samples**

No environmental samples were taken as part of the watching brief as no suitable archaeological deposits were encountered.

### **6.3 Artefacts**

No artefacts were recovered during the archaeological watching brief.

## **7.0 RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF**

An intensive watching brief was maintained during the excavation of the launch/reception pits by an external contractor (O'Connor Utilities) and during the excavation of connection trenches from 23<sup>rd</sup> April 2014 – 7<sup>th</sup> May 2014 (figure 2).

### **Launch/Reception Pit 01** (figure 2; plates 1 and 2)

Launch/reception pit 01 was centred on NGR SJ 00901 42336 and located within the grass verge to the immediate south of the farm trackway. The pit measured 2.0m in length by 0.66m in width orientated northeast to southwest. It was excavated to a depth of 1.0m through a 0.3m deep mid orange-brown silt-clay topsoil and a 0.7m deep light orange-grey slightly silty natural clay substrata.

The pit did not reveal any archaeological remains or artefacts but it was noted that a 'french' drain comprising loose small sized angular pebbles passed through the pit orientated north to south, which had almost certainly been added during the trackway construction.

### **Launch/Reception Pit 02** (figure 2)

Launch/reception pit 02 was centred on NGR SJ 00985 42388 and located within the grass verge to the immediate south of the farm trackway. The pit measured 2.0m in length by 1.2m in width orientated northeast to southwest. It was excavated through 0.2m depth of topsoil before narrowing to 0.65m in width and a depth of 1.0m. It cut through a 0.3m deep mid red-brown silt-clay topsoil, a 0.5m deep light orange clay-sand natural substrata, and a 0.2m deep mid orange-brown sand-clay natural substrata with frequent small sized angular stone inclusions.

The pit did not reveal any archaeological remains or artefacts.

### **Launch/Reception Pit 03** (figure 2)

Launch/reception pit 03 was centred on NGR SJ 01074 42419 and located within the grass verge to the immediate south of the farm trackway. The pit measured 2.0m in length by 0.7m in width orientated northeast to southwest. It was excavated to a depth of 1.0m through a 0.25m deep mid brown silt-clay topsoil, a 0.3m deep light-orange clay-sand natural substrata and a 0.45m deep light grey natural clay substrata.

The pit did not reveal any archaeological remains or artefacts.

### **Launch/Reception Pit 04** (figure 2)

Launch/reception pit 03 was centred on NGR SJ 00851 42260 and located within a grazing field to the immediate south of the farm trackway. The pit measured 2.0m in length by 0.55m in width orientated northeast to southwest. It was excavated through 0.25m depth of topsoil before narrowing to 0.7m in width and a depth of 1.0m. It cut through a 0.25m deep mid brown silt-clay topsoil, a 0.6m deep light grey-brown silt-clay natural substrata, and a 0.15m deep light orange clay-sand natural substrata.

The pit did not reveal any archaeological remains or artefacts.



**Plate 01:** Launch/reception pit 01, from the northeast. Scale 1.0m.



**Plate 02:** Launch/reception pit 01, from the northwest. Scale 1.0m.

#### **Launch/Reception Pit 05** (figure 2, plates 3 and 4)

Launch/reception pit 05 was centred on NGR SJ 01406 42585 and located within a grazing field to the east of Ty Tandderwen farm. The pit measured 2.3m in length by 1.6m in width orientated northeast to southwest. It was excavated through 0.25m depth of topsoil before narrowing to 0.95m in width and a depth of 1.15m. It cut through a 0.25m deep mid red-brown silt-clay topsoil, a 0.5m deep light-orange clay-sand natural substrata, and a 0.4m deep light-grey silt-clay natural substrata with frequent small sized angular pebble inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Connection Trench Pit 06** (figure 2)

Connection trench pit 06 was centred on NGR SJ 00910 42331 and located within the grass verge to the immediate south of the farm trackway. The pit measured 7.0m in length by 0.66m in width orientated northeast to southwest and excavated to the immediate northeast of launch/reception pit 01. It was excavated to a depth of 1.0m through a 0.3m deep mid orange-brown silt-clay topsoil and a 0.7m deep light orange-grey slightly silty natural clay substrata.

The pit did not reveal any archaeological remains or artefacts.

#### **Launch/Reception Pit 07** (figure 2)

Launch/reception pit 07 was centred on NGR SJ 01165 42463 and located within a grazing field to the immediate south of Ty Tandderwen farm. The pit measured 2.3m in length by 1.5m in width orientated northeast to southwest. It was excavated through 0.21m depth of topsoil before narrowing to 0.7m in width and a depth of 1.06m. It cut through a 0.37m deep mid red-brown silt-clay topsoil, a 0.32m deep light orange-yellow clay-silt natural substrata, and a 0.37m deep light yellow-grey sand-clay natural substrata with fairly frequent small and medium sized angular pebble inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Launch/Reception Pit 08** (figure 2)

Launch/reception pit 08 was centred on NGR SJ 01256 42508 and located within a grazing field to the east of Ty Tandderwen farm. The pit measured 2.0m in length by 1.3m in width orientated northeast to southwest. It was excavated through 0.14m depth of topsoil before narrowing to 0.63m in width and a depth of 1.20m. It cut through a 0.32m deep mid grey-brown silt-clay topsoil, a 0.33m deep light yellow clay-sand natural substrata, and a 0.55m deep mid-grey silt-clay natural substrata with very frequent shale inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Inspection Pit 09** (figure 2)

Inspection pit 09 was centred on NGR SJ 01292 42539 and located within a grazing field to the immediate east of Ty Tandderwen Farm in order to locate the existing water main. The pit measured 2.2m in length by 2.0m in width orientated northwest to southeast. It was excavated to a depth of 0.6m through a 0.2m deep mid red-brown silt-clay topsoil, 0.2m deep light orange clay-sand natural substrata, and a 0.2m deep light orange-grey silt-clay natural substrata with frequent shale inclusions.

The pit did not reveal any archaeological remains or artefacts and the existing water main was not located within the trench.



**Plate 03:** Launch/reception pit 05, from the southwest. Scale 1.0m.



**Plate 04:** Launch/reception pit 05, from the northwest. Scale 1.0m.

#### **Inspection Pit 10** (figure 2, plates 5 and 6)

Inspection pit 10 was centred on NGR SJ 01292 42539 and located within a grazing field to the east of Ty Tandderwen Farm in order to locate the existing water main. The pit measured 4.0m in length by 1.3m in width orientated northwest to southeast. It was excavated to a depth of 1.0m through a 0.2m deep mid red-brown silt-clay topsoil, 0.27m deep light orange clay-sand natural substrata, and a 0.53m deep light grey silt-clay natural substrata with frequent shale inclusions.

The pit did not reveal any archaeological remains or artefacts and the existing water main was located towards the south-eastern end of the trench.

#### **Launch/Reception Pit 11** (figure 2)

Launch/reception pit 11 was centred on NGR SJ 01341 42543 and located within a grazing field to the east of Ty Tandderwen farm. The pit measured 2.6m in length by 1.45m in width orientated northeast to southwest. It was excavated through 0.08m depth of topsoil before narrowing to 0.85m in width and a depth of 1.1m. It cut through a 0.25m deep mid red-brown silt-clay topsoil, a 0.4m deep light yellow sand-silt natural substrata with very frequent small pebble inclusions, and a 0.45m deep very firm mid-grey clay-silt natural substrata with very frequent small sized angular pebble and shale inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Connection Pit 12** (figure 2)

Connection pit 12 was centred on NGR SJ 00852 42260 and located within a grazing field to the south of the farm trackway in order to connect the new water main to the existing water main. The pit measured 3.3m in length by 2.6m in width orientated north to south. It was excavated to a depth of 1.3m through a 0.2m deep mid red-brown silt-clay topsoil, 0.3m deep light orange-brown silt-clay natural substrata, 0.15m deep band of light-grey natural clay substrata, and a 0.65m deep light-orange clay-sand natural substrata.

The pit did not reveal any archaeological remains or artefacts.

#### **Inspection Pit 13** (figure 2)

Inspection pit 13 was centred on NGR SJ 01356 42558 and located within a grazing field to the east of Ty Tandderwen Farm in order to locate the existing water main. The pit measured 1.85m in length by 0.9m in width orientated northeast to southwest. It was excavated to a depth of 1.0m through a 0.2m deep mid red-brown silt-clay topsoil, 0.36m deep light orange clay-sand natural substrata with occasional small sized angular pebble inclusions, and a 0.44m deep light grey and brown mottled clay-silt natural substrata with occasional small sized angular pebble inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Valve Pit 14** (figure 2)

Valve pit 14 was centred on NGR SJ 00960 42377 and located within the grass verge to the immediate south of the farm trackway in order to install a valve over the new water main. The pit measured 2.0m in length by 1.2m in width orientated northeast to southwest. It was excavated to a depth of 1.45m through a 0.25m deep mid red-brown silt-clay topsoil, 0.4m



**Plate 05:** Inspection pit 10, from the southeast. Scale 1.0m.



**Plate 06:** Inspection pit 10, from the southwest. Scale 1.0m.

deep light orange sand-silt natural substrata with very frequent small sized angular pebble inclusions, and a 0.8m deep light-orange clay-sand natural substrata.

The pit did not reveal any archaeological remains or artefacts.

#### **Valve Pit 15** (figure 2, plates 7 and 8)

Valve pit 15 was centred on NGR SJ 00862 42300 and located within the grass verge to the immediate south of the farm trackway in order to install a valve over the new water main. The pit measured 2.0m in length by 1.3m in width orientated northeast to southwest. It was excavated to a depth of 1.5m through a 0.2m deep mid red-brown silt-clay topsoil and crushed slate hardcore road surface, 0.5m deep light orange clay-sand natural substrata, and a 0.8m deep light grey and orange mottled clay natural substrata with fairly frequent medium sized angular cobble inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Valve Pit 16** (figure 2)

Valve pit 16 was centred on NGR SJ 01431 42641 and located within a grazing field to the east of Ty Tandderwen farm in order to install a valve over the new water main. The pit measured 2.3m in length by 1.5m in width orientated northeast to southwest. It was excavated to a depth of 0.8m through a 0.2m deep mid red-brown silt-clay topsoil, 0.3m deep light orange clay-sand natural substrata, and a 0.3m deep light grey clay natural substrata.

The pit did not reveal any archaeological remains or artefacts.

#### **Valve Pit 17** (figure 2)

Valve pit 17 was centred on NGR SJ 01105 42433 and located within a grazing field to the south of Ty Tandderwen farm in order to install a valve over the new water main. The pit measured 2.3m in length by 1.3m in width orientated northeast to southwest. It was excavated to a depth of 1.2m through a 0.12m deep mid red-brown silt-clay topsoil and crushed light-grey slate hardcore layer forming the current farm trackway, a 0.67m deep light orange silt-clay natural substrata with fairly frequent small angular stone inclusions, and a 0.27m deep light grey silt-clay natural substrata.

The pit did not reveal any archaeological remains or artefacts.

#### **Connection Pit 18** (figure 2)

Connection pit 18 was centred on NGR SJ 01479 42644 and located within a grazing field at the eastern end of the scheme in order to connect the new water main to the existing water main. The pit measured 8.0m in length by 0.38m in width orientated northeast to southwest. It was excavated to a depth of 0.8m through a 0.28m deep mid red-brown silt-clay topsoil, 0.4m deep light orange clay-sand natural substrata, and a 0.12m deep light-grey clay natural substrata with occasional small sized sub-angular stone inclusions.

The pit did not reveal any archaeological remains or artefacts.

#### **Launch/Reception Pit 19** (figure 2)

Launch/reception pit 19 was centred on NGR SJ 01521 42673 and located within a grazing field at the eastern end of the scheme. The pit measured 5.2m in length by 1.52m in width orientated northeast to southwest. It was excavated to a depth of 1.2m through a 0.2m deep



**Plate 07:** Valve pit 15, from the southwest. Scale 1.0m.



**Plate 08:** Valve pit 15, from the southeast. Scale 1.0m.

mid/dark grey-brown silt-clay topsoil, 0.2m deep light orange clay-sand natural substrata, and a 0.8m deep light orange-grey silt-clay natural substrata with very frequent shale inclusions and outcrops of bedrock.

The pit did not reveal any archaeological remains or artefacts.

**Connection Pit 20** (figure 2, plates 9 and 10)

Connection pit 20 was centred on NGR SJ 01132 42445 and located within a grazing field to the immediate south of Ty Tandderwen farm in order to connect the new water main to an existing meter. The pit measured 6.0m in length by 0.8m in width orientated northwest to southeast. It was excavated to a depth of 1.2m through a 0.22m deep mid red-brown silt-clay topsoil, 0.25m deep light yellow-orange clay-sand natural substrata with occasional small sized angular pebble inclusions, and a 0.72m deep light grey-orange silt-clay natural substrata with fairly frequent small sized angular pebble inclusions.

The pit did not reveal any archaeological remains or artefacts.

**Connection Pit 21** (figure 2)

Connection pit 21 was centred on NGR SJ 00917 42310 and located within a grazing field to the immediate south of the farm trackway in order to connect the new water main to an existing meter. The pit measured 20.0m in length by 0.4m in width orientated northwest to southeast. It was excavated to a depth of 1.15m through a 0.2m deep dark black-brown silt-clay topsoil, 0.8m deep dark brown-black clay-sand peat, and a 0.2m deep light green-blue clay natural substrata with occasional small and medium sized angular cobble inclusions.

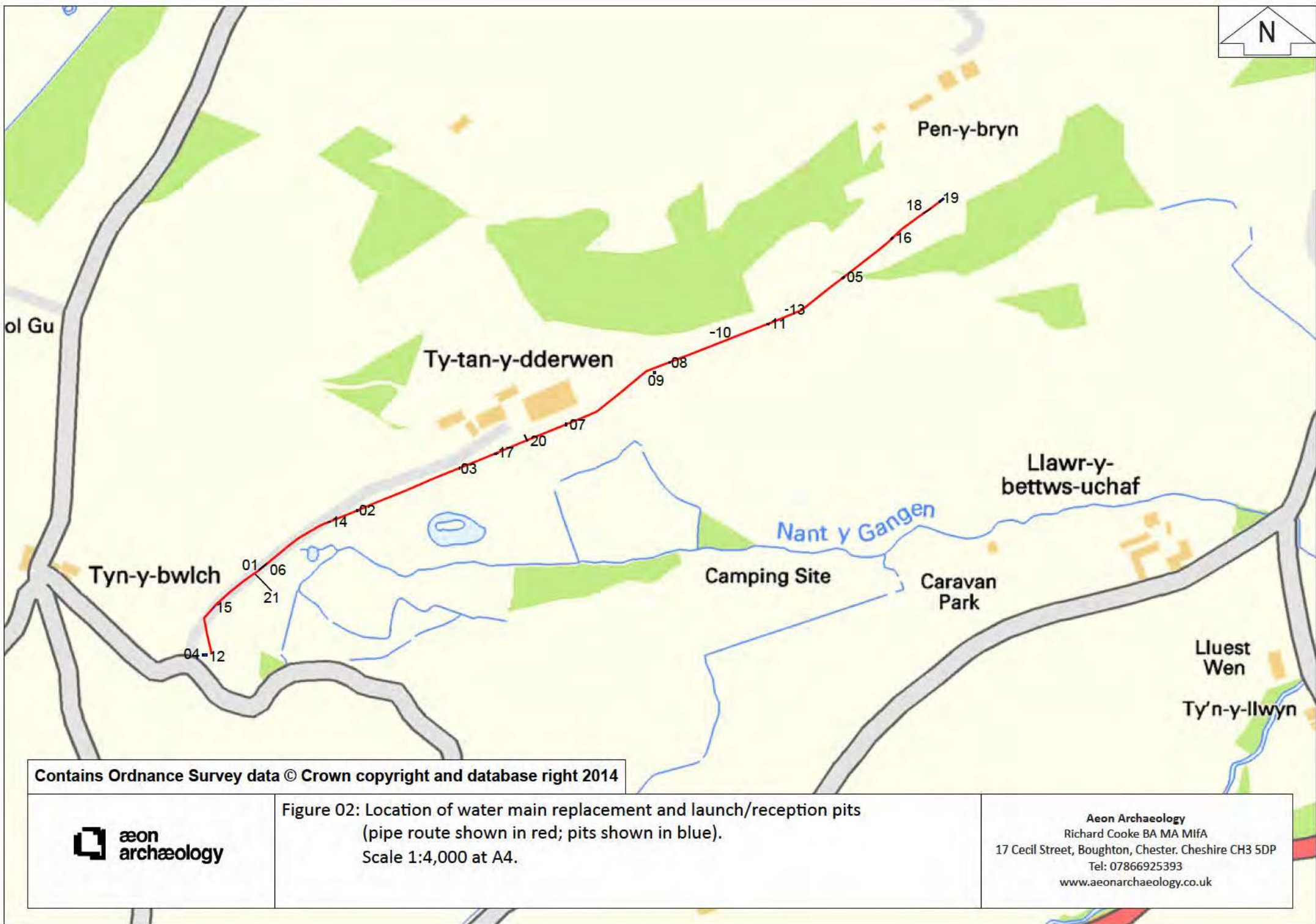
The pit did not reveal any archaeological remains or artefacts.



**Plate 09:** Connection pit 20, from the southeast. Scale 1.0m.



**Plate 10:** Connection pit 20, from the northeast. Scale 1.0m.



## 8.0 CONCLUSION AND RECOMMENDATIONS

The archaeological watching brief during the excavation of the launch/reception pits and connection pits at Ty Tandderwen, Corwen did not expose any archaeological remains or artefacts of any time period. The absence of archaeological remains can be explained for the most part by the majority of the new pipe route passing through areas of steep topography with thin soils. These locations would not have been conducive to early habitation due to the steep gradient and also would have made farming difficult without terracing into the natural slope, of which there is no evidence at this location.

The south-western end of the scheme passed for the most part along the route of the farm trackway and as such any upstanding and buried archaeological remains are likely to have been removed through the construction of the trackway by terracing into the natural slope. The extreme south-western end of the pipe route appeared to offer an area of archaeological potential, occupying a plateau of flat land alongside the traditional flood basin of the Nant y Gangen to the south, however the area had been previously heavily disturbed through the installation of inspection holes for the existing water main and through the confluence of several utility lines. Thus it is likely that any existing archaeological remains had been already removed.

The extreme north-eastern limit of the scheme again offered an area of archaeological potential with a flat plateau upon the crest of the hill at this point. The connection and launch/reception pits (18 and 19) monitored at this point were excavated through undisturbed soil horizons however no archaeological remains were encountered. It is possible that this flat-topped hill was never utilised for habitation of any sort or it may be that the pits did not happen to fall over the areas of archaeological activity.

The absence of artefacts from any time periods is unusual; as ceramics connected with the post-medieval farming activity would have been expected at the very least. It is possible although that the limited size of the pits may have presented a smaller physical window of inspection in which to retrieve artefacts, especially compared with that of open-cut trenching along the entire pipe route.

## 9.0 SOURCES

### *OS Maps*

1<sup>st</sup> edition 25 inch Ordnance Survey Map of 1889.

2<sup>nd</sup> edition 25 inch Ordnance Survey Map of 1900.

3<sup>rd</sup> edition 25 inch Ordnance Survey Map of 1918.

OS 1:10 000 Series sheet SJ 04NE, SJ 04SE, SJ 04SW, and SJ 04NW.

### *Secondary sources*

British Geological Survey: [www.bgs.ac.uk](http://www.bgs.ac.uk)

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Institute of Field Archaeologists, 1994, rev. 2001 & 2008. *Standard and Guidance for Archaeological Watching Brief*

Institute of Field Archaeologists, 1995 revised Oct 2008. *Standards and Guidance: Excavation*

Leigh, D. 1972. *First Aid for Finds*

Robinson, W. 1998. *First Aid for Underwater Finds*

## **APPENDIX I – PROJECT DESIGN FOR ARCHAEOLOGICAL WATCHING BRIEF**



**WRITTEN SCHEME OF INVESTIGATION (WSI) FOR ARCHAEOLOGICAL  
WATCHING BRIEF v1.0**

**AEON PROJECT CODE:** A0037.1

**SITE:** Ty Tandderwen, Corwen, LL21 0HF

**NGR:** SH 00859 / 42261 – SH 01490 / 42652

**SCHEME CODE:** NP3000355-101

**DATE:** 8<sup>th</sup> April 2014

**PREPARED FOR:** Dwr Cymru



Aeon Archaeology is a Registered Organisation with the Institute for Archaeologists (IfA)

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## 1.0 INTRODUCTION

Aeon Archaeology has been asked by Dwr Cymru/ Welsh Water to provide a written scheme of investigation (WSI) for carrying out an archaeological watching brief during the excavation of launch/reception pits and pipe-bursting pits during the renewal of the existing water main at Ty Tandderwen, Corwen, Gwynedd, LL21 0HF. The length of water main to be replaced measures approximately 758.0m and runs from southwest to northeast through fields to the immediate south of Ty Tannderwen farm (NGR SH 00859 / 42261 – SH 01490 / 42652).

The number of launch/reception pits and pipe-bursting pits has not been confirmed by Dwr Cymru, and this information is forthcoming. However, the intention is to replace this length of water main by a combination of directional drilling and pipe-bursting, but to resort to an open-cut method if substantial rock outcrops are encountered.

A mitigation brief has not been prepared for this work by The Gwynedd Archaeological Planning Services (GAPS), but GAPS has requested that an archaeological watching brief be maintained during the excavation of the pits and during any areas of open-cut trench.

It is requirement that the content of this WSI be approved by GAPS prior to the commencement of works.

The watching brief will be carried out on an **intensive** basis during the excavation of all pits and open-cut trench.

Reference will be made to the guidelines specified in Standard and Guidance for Archaeological Watching Brief (Institute for Archaeologists, 1994, rev. 2001 and 2008).

## 2.0 STATUTORY AND NON-STATUTORY DESIGNATIONS

The site lies within or in proximity to the following designated areas:

- Approximately 123.0m north of the prehistoric *Enclosure, possible, S of Pen y Bryn, Llandderfel* earthwork (PRN:34149);
- Approximately 160.0m north of the post-medieval *Llawr-y-Betws Chapel site* (NPRN:43850);
- Approximately 1.0km northeast of the prehistoric hillfort of *Caer Euni Camp* Scheduled Ancient Monument (ME015).

## 3.0 ARCHAEOLOGICAL BACKGROUND

In 1291 *Llawr-y-bettws* was noted to be an outlying chapelry belonging to Llanfor parish (and hence St Deiniols; St Mor's Church, Llanfor (NPRN 43869). This possible chapel site was known as *Erw'r Capel* ('church acre') at the beginning of the eighteenth century. It is located some 280.0m west of Llawr Betws farm, and some 150.0m north-west of Llawr-y-Bettws Uchaf, and is situated in the west hedge of a field formerly known as *Ffridd ucha*. In 1913 it was noted that a darker green semi-circle of grass was visible in Spring, which was regarded locally as the old churchyard. It was also noted that former outbuildings at Llawr-y-Bettws Ucha were reported to contain ancient beams and couplings of the type associated with old churches, and were said to have been paved with

gravestones. The site is situated some 450.0m west of a later prehistoric defended enclosure (NPRN 404710) and the two sites may be associated.

In addition a possible prehistoric circular enclosure (PRN:34149) was identified using Lidar data approximately 123.0m to the south of the proposed water main renewal route. This site is yet to be confirmed but could indicate a spread of settlement enclosures from the east.

Approximately 544.0m to the east lies the site of a large oval-shaped compound (PRN:24777), shown on John Evans Map of North Wales, (1795). It is possible to trace the outline of the site in the existing field boundaries, though it has been disturbed to the east, by the present school building and Gwern Gwalia. It's function is unknown, although it may be the site of a Prehistoric enclosure, as the field names (Cyttiau) could refer to Prehistoric round houses or a possible Roman fortlet.

## 4.0 ARCHAEOLOGICAL AIMS

The **watching brief** will consist of the following:

- Observation of all launch/reception pits, pipe-bursting pits, and any areas of open-cut trenching.
- A drawn, written and photographic record of any archaeological features, including structures that may be revealed by the work.
- Preparation of a full archive report.

If archaeological remains are encountered during the watching brief it may be necessary to suspend development work in that area. The client should have a suitable contingency in place in case of such a scenario.

## 5.0 PROGRAMME OF WORK

### 5.1 Archaeological Watching Brief

The Institute for Archaeologists (IfA) defines an archaeological watching brief as:

*‘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.’ (IfA 1994, rev. 2008)*

GAPS has requested that an **intensive** watching brief be maintained during the excavation of all pits and open-cut trenching. This level of watching brief entails that an appropriately qualified archaeologist is present during all associated ground disturbance.

All soil removal will be undertaken using a mechanical excavator fitted with a toothless ditching bucket. A photographic record will be maintained throughout, using a digital SLR camera (Canon 550D) set to maximum resolution and any subsurface remains will be recorded photographically, with detailed notations and measured drawings being undertaken if required.

In the event of archaeological discovery features will be excavated by hand and will be fully recorded using Aeon Archaeology pro-formas, digital photographs, and plan and section drawings taken at a suitable scale (usually 1:20 for plan drawings and 1:10 for section drawings).

The archive produced will be held at Aeon Archaeology under the project code **A0037.1**.

## **6.0 FURTHER ARCHAEOLOGICAL WORKS**

The discovery of substantial buried archaeological remains during the watching brief may result in the requirement for a wider programme of archaeological mitigation. This may require the submission of revised quotes to the client.

This WSI does not include a methodology or cost for examination, conservation and archiving of finds discovered during the watching brief, nor of any radiocarbon dates required, nor of examination of palaeoenvironmental samples. The need for these will be identified in the post-fieldwork programme (if required), and a new WSI will be issued for approval by the GAPS Archaeologist.

## **7.0 ENVIRONMENTAL SAMPLES**

If necessary, relevant archaeological deposits will be sampled by taking bulk samples (a minimum of 10.0 litres and maximum of 30.0 litres) for flotation of charred plant remains. Bulk samples will be taken from waterlogged deposits for macroscopic plant remains.

Bulk environmental samples will also be taken from any fills, deposits or structures which yield archaeological artefacts, charcoal flecks/ fragments, bone, or any other historic remains.

Advice and guidance regarding environmental samples and their suitability for radiocarbon dating, as well as the analysis of macrofossils (charcoal and wood), pollen, animal bones and molluscs will be obtained from Oxford Archaeology.

## **8.0 HUMAN REMAINS**

Any finds of human remains will be left *in-situ*, covered and protected, and both the coroner and the GAPS Archaeologist informed. If removal is necessary it will take place under appropriate regulations and with due regard for health and safety issues. In order to excavate human remains, a licence is required under Section 25 of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial. This will be applied for should human remains need to be investigated or moved.

## **9.0 ARTEFACTS**

All artefacts and ecofacts will be retrieved for identification and recording and will be treated in accordance with IfA 2008 *Guidelines for the collection, documentation, conservation and research of archaeological materials*.

All finds are the property of the landowner but it is recommended that finds are deposited with the rest of the project archive within an appropriate museum. Furthermore, the client agrees to granting access to all finds recovered by Aeon Archaeology for analysis, study and publication as necessary. All finds would be treated according to advice provided within *First Aid for Finds* (Leigh, D. 1972). Aeon Archaeology staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants.

The recovery policy for archaeological finds will be kept under review throughout the watching brief. Any changes in recovery priorities will be under guidance from an appropriate specialist and agreed

with the client and GAPS. There will be a presumption against the disposal of archaeological finds regardless of their apparent age or condition.

All finds will be collected and processed including those found within spoil tips. Their location will be plotted; finds numbers attributed, bagged and labelled as well any preliminary identification taking place on site. Where specialist advice is required provision will be made to do so at the earliest possible convenience.

After processing, artefacts which are suitable will be cleaned and conserved in-house. Artefacts requiring specialist cleaning and conservation will be sent to the relevant specialist. All finds will then be sent to a specialist for analysis, the results of which will then be assessed to ascertain the potential of the finds assemblage to meet the research aims of the project. The value of the finds will also be assessed in terms of the wider educational and academic contributions.

**The cost of additional staff and guidance from Cardiff Conservation Services are not included within this quote. Any such requirement will result in the production of a new WSI with additional fees.**

Depending upon the material of the remains the following experts will be consulted regarding the conservation of waterlogged material:

- Organic material: Mr Phil Parkes, Cardiff Conservation Services (tel: +44(0)29 2087 5628)
- Non-organic material: Mr Phil Parkes, Cardiff Conservation Services (tel: +44(0)29 2087 5628)

Depending upon the material of the remains the following experts will be consulted regarding the conservation of all other material:

- Bone: Nora Bermingham
- Glass: Hilary Cool, Barbican Research Associates.
- Metal artefacts: Phil Parkes, Cardiff Conservation Services, Cardiff.
- Slag, burnt clay, hammerscale: Dr. Tim Young, Geoarch, Cardiff.
- Stone artefacts: George Smith, Gwynedd Archaeological Trust, Bangor.
- Wood artefacts: Jane Foley, Foley Conservation, Builth Wells.
- Leather: Quita Mould, Barbican Research Associates.
- Environmental Material: Dr Mike Allen, Allen Environmental Archaeology.
- Numismatics: Peter Guest, Barbican Research Associates.

**The cost for examination, conservation and archiving of finds discovered during the watching brief are not included within this quote.**

**If well preserved materials are found it may be necessary to employ additional staff. Furthermore, it may be necessary to suspend work within a specific region of the site, or across the whole site, while conservation and excavation/recording takes place. Aeon Archaeology accepts no responsibility for any costs incurred from delays as a result of unexpected archaeological finds.**

**The cost for the additional staff, resources, and time required to excavate/ record unexpected archaeological finds/ features are not included within this quote and a separate WSI and costs will be submitted to the client if necessary.**

## 10.0 UNEXPECTED DISCOVERIES: TREASURE TROVE

Treasure Trove law has been amended by the Treasure Act 1996. The following are Treasure under the Act:

*Objects other than coins* any object other than a coin provided that it contains at least 10% gold or silver and is at least 300 years old when found.

*Coins* all coins from the same find provided they are at least 300 years old when found (if the coins contain less than 10% gold or silver there must be at least 10. Any object or coin is part of the same find as another object or coin, if it is found in the same place as, or had previously been left together with, the other object. Finds may have become scattered since they were originally deposited in the ground. Single coin finds of gold or silver are not classed as treasure under the 1996 Treasure Act.

*Associated objects* any object whatever it is made of, that is found in the same place as, or that had previously been together with, another object that is treasure.

*Objects that would have been treasure trove* any object that would previously have been treasure trove, but does not fall within the specific categories given above. These objects have to be made substantially of gold or silver, they have to be buried with the intention of recovery and their owner or his heirs cannot be traced.

The following types of finds are not treasure:

- Objects whose owners can be traced.
- Unworked natural objects, including human and animal remains, even if they are found in association with treasure.
- Objects from the foreshore which are not wreck.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown.

The British Museum will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it. When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled.

## 11.0 REPORT PRODUCTION

Following completion of the watching brief as outlined above, a report will be produced incorporating the following:

- Non-technical summary
- Introduction
- Project Design
- Methodology
- Archaeological Background
- Description of the results of the watching brief
- Summary and conclusions

- Bibliography 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 GAPS archaeologist and to the client prior to production of the final report.

## **12.0 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 the Gwynedd Historic Environment Record within six months of the completion of the project.

Bound copies of the report and an archive CD will be sent to the regional HER (Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd LL57 2RT) and to The Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) for long term archiving. Furthermore, a summary of the project will be sent to *Archaeology in Wales* for publication.

## **13.0 PERSONNEL**

The work will be managed and undertaken by Richard Cooke BA MA MifA, Archaeological Contractor and Consultant at Aeon Archaeology.

## **14.0 MONITORING**

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

## **15.0 HEALTH AND SAFETY**

Aeon Archaeology has a Health and Safety Policy Statement which can be supplied upon request. Furthermore, site-specific Risk Assessments and Method Statements are compiled and distributed to every member of staff involved with the project prior to the commencement of works.

## **16.0 INSURANCE**

- Liability Insurance – Towergate Insurance Policy 000467

Employers' Liability: Limit of Indemnity £10m in any one occurrence

Public Liability: Limit of Indemnity £2m in any one occurrence

Legal Defence Costs (Health and Safety at Work Act): £250,000

The current period expires 30/09/14

- Professional Indemnity Insurance – Towergate Insurance Policy 2011025521290

Limit of Indemnity £500,000 any one claim

The current period expires 30/09/14

## **17.0 SOURCES CONSULTED**

Dwr Cymru, drawing no: NP3000355-101

Robinson. W. 1998. First Aid for Finds

Standard and Guidance for Archaeological Watching Brief (Institute for Archaeologists, 1994, rev. 2001 and 2008).

