

FFORDD LLWYN BLEDDYN, RACHUB / LLWYN BLEDDYN ROAD, RACHUB

Asesiad Wrth Ddesg & Gwerthusiad (Arolwg Geoffisegol) /
Archaeological Assessment & Evaluation (Geophysical Survey)



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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Asesiad Wrth Ddesg & Gwerthusiad (Arolwg Geoffisegol) / Archaeological Assessment & Evaluation (Geophysical Survey)

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CONTENTS

| | |
|--|----|
| CRYNODEB ANHECHNEGOL..... | 4 |
| NON-TECHNICAL SUMMARY | 4 |
| 1 INTRODUCTION | 5 |
| 2 METHODOLOGY | 7 |
| 2.1 Assessment (Desktop Study) | 7 |
| 2.2 Walkover Survey..... | 8 |
| 2.3 Geophysical Survey | 9 |
| 2.3.1 Summary | 9 |
| 2.3.2 Instrumentation | 9 |
| 2.3.3 Data Collection..... | 10 |
| 2.3.4 Data Processing | 10 |
| 2.3.5 Aims | 11 |
| 2.4 Gazetteer | 12 |
| 2.5 Archive and Dissemination | 13 |
| 3 RESULTS | 14 |
| 3.1 Location and Geological Summary | 14 |
| 3.2 Statutory and Non-Statutory Designations | 15 |
| 3.3 Environmental Remains and Soil Morphology | 16 |
| 3.4 Historical and Archaeological Background..... | 17 |
| 3.4.1 Introduction | 17 |
| 3.4.2 Prehistoric and Roman Settlement | 17 |
| 3.4.3 Medieval and later Settlement | 17 |
| 3.4.4 Cartographic Evidence and History of Land Ownership..... | 18 |
| 3.4.5 Previous Archaeological work..... | 19 |
| 3.5 Aerial Photographs and LiDAR..... | 20 |
| 3.5.1 Aerial Photographs | 20 |
| 3.5.2 LiDAR | 20 |
| 3.6 Artefact Potential..... | 21 |
| 3.7 The Walkover Survey | 22 |
| 3.8 Geophysical Survey Results..... | 23 |
| 3.8.1 Probable archaeology | 23 |

| | | |
|--------------------|---|-------------------------------------|
| 3.8.2 | Possible archaeology..... | 24 |
| 3.8.3 | Other anomalies..... | 24 |
| 3.8.1.1 | Rising main..... | 24 |
| 3.8.1.2 | Made ground..... | 24 |
| 3.8.1.3 | Magnetic debris..... | 25 |
| 3.8.1.4 | Magnetic disturbance | 25 |
| 3.9 | Gazetteer of Features | 26 |
| 4 | CONCLUSIONS & RECOMMENDATIONS..... | 32 |
| 4.1 | Conclusion | 32 |
| 4.2 | Table of Features and Recommendations | Error! Bookmark not defined. |
| 5 | SOURCES CONSULTED | 36 |
| APPENDIX I..... | | 38 |
| | Reproduction of Gwynedd Archaeological Trust written scheme of investigation..... | 38 |
| APPENDIX II..... | | 39 |
| | Gwynedd Archaeological Trust photographic metadata | 39 |
| APPENDIX III | | 40 |
| | Sites Listed on the Gwynedd HER within 500m of the Study Area | 40 |
| APPENDIX IV | | 41 |
| | Categories of importance | 41 |

FIGURES

Figure 01: Reproduction of Ainsley Gommon Architects Drawing No. 001 Revision B, denoting development area targeted for assessment and evaluation.

Figure 02: Reproduction of Ainsley Gommon Architects Drawing No. 003 Revision D, denoting development proposals.

Figure 03: Reproduction of Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889. Scale 1:5000 @A4.

Figure 04: Reproduction of Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900. Scale 1:5000 @A4.

Figure 05: Reproduction of Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914. Scale 1:5000 @A4.

Figure 06: Extract from Aerial Photograph RAF 106 G LA 230 frame 1002 taken on 18th April 1945. The approximate study area is outlined in red, and the boggy low-lying area is shown to the north-east.

Figure 07: LiDAR composite dataset DTM 1m data, showing the study area outlined in red. Contains Natural Resources Wales information © Natural Resources Wales database right 2016. Ordnance Survey 100021874.

Figure 08: Extract from the Tithe Map of the Parish of Llanllechid of 1840, with the Development Area Outlined in Red. Not to Scale

Figure 09: Detail from an 1855 Penrhyn Estate Map of Llanllechid (Bangor Archives, Penrhyn MSS 2218) showing the development area outlined in red and including Cefn Bedw within it, and earlier field boundaries. Not to Scale

Figure 10: Location of Features Identified in the Assessment Area (Green Dots), with sites on the Gwynedd HER shown in Red. Base map Ainsley Gommon Architects Drawing C973 001 B

Figure 11: Location of survey area

Figure 12: Gradiometer grayscale plot (raw data clipped to +/- 15 nT

Figure 13: Geophysical survey interpretative plan

PLATES

Plate 1: General view of NW edge of site showing gated entrance; scale 1x1m; view from S (archive reference: G2630_001).

Plate 2: Detail of drystone wall on western boundary of development; scale 1x1m; view from W (archive reference: G2630_002).

Plate 3: General view across development area; scale not used; view from NW (archive reference: G2630_003).

Plate 4: View along western hedge bank; scale not used; view from S (archive reference: G2630_004).

Plate 5: View across development area towards housing and beyond; scale not used; view from SW (archive reference: G2630_005).

Plate 6: Rocky outcropping in southern area of field; scale 1x1m; view from SW (archive reference: G2630_006).

Plate 7: View of irregular stones, possibly the remains of a relic field boundary A; scale 1x1m; view from W (archive reference: G2630_007).

Plate 8: View of irregular stones, possibly the remains of a relic field boundary A; scale 1x1m; view from SE (archive reference: G2630_008).

Plate 9: View of possible round house remnant with enclosure behind C; scale 1x1m; view from N (archive reference: G2630_009).

Plate 10: View of possible feature C; scale 1x1m; view from NE (archive reference: G2630_010).

Plate 11: View of stones forming part of possible feature; scale 1x1m; view from W (archive reference: G2630_011).

Plate 12: View of boundary wall B showing the eastern side partially obscured with brambles and poss. round house C to the rear; scale 1x1m; view from SW (archive reference: G2630_012).

Plate 13: General view showing depression (poss. arch.) and denuded drystone wall beyond A; scale 1x1m; view from SSW (archive reference: G2630_013).

Plate 14: View of public footpath across the boggy ground showing possible Roundhouse 1 and enclosures, dry ground and platform beyond; scale not used; view from NE (archive reference: G2630_014).

CRYNODEB ANHECHNEGOL

Mae Ymddiriedolaeth Archeolegol Gwynedd wedi cael ei chomisiynu gan Cartrefi Cymunedol Gwynedd cyf. I gynnal asesiad archeolegol ac arolwg geoffisegol cyn datblygiad preswyl arfaethedig ar dir ger Ffordd Llwyn Bleddyn, Rachub, Gwynedd. Dros lawer o'r ardal ddatblygu arfaethedig, gellir dangos bod y ddaear wedi'i gwella'n sylweddol gan gwaith amaethyddol, er y gellir gweld bod clogfeini rhewlifol amlwg yn ymwthio allan o'r ddaear mewn mannau, ac mae topograffi'r cae yn donnog yn ysgafn, er ei fod yn wlypach, isel Mae'r ardal fewnol wedi'i lleoli i'r gogledd-ddwyrain. Mae ffiniau'r caeau â waliau cerrig i'r gorllewin a'r de hefyd wedi'u hadeiladu o garreg gae leol ac yn dyddio rhwng 1855 a 1889, fel y dangosir gan y dystiolaeth gartograffig. Mae chwe nodwedd benodol, tair cynhanesyddol i ganoloesol yn ôl pob tebyg a thair ôl-ganoloesol, wedi'u nodi, ac argymhellir cynnal arolwg a gwerthuso topograffig trwy ffosio treialon archeolegol. Ni nododd yr arolwg graddiomedr o'r ardal ddatblygu arfaethedig unrhyw anghysondebau archeolegol tebygol, er bod nifer o rai posibl. Efallai bod y lefelau hynod uchel o aflonyddwch sy'n deillio o wrthrychau metel fferrus wedi'u taflu yn cuddio nodweddion archeolegol, yn enwedig ar ochrau deheuol a de-ddwyreiniol ardal yr arolwg. Credir bod gan y safle botensial archeolegol ar gyfer gweddillion archeolegol heb eu darganfod hyd yma yn y rhannau hyn ohono.

NON-TECHNICAL SUMMARY

Gwynedd Archaeological Trust has been commissioned by Cartrefi Cymunedol Gwynedd cyf. to undertake an archaeological assessment and geophysical survey in advance of a proposed residential development on land near Llwyn Bleddyn Road, Rachub, Gwynedd. Over much of the proposed development area, the ground can be shown to have been significantly improved agriculturally, although prominent glacial boulders can be seen to protrude from the ground in places, and the topography of the field is gently undulating, although a wetter, low-lying area is situated to the north-east. The stone walled field boundaries to the west and south are also constructed of local fieldstone and date to between 1855 and 1889, as shown by the cartographic evidence. Six specific features, three probably prehistoric to medieval in date and three post-medieval, have been identified, for which topographic survey and evaluation by archaeological trial trenching is recommended. The gradiometer survey of the proposed development area did not identify any probable archaeological anomalies, although a number of possible ones were. The extremely high levels of disturbance resulting from discarded ferrous metal objects may be masking archaeological features, particularly on the southern and south-eastern sides of the survey area. The site is believed to have archaeological potential for as yet undiscovered archaeological remains in these parts of it.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been commissioned by *Cartrefi Cymunedol Gwynedd Cyf.* to undertake an archaeological assessment and evaluation (geophysical survey) in advance of a proposed residential development on land near Llwyn Bleddyn Road, Rachub, Gwynedd (NGR SH61986802; postcode: LL57 3EF; Figure 01). The development area measures 1.2ha and is located within a field of improved open pasture at the western end of Rachub. The residential development is located at the southern end of a large triangular shaped field and will include 30No house plots, along with associated access and amenities, as indicated on Figure 02.

The assessment was undertaken in accordance with the following guidelines:

- *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* Version 1.1 (The Welsh Archaeological Trusts, 2018);
- *Guidelines for digital archives* (Royal Commission on Ancient and Historic Monuments of Wales, 2015);
- *Management of Archaeological Projects* (English Heritage, 1991);
- *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England, 2015);
- *Standard and Guidance for Historic Environment Desk-Based Assessment* (Chartered Institute for Archaeologists, 2014); and
- *Standard and Guidance for Archaeological Geophysical Survey* (Chartered Institute for Archaeologists, 2014).
- *Guidelines for the use of Geophysics in Archaeology: Questions to Ask and Points to Consider* (European Archaeological Council, 2015).

The archaeological assessment was monitored by the Gwynedd Archaeological Planning Service and was undertaken in accordance with an approved Written Scheme of Investigation ([Appendix I](#)). In line with the Gwynedd Historic Environment Record (HER) requirements, the HER was contacted at the onset of the project to ensure that any data

arising was formatted in a manner suitable for accession to the HER under the guidance set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (The Welsh Archaeological Trusts, 2018). The HER was informed of the project start date, location including grid reference and estimated timescale for the work. The GAT HER enquiry number is GATHER1166 and the event primary reference number is 45473. A bilingual event summary has been prepared for submission to the HER in accordance with their guidance.

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 METHODOLOGY

2.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage....Significance is to be judged in a local, regional, national or international context as appropriate” (ClfA 2014, 4).

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

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) was examined for information concerning the study area. This included an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and any secondary information held within the HER. All relevant assets were mapped, described and added to a gazetteer of sites and the relative importance of any assets defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) was checked for assets additional to the HER;
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) were examined for potential assets;
4. An on-line catalogue search of the National Library of Wales (Penglais Rd, Aberystwyth SY23 3BU) was completed;
5. Archive data, including primary and secondary sources, historic maps and estate maps was examined at the regional archives (Gwasanaeth Archifau Gwynedd, Cyngor Gwynedd, Caernarfon LL55 1SH). The examination of the archive data will include historic mapping including the local tithe map and schedule;
6. Light Detection and Ranging (LiDAR) data was examined from the Lle Geo-Portal at <http://lle.gov.wales/home> for information on potential surface features using digital terrain modelling and digital surface modelling.

2.2 Walkover Survey

A walkover survey was undertaken on 26th September 2019 and incorporated the assessment area, defined as the highlighted plot in Figure 01 and the immediate environs (if accessible). All known and new archaeological features on the ground will be located and described them on GAT pro-formas. The sites will then be added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology will be estimated and defined.

A photographic record was maintained in RAW format using a digital SLR set to maximum resolution (Nikon D5100; resolution: 4928 × 3264 megapixels) and a photographic metadata table was completed ([Appendix II](#)). Photographic images were archived in TIFF format; the archive numbering system was G2630_001 to G2615_031.

2.3 Geophysical Survey

2.3.1 Summary

The geophysical survey was undertaken by GAT on Thursday 19th and Friday 20th September 2019. The survey incorporated the assessment area and was carried out in a series of 20m grids tied into the Ordnance Survey National Grid using a Trimble R8S high precision GPS system. The survey was conducted using a Bartington Grad 601-2 dual fluxgate gradiometer with a 1.0m traverse interval and a 0.25m sample interval.

2.3.2 Instrumentation

The Bartington Grad 601-2 dual fluxgate gradiometer detects variations in the earth's magnetic field caused by the presence of iron in the soil. The Bartington Grad 601-02 is a handheld instrument which utilises a pair of Grad-01-100 sensors. Readings from each are taken automatically as the operator walks at a constant speed along a series of fixed length traverses. These are high stability fluxgate gradient sensors with a 1.0m horizontal separation between each sensing element. Each sensor consists of two vertically aligned fluxgates set 1000mm apart. Their cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT; typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The machine is capable of detecting changes as low as 0.1nT. The gradiometer can detect anomalies down to a depth of approximately one meter.

The iron in the soil that the instrument detects is usually weakly magnetized iron oxides which tend to concentrate in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil, therefore contain greater amounts of iron and can, therefore, be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread

into the soil leading to a more generalized magnetic enhancement around settlement sites. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil or high levels of natural background “noise” (interference consisting of random signals produced by material within the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features.

2.3.3 Data Collection

The gradiometer includes an onboard data-logger. Readings are taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval is 1.0m and readings are logged at intervals of 0.25m along each traverse. Marked guide ropes are used to ensure high positional accuracy during the high-resolution survey.

2.3.4 Data Processing

The data collected in each 20m x 20m grid is transferred from the data-logger to a computer where it is compiled and processed using TerraSurveyor v.3.0.33.10 software. Additional analysis of the data is carried out using MagPick v3.25.

The numeric data are converted to a greyscale plot where data values are represented by modulation of the intensity of a greyscale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. X-Y trace plots of the collected data are also used to aid interpretation.

For presentation purposes, the grey-scale plot is supplemented by an interpretation diagram showing the main feature of the survey with reference numbers linking the anomalies to descriptions in the written report. It should be noted that the interpretation is based on the examination of the shape, scale and intensity of the anomaly and comparison to features found in previous surveys and excavations etc. In some cases the shape of an anomaly is sufficient to allow a definite interpretation e.g. a Roman fort. In other cases all that can be provided is the most likely interpretation. The survey will often detect several overlying phases of archaeological remains and it is not usually possible to distinguish between them. Weak and poorly defined anomalies are most susceptible to misinterpretation due to the propensity of the human brain to define shapes and patterns in random background “noise”. An assessment of the confidence of the interpretation is given in the text.

The data is presented with a minimum of processing although corrections may be made to compensate for instrument drift and other data collection inconsistencies. High readings

caused by stray pieces of iron, fences, etc. are usually modified on the greyscale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. The data on some 'noisy' or very complex sites can benefit from 'smoothing'. Greyscale plots are always somewhat pixelated due to the resolution of the survey. This at times makes it difficult to see less obvious anomalies. The readings in the plots can, therefore, be interpolated thus producing more but smaller pixels and a small amount of smoothing based on a low pass filter can be applied. This reduces the perceived effects of background noise thus making anomalies easier to see. Any further processing is noted in relation to the individual plot.

2.3.5 Aims

The survey results include an examination of the greyscale plot and an interpretation of any anomalies identified; these anomalies are presented as either positive or negative, suggesting whether they could be cut features (ditches, pits etc.), or built sub-surface features (e.g., banks). The results of the geophysical survey have been used to inform further recommendations.

2.4 Gazetteer

A gazetteer has been compiled for all known and new sites within and within proximity to the study area; the gazetteer includes six potential sites that have been identified (cf. Section 3.8).

The use of 'C' after the grid reference indicates that it is the central point of a larger feature, and the use of 'A'. indicates that it is a larger feature or feature with a number of elements present over a wider area.

2.5 Archive and Dissemination

A full archive including plans, photographs, written material and any other material resulting from the project has been prepared and the following dissemination has been applied:

- A digital report has been prepared for *Cartrefi Cymunedol Gwynedd Cyf.* and Gwynedd Archaeological Planning Service;
- A paper report plus a digital report has been prepared for the regional Historic Environment Record, Gwynedd Archaeological Trust along with relevant digital datasets, including a bilingual event summary, in accordance with *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1); and
- A digital report and archive data has been prepared for submission to the *Royal Commission on the Ancient and Historical Monuments of Wales*, in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata.

3 RESULTS

3.1 Location and Geological Summary

The proposed development area is situated within a triangular field (Maes Bleddyn) adjacent to Llwyn Bleddyn Road, centred on NGR SH 61986802. It covers a trapezoidal area of approximately 1.08ha and is 205m long and 65m wide, consisting of the southern half of a field of predominantly semi-improved pasture. A strip of land on the eastern side of the development area forms a narrow boggy valley along which runs a southeast-northwest orientated stream. The land slopes gently from south to north and lies between approximately 157m and 164m AOD.

The area lies on the western edge of the settlement at Rachub, south of Llanllechid, itself in the lower part of the parish of Llanllechid. The greater part of the parish as a whole is mountainous, but the lower Afon Ogwen valley, the area of the development, has significant amounts of cultivated land.

The geology of the area consists of Llanberis Slates Formation and sandstone. This is sedimentary bedrock formed approximately 508 to 526 million years ago in the Cambrian Period (British Geology Viewer, seen at mapapps.bgs.ac.uk). Soils consist of Brown earths of the Denbigh Series made up of silty loam (Ball, 50-51). These soils are freely drained and slightly acid loams (Soilscapes seen at www.landis.org.uk/soilscapes).

3.2 Statutory and Non-Statutory Designations

A late Iron Age or Romano-British hut circle (PRN 294; NGR SH61606840) which is situated about 335m to the northwest of the development plot near Coed Uchaf, is a designated Scheduled Monument (SM Cn176). The Romano-British huts and field system at Cobri is a Scheduled Monument (SM Cn287; PRN 1,190, SH61676875). The post-medieval farmhouse at Coed Uchaf (PRN 12,070, SH617626825), located 350m north-west of the development area is a Grade II listed building.

Fifteen sites are noted on the Gwynedd HER within 500m of the centre of the proposed development area, and the closest of these to the development are shown on Figure 10 with red dots (Appendix III). One of them, a cockpit (PRN 3674; SH62006800), is located within the study area. This is however known only from place name evidence, and its exact location has not been ascertained and it was not seen on the walk-over survey. Close to the scheme footprint to the north is (PRN 5891; SH62006810). Within the low-lying ground are a series of stone walls, mostly visible as single lines of boulders, some of which appear to be part of small enclosures. They may be remains of Prehistoric/Roman settlements, and certainly parallels are known for similar locations. (Davidson 1995). They are likely to be similar to, indeed may be directly related to features 1 to 3 identified in the report.

The development area lies within the Ogwen valley Landscape area of Outstanding Historic Interest (No. 28 HLW (GW) 10) (Cadw 1998), which is stated to contain a 'classic glaciated valley...containing contrasting evidence of prehistoric and later land use, superimposed by the extensive and visually dramatic remains of the recent and continuing industrial exploitation of slate' (Cadw/ICOMOS 1998, 108).

3.3 Environmental Remains and Soil Morphology

The area of the stream valley to the north and east of the study area is low lying and boggy, and there is also evidence for the possible presence of archaeological features. There is therefore a moderate potential for the survival of environmental remain of significance in these areas that could provide valuable information about past land use in the area.

To the south and west of this, the field is much drier and has been subject to agricultural improvement within historic times. Whilst there is thought to be a moderate potential for the survival of archaeological remains, it is thought likely that the environmental remains will only be of significance in this area if found within a secure archaeological context associated with any prehistoric or medieval archaeology identified on the site.

Archaeological work in an adjacent plot of land at Bryn Arfon (Evans 2015) identified a thin topsoil layer (0.1m) above a stone rich silty clay subsoil (0.2m) atop glacial drift geology (Evans 2015, 6). It is likely that on the drier areas of the development plot that similar evidence will be encountered, with little opportunity for the presence of significant environmental remains.

3.4 Historical and Archaeological Background

3.4.1 Introduction

The landscape around Llanllechid preserves extensive relict multi period archaeological remains. These comprise later prehistoric, Roman and medieval settlements still visibly set within their historic contexts, in a landscape of contemporary field boundaries and enclosures. A substantial area of prehistoric and medieval fields and dwellings including long huts and enclosed and unenclosed round hut groups have been identified. Those on the Gwynedd HER within 500m of the development area are discussed below.

3.4.2 Prehistoric and Roman Settlement

Within the proposed development area, in a boggy unimproved area, lies a series of single lines of boulders (PRN 5891, NGR SH62026806). These are thought to represent small enclosures, which may be associated with prehistoric or Roman settlements. About 310m to the northwest of the development lies the Coed Uchaf enclosure and hut group (PRN 294, SH61606840), which is a Scheduled Monument (SM Cn176). This consists of an oval enclosure, approximately 30m by 23m surrounded by a bank of stones and earth 2.5m thick and an entrance 3m wide. Within the enclosure are the remains of three buildings, two circular huts and a rectangular building (RCAHMW 1956, 148). A probable Roman-British hut and field system is located near Cobri (PRN 1,190, SH 61676875, SM Cn287). This probably consists of two farmsteads with associated fields and grazing grounds. One of these shows a dwelling site composed of one rectangular and two round huts. To the south of this are the remains of another block of cultivated fields with the ruins of three round or oval huts. A significant quantity of prehistoric and Roman settlement and other activity is known in the wider area, which has been detailed in a Scheduled Monument Setting Impact Assessment Report relating to the proposed development (McGuinness 2019).

3.4.3 Medieval and later Settlement

To the south of Tal y Sarn, a rectangular enclosure hut is noted (PRN 299, NGR SH62026818), which is probably the remains of a medieval long hut. It is 14m long and 5.3m wide, with a wall thickness of 1m. There is a cross wall at the south west end (RCAHMW 1956, 150), although this is currently substantially obscured by a tree. Another long hut and

probable associated enclosure is located about 130m to the northwest of the proposed development area, west of Cae Llwyngrydd (PRN 298, SH 61956831). The long hut is about 16m long and 5m wide, and there is evidence for the survival of good facing stones. There are significant numbers of these huts in the wider area, and probably represent the *hafodydd* of medieval farmers (Gresham 1954, Davies 1979, 25-27). These survivals indicate that in areas not subject to significant later agricultural improvement a substantial amount of relict medieval landscape pattern can be shown to have survived. An earthen bank of possible medieval date has been identified at SH62106862 (PRN 7365, Davidson 1995).

An important post-medieval farmhouse west of the development site at Coed Uchaf (PRN 12,070, SH61726825) is a Grade II listed building. It is a rubble walled two storey 17th and 18th century cottage, in plan 12m by 7m.

3.4.4 Cartographic Evidence and History of Land Ownership

The development area in historic times formed part of Cefn Bedw farm, the property of the Coetmor Estate until the early years of the 19th century, when it came into the hands of the Penrhyn Estate. Unfortunately no maps have been traced of the development area before the tithe map of the parish of Llanllechid of 1840 (National Library of Wales) which only shows divisions in the landscape based on blocks of estate holdings with no attempt made to show individual fields, although the homestead of Cefn Bedw is shown (Figure 08). The land on which the development is due to take place is shown as forming part of Plot number 95, under the ownership of the Earl of Egmont (a very large landowner whose major estates were in Ireland, and included Coetmor) and the occupation of Richard Owen, and consisting of an area of 30 acres 1 rood and 17 perches (*ibid.*). The former layout of nearby fields can however be traced back to 1768 (Penrhyn MSS 2203), and is shown on the Penrhyn estate map of 1855 (Bangor Archives, Penrhyn MSS 2218; Figure 09). The layout of Cefn Bedw (Feature 04) is shown clearly on the Penrhyn Estate Map of 1855, along with a sinuous field system of post-medieval origin (Feature 05). By the time of the first edition 25 inch Ordnance Survey map of 1889 the field boundaries can be seen to have gained much of their current form with the enclosing of a rectangular paddock to the east and north, part of a new farm called Bron yr Arfon (Figure 05). Cefn Bedw and its associated fields had completely disappeared by 1917. The new paddock is probably associated with the construction of Bron yr Arfon farm in Penrhyn Estate style and the splitting up of Cefn Bedw by the estate in the 1870s. The sub dividing of this paddock, with slate fencing characteristic of the Penrhyn Estate dates from between 1889 and 1900, as it is shown on the second edition Ordnance

Survey map (Figure 06). Fields outside the study area appear to generally have remained unchanged since 1889, although development south of the main road has resulted in significant property boundary changes there.

3.4.5 Previous Archaeological work

An archaeological assessment in advance of the construction of the Llanllechid Rising Main included the study area, as the proposed pipe route ran north-east south-west through the trapezoidal field (GAT Report No. 177; Davidson 1995; Figure 1). No additional information was recovered from the subsequent watching brief (Roberts 1996; GAT Report No. 212). This pipe is shown on the geophysical survey results (Figure 13). An archaeological assessment in advance of development was carried out on land at Bron Arfon, immediately to the north-west of the study area in 2009 (GAT Report No. 807; Evans 2009). This was followed by an archaeological watching brief during the construction phase of this work (Evans 2015); these identified little archaeological activity, perhaps due to the limited opportunities afforded by foundation trenches, and although the surrounding area to the development was noted to include multi-period archaeological remains, this area had been heavily improved to create paddocks. As part of this development proposal application, a Scheduled Monument Setting Impact Assessment has been carried out by GAT (GAT Report No. 1490; McGuinness 2019).

3.5 Aerial Photographs and LiDAR

3.5.1 Aerial Photographs

Several aerial photographs dating from 1946 to 1990 were examined at the National Register of Aerial Photography, Cardiff.

- RAF 107 CPE/UK/1996 1299 taken 13th April 1945
- RAF 107 CPE/UK/1996 1300 taken 13th April 1945
- RAF 107 CPE/UK/1996 1301 taken 13th April 1945
- RAF 106 GLA 230 frame 1002 taken on 18th April 1945

Aerial photograph RAF 106 G LA 230 frame 1002 (reproduced as a resized image in Figure 06) shows the study area clearly, particularly evident being the boggy low lying area to the north east. The stream that runs through this area is clearly shown, as are some of the potential archaeological features noted on the walkover survey. The presence of archaeological features in the rest of the study area is less clear, and the field can be shown to have been improved pastureland already by 1945, but evidence for rock outcropping can be seen, which suggests that the soil will be thin in places.

3.5.2 LiDAR

LiDAR Composite DTM and DSM 1m Data from the National Resources Wales database 2016 was examined covering the study area (Figure 07). It shows the topography of the study area clearly along with indications of faint enclosures and possible structures to the south and east. These may be indicative of the presence of archaeological features, or the earlier field system shown on the Penrhyn estate map of 1855 (Figure 09), although they may reflect changes in the underlying natural geology.

3.6 Artefact Potential

The possible presence of late prehistoric archaeology within the study area means that there is some likelihood that artefacts relating to that period could be uncovered. This is more likely in the lower lying boggy areas of the area to the north-east, where archaeological remains are more likely to be encountered and there is less evidence for later intensive agricultural disturbance of the ground. The drier portions of study to the west has probably been used intensively for agriculture since medieval times, therefore it is likely that post-medieval and modern artefacts, possibly coming on to the site when the field has been manured, will be encountered. These are unlikely however to be associated with any stratified archaeological deposits, except in the area of the former Cefn Bedw House (feature 4), where, if encountered, there is a high potential for the recovery of post-medieval artefacts.

3.7 The Walkover Survey

The walkover survey was carried out on 25th September 2019 in good weather conditions. The study area was noted to be generally improved pastureland (Plates 3-5), undulating with some evidence of rock outcropping (Plate 6), with a lower lying, boggy area of ground forming a small shallow valley to the north west (Plate 11), through which a public footpath passes, and a stream passes through at the lowest point. This part of the field is heavily overgrown and very soft underfoot, and has not been archaeologically improved.

The field is bounded to the south, adjacent to the road, to the east and west by drystone walling (Plates 1-2, 4). These are shown on the 1st edition 25 inch Ordnance Survey map of 1889 (Figure 03), but not on the Penrhyn Estate map of 1855 (Figure 09), so must date to between these dates. These are about 1m high and are constructed with local dry fieldstone to the south and west (Plate 2). The wall is of mortared masonry to the east; forming a boundary with Bryn Arfon that appears to have been built by Lord Newborough in the latter part of the 19th century.

Within the proposed development area, in a boggy unimproved area at the north-eastern edge of the study area, lies a series of single lines of boulders (Feature 2, PRN 5891; Plate 12)), and possible round houses (Features 1, 3 PRN 81382-3; Plates 7-11, 13-14). These are thought to represent small enclosed settlements, which may be associated with prehistoric or Roman activity. It appears that there may be two round house foundations of upright orthostats to the south-east of the stream, with a diameter of about 7.2m (Feature 03). These are associated with enclosure boundary walls of drystone local fieldstone construction (Features 02 and 03). These may be associated with another drystone wall element associated with a possible house platform (Feature 01), situated on the dryer higher ground on a small scarp immediately to the south of the boggy area. Elements of the pre 1855 field system may be involved here too (Figure 09).

3.8 Geophysical Survey Results

The majority of the area of the proposed development is semi-improved pasture however its eastern edge consists of boggy lower-lying ground on the edge of a stream, inaccessible for the purposes of the survey. Trees and shrubs also grow in the eastern corner and this area was also omitted from the survey. The full extent of the area surveyed is shown in Figure 11.

The site has been used as a location for the casual disposal of waste items from the roadside to the south for a number of years (Bethan Jones, *pers. comm.* 2019). The remains of such activities are visible in the field today and the southern edge of the field is littered with what appears to be discarded household rubbish and building materials. In addition, up to the mid-1990s, the field has been used as an informal venue for community events including annual Guy Fawkes Night celebrations and bonfires.

Anomalies are grouped in the following text as probable, possible or other. The difference between anomalies of probable or possible archaeological origin is one of confidence in their interpretation. Anomalies identified within the dataset that form recognisable archaeological patterns or seem to be related to a deliberate historical act have been interpreted as being of probable archaeological origin.

Features of possible archaeological origin tend to be more amorphous anomalies which may have similar magnetic attributes in terms of strength or polarity but are difficult to classify as being either archaeological or natural.

Other anomalies are those which either do not require further archaeological work (historically mapped field boundaries for example), are of little archaeological value or are assessed to have a non-archaeological origin.

The results of the geophysical survey are shown as a minimally processed plot (Figure 12; raw data clipped to ± 15 nT), and as an interpretive plot (Figure 13). The numbered anomalies in the following text refer to numeric labels on the interpretative plot (Figure 13).

3.8.1 Probable archaeology

No anomalies of probable archaeological origin were identified during the survey.

3.8.2 *Possible archaeology*

A moderately high negative linear anomaly (1) runs south-east to north-west on the eastern edge of the survey area before turning towards the north. It is possible that it represents the remains of an earthen bank consisting of soil of a lower magnetic signature relative to the background topsoil. Though less clearly defined, the responses are however similar in polarity and magnitude to those of the rising water main (6) that runs south-west to north-east across the north-western side of the site (see below).

Three high magnitude anomalies are recorded on the western, central part of the site. Two of these are positive anomalies with an associated negative response, (2) and (3). The third, anomaly (4), is a negative anomaly with an associated positive response. All three may represent the locations of hearths or kilns however they may also be the locations of the more recent bonfires discussed above.

A small oval shaped area of moderately high positive response was identified in the north-west corner of the survey area (2). This may be an infilled cut feature such as a pit that is archaeological in origin. However, it may also be a tree throw or result from ground disturbance associated with more recent activity at the site.

3.8.3 *Other anomalies*

3.8.1.1 Rising main

A moderately high magnitude negative straight linear anomaly runs from south-west to north-east across the north-western part of the survey area (6). This anomaly is consistent with the known location of the rising water main constructed in the late 1990s (Davidson 1995).

3.8.1.2 Made ground

An area of numerous high and moderately high dipolar responses (positive anomalies with an associated negative response) was identified on the central eastern edge of the survey area (Figure 13). The ground here forms a small level platform that projects out into the boggy area. Though largely grassed over, the platform contains visible fragments of slate, coal and ferrous metal items and would appear to be deliberately made ground of relatively recent origin.

3.8.1.3 Magnetic debris

A large number of isolated dipolar responses (positive anomalies with an associated negative response) (not individually marked on Figure 13) are distributed across the survey area, with particular concentrations along the southern and south-eastern sides of the site. These are the result of numerous items of ferrous metal debris in the topsoil.

3.8.1.4 Magnetic disturbance

The southern and south-eastern edges of the field showed high amplitude positive and negative disturbance from the modern ferrous metal fencing that is located along the boundary of the field and discarded ferrous metal objects such as car tyres, bicycles and prams.

3.9 Gazetteer of Features

All the features noted below are shown on Figure 10 with green circles numbered (gazetteer of features). All the recommendations are based on the current understanding of the scheme proposals and their impact on the features, and may have to be revised if information about the scheme impacts changes. In the event of alterations to the scheme, the recommendations might have to be revisited. A 'C' after the grid reference indicates the central point of a larger feature, and 'A' after the reference indicates the central point of a wider group of features.

| | |
|---|--|
| Feature Number | 01 (Plates 7-8) |
| Site name | Terraced area with associated enclosure wall |
| PRN number | 81382 |
| Grid reference | SH62026806 |
| Period | Unknown, possibly prehistoric or medieval |
| Site type | Settlement |
| Assessment category | E |
| Description | A level depression in the ground, 7.8m wide is associated with a denuded stone wall 3.3m to the east, about 20m long and orientated north-south along a small scarp, which probably represents an associated enclosure boundary. Along with Features 2 and 3 it may form part of a wider settlement. |
| Impact | Considerable |
| Recommendation for further assessment/evaluation | Topographic survey followed by evaluation (trial trenching). |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

| | |
|---|---|
| Feature Number | 02 (Plate 12) |
| Site name | Remnant of walling |
| PRN number | 5891 |
| Grid reference | SH62026818 |
| Period | Unknown, possibly prehistoric or medieval |
| Site type | Wall |
| Assessment category | E |
| Description | A remnant, in the form of a row of boulders of prehistoric or medieval field systems, surviving in the unimproved boggy ground at the north-east of the study area. Along with Features 1 and 3 it may form part of a wider settlement in the area. |
| Impact | Considerable |
| Recommendation for further assessment/evaluation | Preservation in situ. If this is not possible then topographic survey followed by evaluation (trial trenching). |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

| | |
|---|---|
| Feature Number | 03 (Plate 9-11, 14) |
| Site name | Round house and enclosure, forming a probable settlement group |
| PRN number | 81383 |
| Grid reference | SH62056805 C |
| Period | Probably Prehistoric |
| Site type | Settlement |
| Assessment category | E |
| Description | Large orthostatic stones that appear to form the shapes of two roundhouses and enclosures (stones up to 1.5m by 1m in size). Only the large stones are visible, but they appear to form part of a significant archaeological feature. Two possible roundhouse structures have been noted both on the south-west bank of the stream, the larger example to the west has a diameter of 7.2m. Evidence of enclosure walling is noted to the south-east, west and east, although the full extent of this is not fully understood. Along with Features 1 and 2 it may form part of a wider settlement. |
| Impact | Considerable |
| Recommendation for further assessment/evaluation | Preservation in situ. If this is not possible then topographic survey followed by evaluation (trial trenching). |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

| | |
|---|---|
| Feature Number | 04 |
| Site name | Cefn Bedw House and Outbuilding |
| PRN number | 81384 |
| Grid reference | SH61996800 |
| Period | Post medieval |
| Site type | Building |
| Assessment category | B |
| Description | Two structures are noted on a Penrhyn Estate Map of 1855 (Figure 09) indicating the presence of a farmhouse and outbuilding within the development area, which are named Cefn Bedw. These are likely to be post-medieval in date, but may retain substantial archaeological remains |
| Impact | Considerable |
| Recommendation for further assessment/evaluation | Evaluation – trial trenching. |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

| | |
|---|---|
| Feature Number | 05 |
| Site name | Field Systems shown on the 1855 Penrhyn Estate Map |
| PRN number | 81385 |
| Grid reference | SH62006800 A |
| Period | Post medieval |
| Site type | Field Boundary |
| Assessment category | C |
| Description | A system of sinuous field boundaries are shown on the Penrhyn Estate Map of 1855 (Figure 09) around the former farmstead of Cefn Bedw, these appear to have been re-organised subsequently in the 19 th century, prior to the 1889 Ordnance Survey Map, probably by the Penrhyn Estate. Evidence from these is likely to be encountered in any evaluation. |
| Impact | Considerable |
| Recommendation for further assessment/evaluation | Evaluation – trial trenching. |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

| | |
|---|---|
| Feature Number | 06 |
| Site name | Cockpit |
| PRN number | 3674 |
| Grid reference | SH62006800 |
| Period | Post medieval |
| Site type | Structure |
| Assessment category | E |
| Description | A site for a cockpit is noted on the Gwynedd HER at this location. It is known only from place name evidence, and its exact location has not been identified, with only a general grid reference noted. It was not seen on the walk-over survey, and was probably associated with Cefn Bedw farm. |
| Impact | Unknown |
| Recommendation for further assessment/evaluation | Evaluation – trial trenching. |
| Recommendation for mitigatory measures | Recommendations for full mitigation should await the results of the evaluation |

4 CONCLUSIONS & RECOMMENDATIONS

4.1 Conclusion

An assessment and geophysical survey over 1.2ha of improved open pastureland in advance of a proposed residential development near Llwyn Bleddyn Road Rachub has been carried out. Over much of the proposed development area, the ground can be shown to have been significantly improved agriculturally, although prominent glacial boulders can be seen to protrude from the ground in places, and the topography of the field is gently undulating. It is likely that these stones were much in evidence before field clearance, and were likely used in the construction of the probable settlement that has been identified. The stone walled field boundaries to the west and south, about 1m high and capped, are also constructed of local fieldstone and date to between 1855 and 1889, as shown on the cartographic evidence (Figures 03, 09), and to be the result of Coetmor or later Penrhyn estate management. Six specific features, three probably prehistoric to mediaeval in date, and three post-medieval, probably relating to the farm of Cefn Bedw have been identified. The possible cockpit noted on the Gwynedd HER was not observed on the ground as part of the assessment

The orthostatic construction of the three potential prehistoric features identified in the eastern part of the development area is paralleled elsewhere in the region, for example the Coed Uchaf enclosure and hut group (PRN 294, SM Cn174, SH61606840) The area of potential prehistoric settlement archaeology has been disturbed by field clearance and the stream leading from Maes Bleddyn, which was bounded to the north by a stone boundary wall placed by the Penrhyn Estate in the latter part of the 19th century to form enclosed paddocks around the former Bryn Arfon land. However that fact that the majority of the potential archaeology has been identified in the low lying, boggy, north-eastern part of the site suggests that this is because this area has been less exploited in post-medieval and modern times, and therefore evidence of more extensive buried archaeology to the west is considered moderately likely. It is possible that some of the drystone walling noted in the vicinity of the archaeological features to the east relates to the post-medieval field system noted on the Penrhyn estate map of 1855 (Figure 09), but this would not account for all of the features seen.

The gradiometer survey of the proposed development area did not identify any probable archaeological anomalies. No traces of the Cefn Bedw buildings or the field boundaries depicted on the 1840 tithe map or the Penrhyn estate map of 1855 were located. The

possible bank, anomaly (1), hearths or kilns (2), (3) and (4), and pit (5), can only be demonstrated conclusively to be archaeological in origin by archaeological evaluation. Anomaly (1) in particular may be related to the prehistoric settlement remains located to its east. The extremely high levels of disturbance resulting from discarded ferrous metal objects may be masking archaeological features, particularly on the southern and south-eastern sides of the survey area, and the site still retains considerable archaeological potential for as yet undiscovered archaeological remains in these parts of it.

4.2 Table of Features and Recommendations

As summarised in the table below, topographic survey is recommended for Features 1-3 as they include upstanding remains and it is felt that an *in situ* record of these features should be made as part of the site evaluation prior to the intrusive evaluation trenching in order that their morphology and context can be further understood prior to intrusive ground works. This would enable the remains to be placed in their wider context of similar sites known in the wider area.

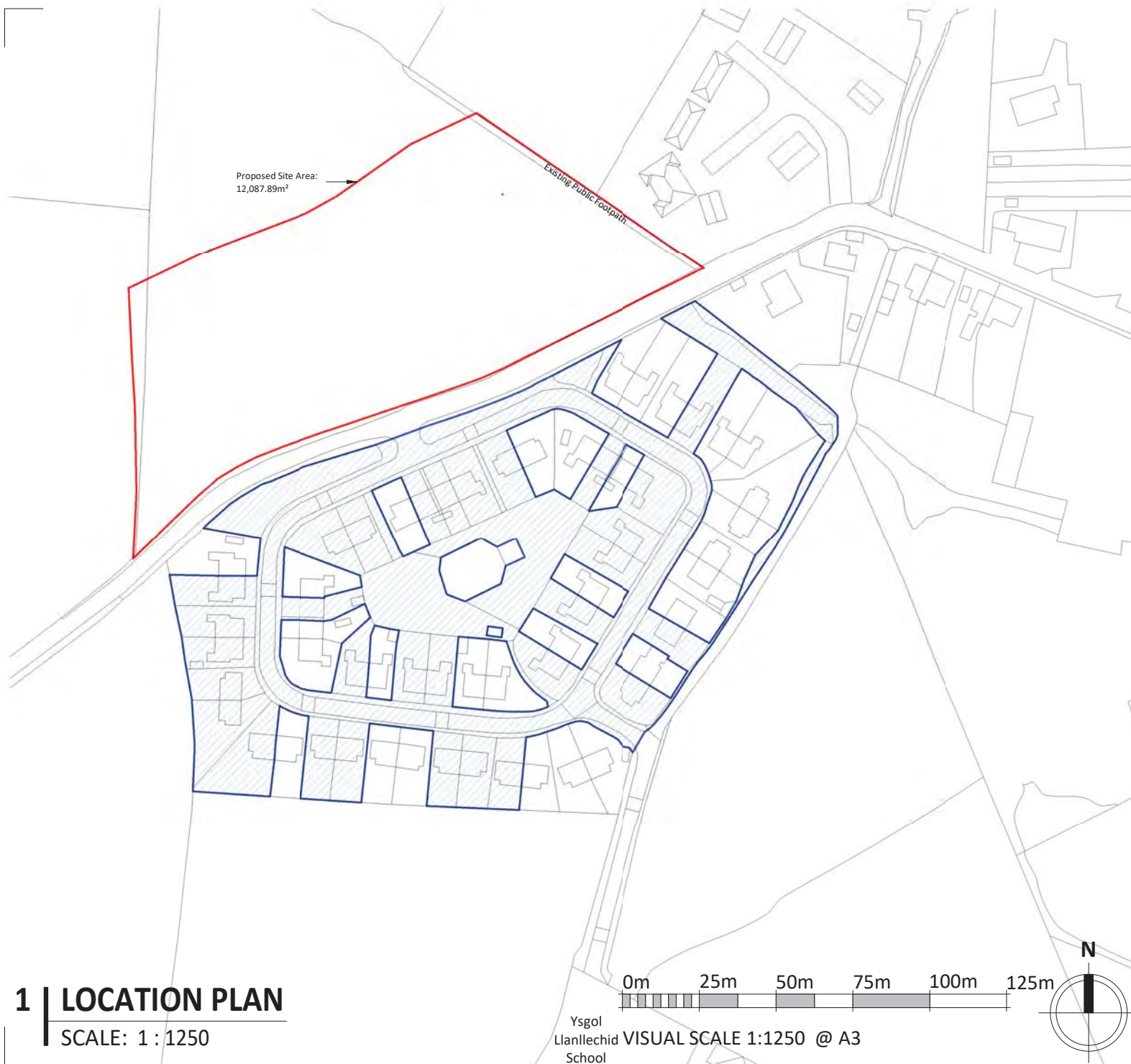
In addition to the specific recommendations relating to the six probable identified features noted above, and as a result of the possible anomalies identified in the geophysical survey, it is recommended that a programme of archaeological trial trenching be carried out over the area to be developed. This is recommended because it is believed that the buried archaeology is likely to be more extensive than that observed in the unimproved area of the field under the main improved areas of the field, and the potential for archaeology stretching from prehistoric to post-medieval times has been identified. Recommendations for full mitigation of the any archaeology present on the site should await the results of the evaluation.

| Feature No | Primary Reference Number | Site Name | Period | NGR | Recommendations for Further Assessment (subject to archaeological curator approval) | Mitigation Recommendations (subject to archaeological curator approval) |
|-------------------|---------------------------------|--|-----------------------|------------|---|--|
| 01 | 81382 | Terraced area with associated enclosure wall | Prehistoric/medieval? | SH62026806 | Preservation in situ. If this is not possible then Topographic survey followed by evaluation trial excavation | Recommendations for full mitigation should await the results of the evaluation |
| 02 | 5891 | Remnant of walling | Prehistoric/medieval? | SH62026818 | Preservation in situ. If this is not possible then topographic survey followed by evaluation trial excavation | Recommendations for full mitigation should await the results of the evaluation |
| 03 | 81383 | Round houses and enclosures, forming a probable settlement group | Prehistoric/medieval? | SH62056805 | Preservation in situ. If this is not possible then topographic survey followed by evaluation trial excavation | Recommendations for full mitigation should await the results of the evaluation |
| 04 | 81384 | Cefn Bedw farmstead and outbuildings | Post-medieval | SH61996800 | Evaluation trial excavation. | Recommendations for full mitigation should await the results of the evaluation |
| 05 | 81385 | Field boundary system | Post-medieval | SH61206800 | Evaluation trial excavation. | Recommendations for full mitigation should await the results of the evaluation |
| 06 | 3674 | Cock pit | Post-medieval | SH62006800 | Evaluation trial excavation | Recommendations for full mitigation should await the results of the evaluation |

5 SOURCES CONSULTED

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| B | Revised PL & Annotation etc; | 2019.07.17 | AL |
|-----|------------------------------|------------|----|
| A | Revised PL & Annotation etc; | 2019.06.05 | AL |
| REV | DESCRIPTION | DATE | BY |

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PROJECT
Maes Bleddyn, Rachub
for CCG

DRAWING TITLE
PLANNING - LOCATION
PLAN

| | | | |
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| SCALE | DATE | DRAWN | CHECKED |
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DRAWING STATUS
PLANNING

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| JOB No | DRAWING No | REVISION |
| C973 | 001 | B |

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A3



HOUSING KEY

- 14 No. 4P2B AFFORDABLE (84m²)
- 8 No. 5P3B AFFORDABLE (96m²)
- 3 No. 5P3B SIDE ENTRY AFFORDABLE (96m²)
- 4 No. 3P2B BUNGALOW AFFORDABLE (59m²)
- 1 No. 7P4B AFFORDABLE (118m²)

1 | SITE PLAN - PROPOSED
SCALE: 1 : 500

| | | | |
|---|--|------------|----|
| D | Revised PL & Annotation etc; | 2019.07.17 | AL |
| C | Revised PL, House Types, Parking, Paths, Plot & Site Levels etc; | 2019.06.25 | AL |
| B | Revised PL, Annotation, Plot Positions, Parking, Highways, Sub-station, Landscaping etc; | 2019.06.05 | AL |
| A | Revised Plot Positions, Boundary Treatment, POA, Parking, Landscaping etc; | 2019.05.21 | AL |

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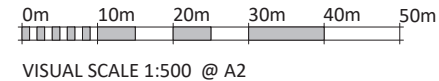
PROJECT
Maes Bleddyn, Rachub
for CCG

DRAWING TITLE
PLANNING - PROPOSED SITE
PLAN

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| SCALE 1 : 500 @ A2 | DATE 15.05.2019 | DRAWN AL | CHECKED SV |
| DRAWING STATUS | PLANNING | | |
| JOB No C973 | DRAWING No 003 | REVISION D | |

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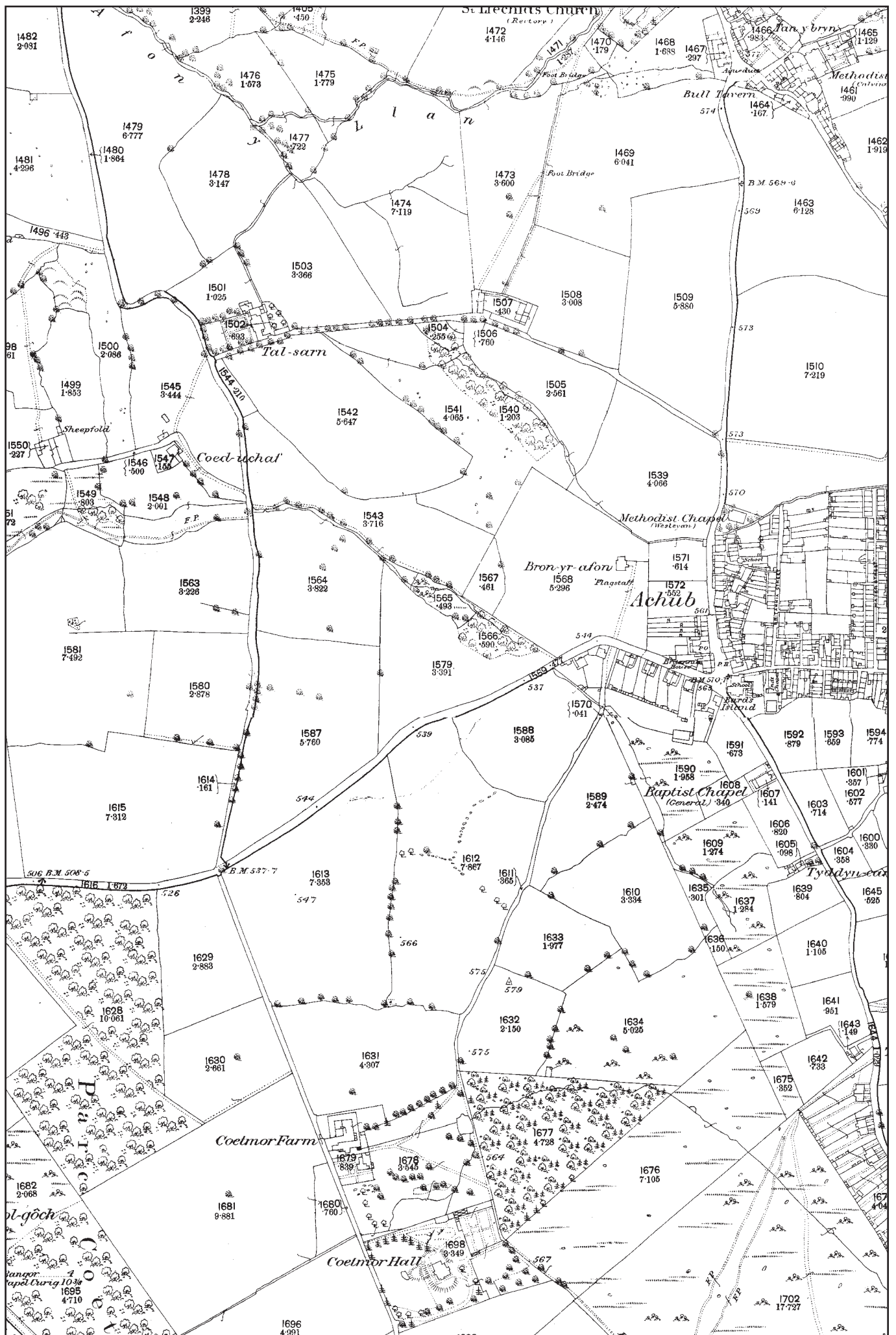


FIGURE 03: Reproduction of Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889. Scale 1:5000 @A4.

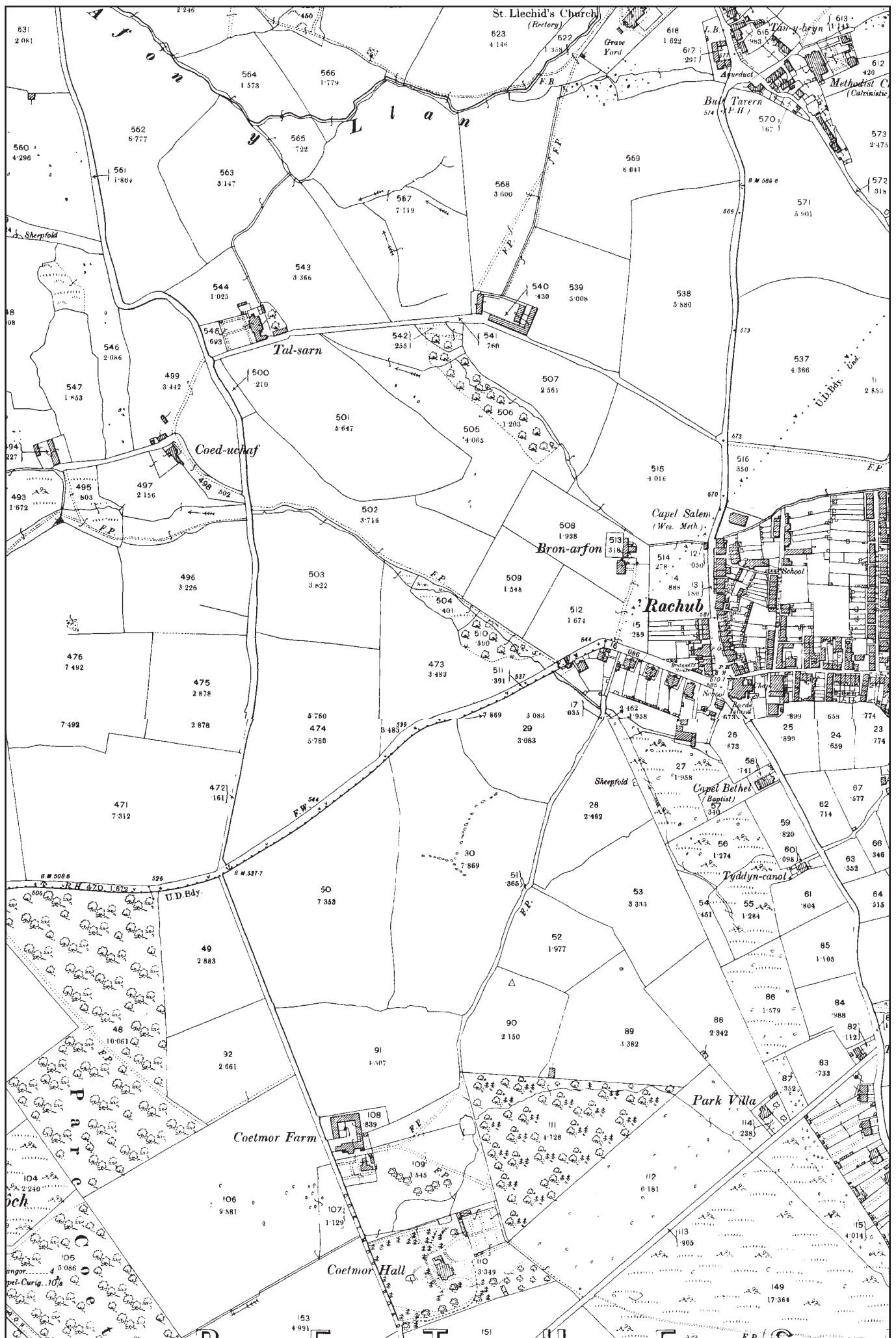


FIGURE 04 Reproduction of Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900. Scale 1:5000 @A4.

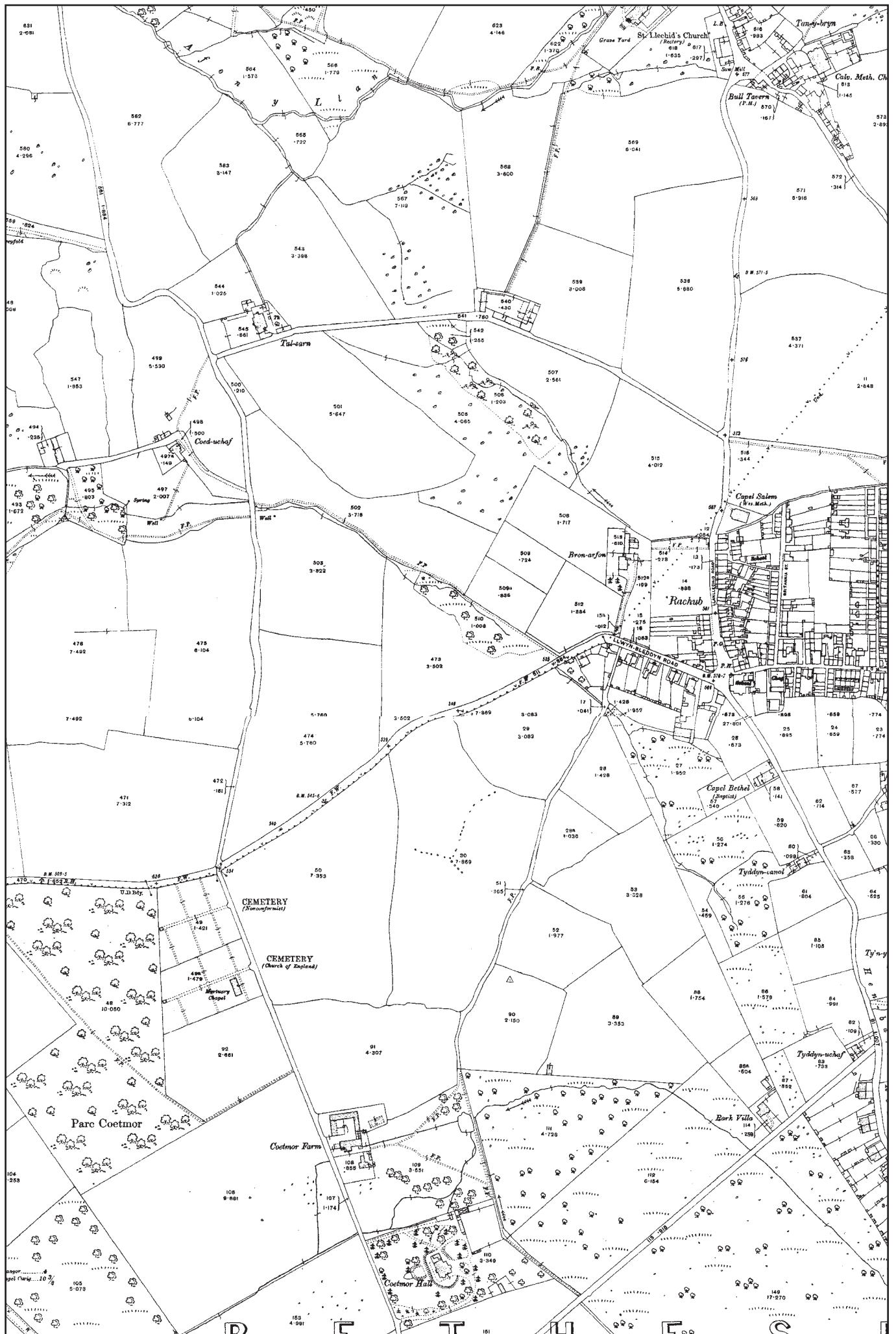


FIGURE 05 Reproduction of Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914. Scale 1:5000 @A4.

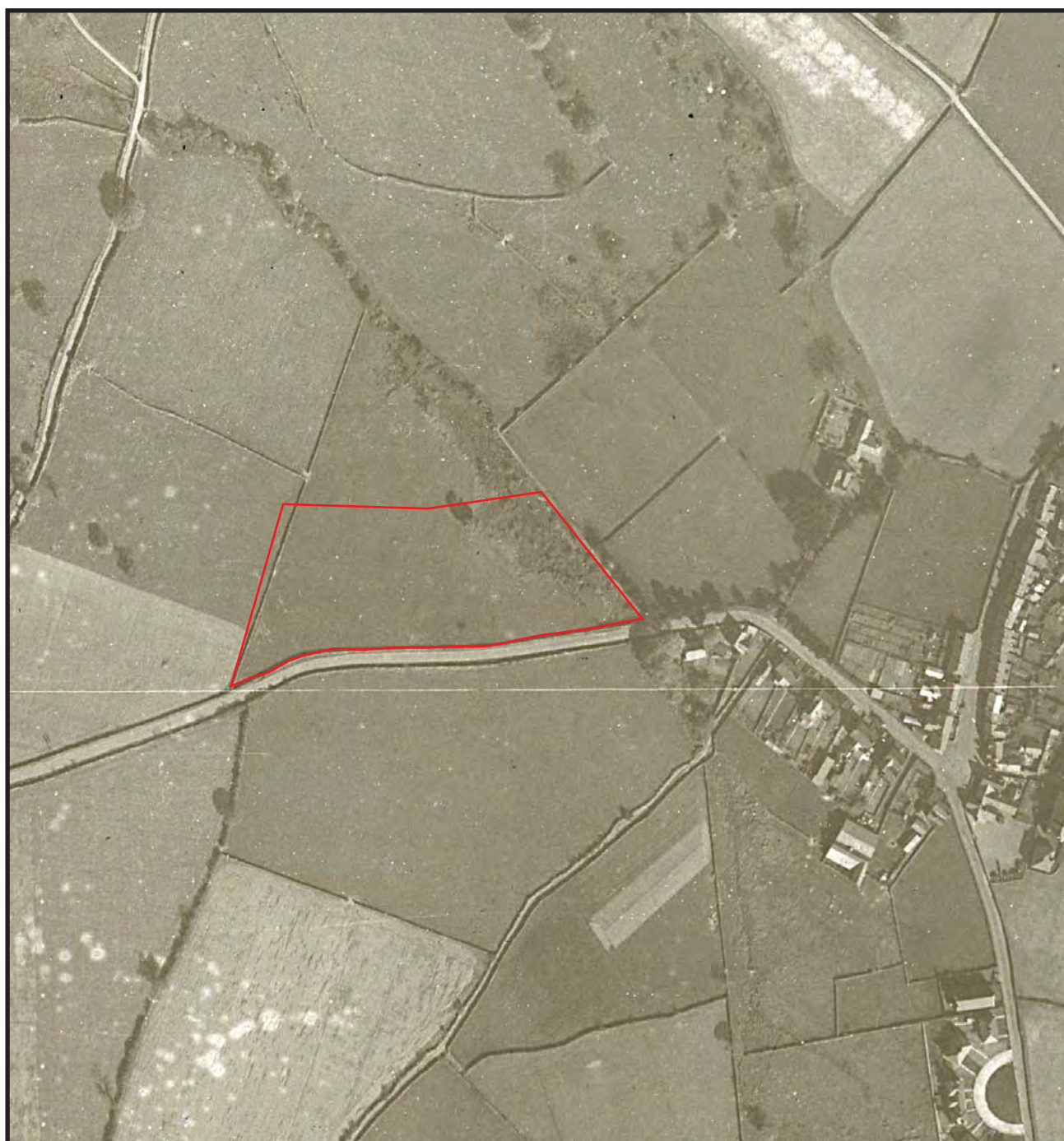


Figure 06: Extract from Aerial Photograph RAF 106 G LA 230 frame 1002 taken on 18th April 1945. The approximate study area is outlined in red, and the boggy low-lying area is shown to the north-east.



Figure 07: LiDAR composite dataset DTM 1m data, showing the study area outlined in red. Contains Natural Resources Wales information ©Natural Resources Wales database right 2016. Ordnance Survey 100021874



Figure 08: Extract from the Tithe Map of the Parish of Llanllechid of 1840, with the Development Area Outlined in Red. Not to Scale



Figure 09: Detail from an 1855 Penrhyn Estate Map of Llanllechid (Bangor Archives, Penrhyn MSS 2218) showing the development area outlined in red and including Cefn Bedw within it, and ealier field boundaries. Not to Scale

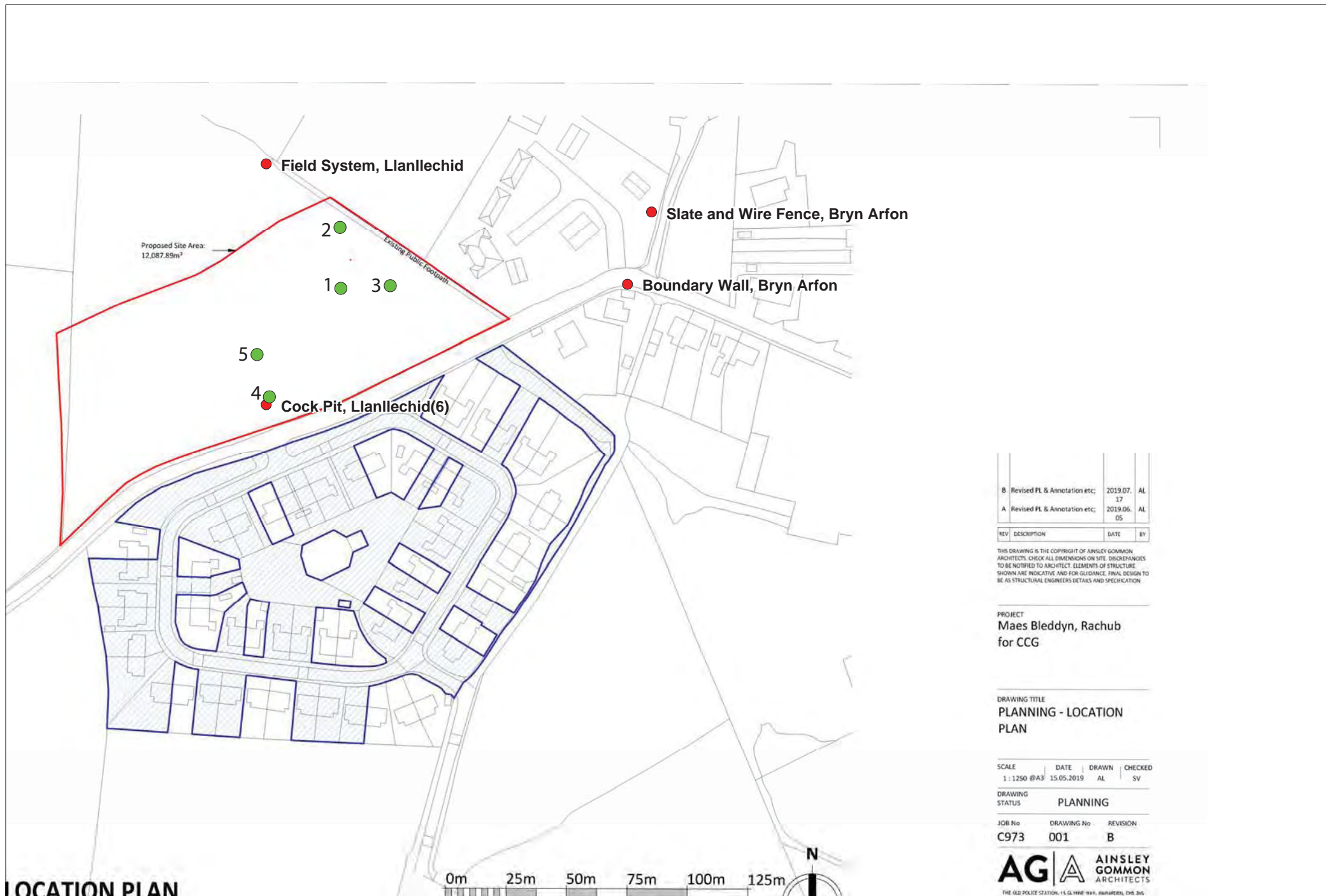


Figure 10: Location of Features Identified in the Assessment Area (Green Dots), with sites on the Gwynedd HER shown in Red.
Base map Ainsley Gomon Architects Drawing C973 001 B

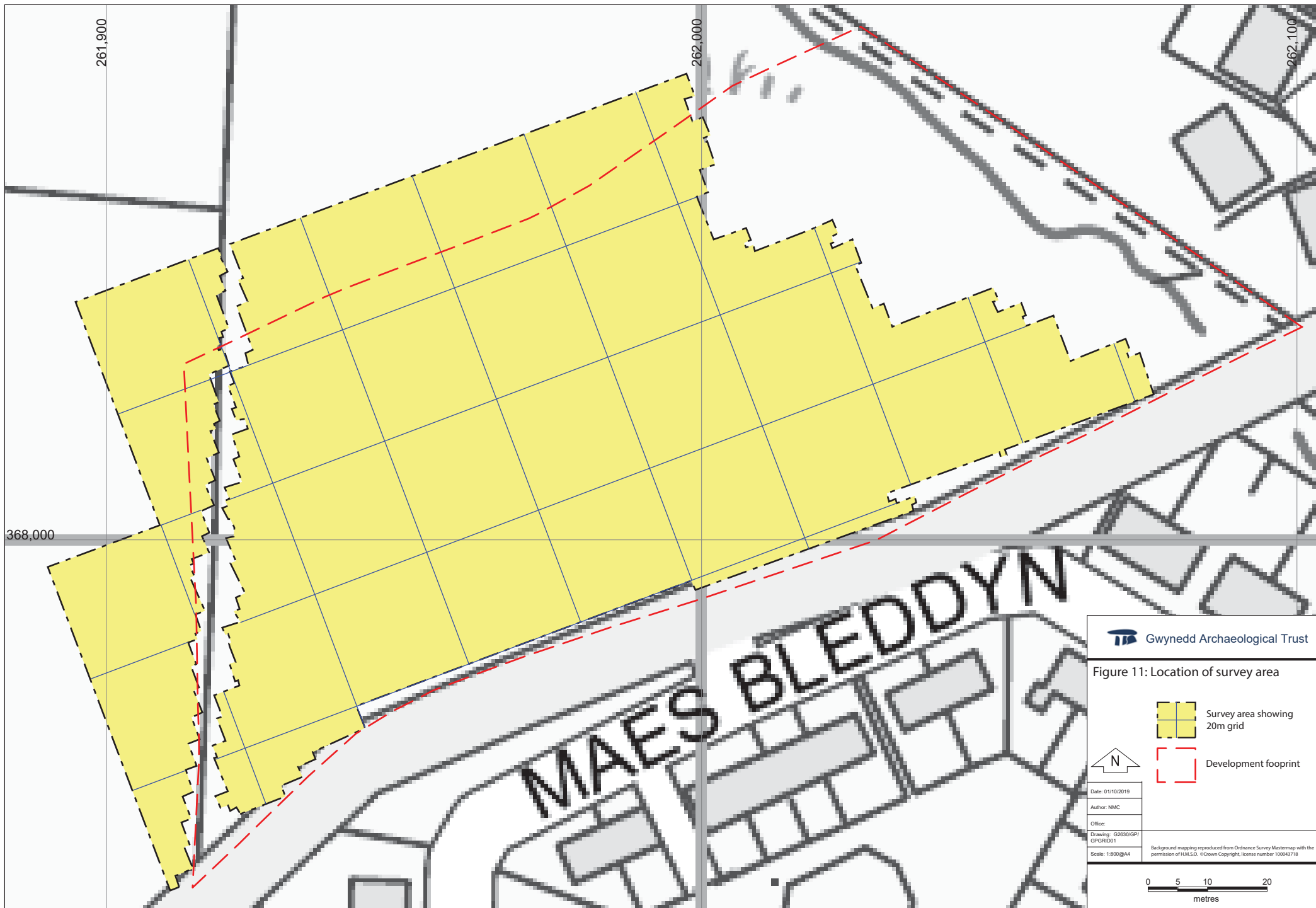




Figure 11: Location of survey area

-  Survey area showing 20m grid
-  Development footprint



Date: 01/10/2019

Author: NMC

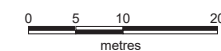
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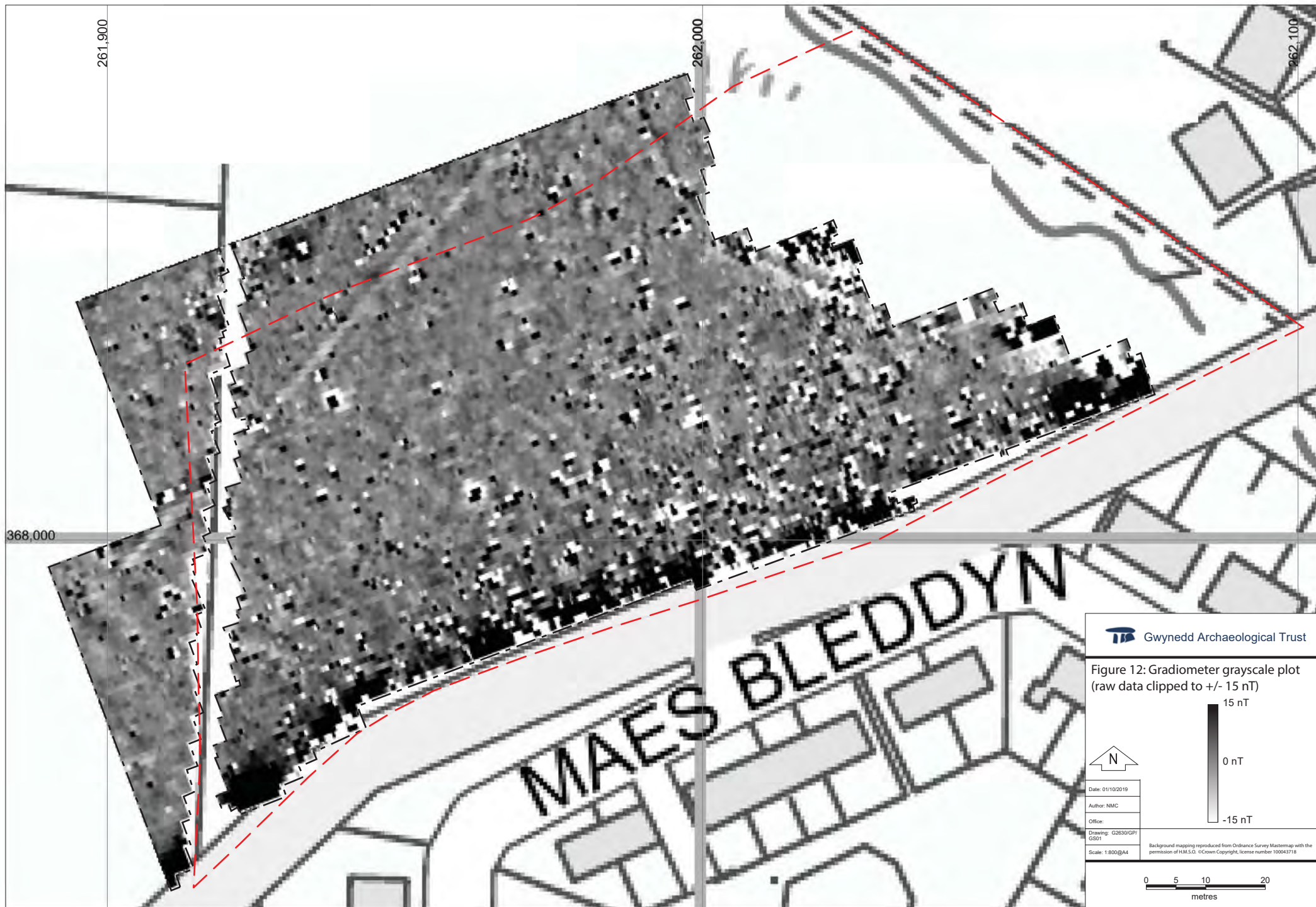
Drawing: G2630/GP/

GPGRID01

Scale: 1:800@A4

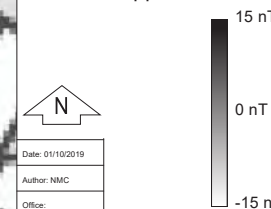
Background mapping reproduced from Ordnance Survey Mastermap with the permission of H.M.S.O. © Crown Copyright, license number 100043718





 Gwynedd Archaeological Trust

Figure 12: Gradiometer grayscale plot
(raw data clipped to +/- 15 nT)



Date: 01/10/2019

Author: NMC

Office:

Drawing: G2830/GP/
GSD1

Scale: 1:800@A4

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0 5 10 20
metres

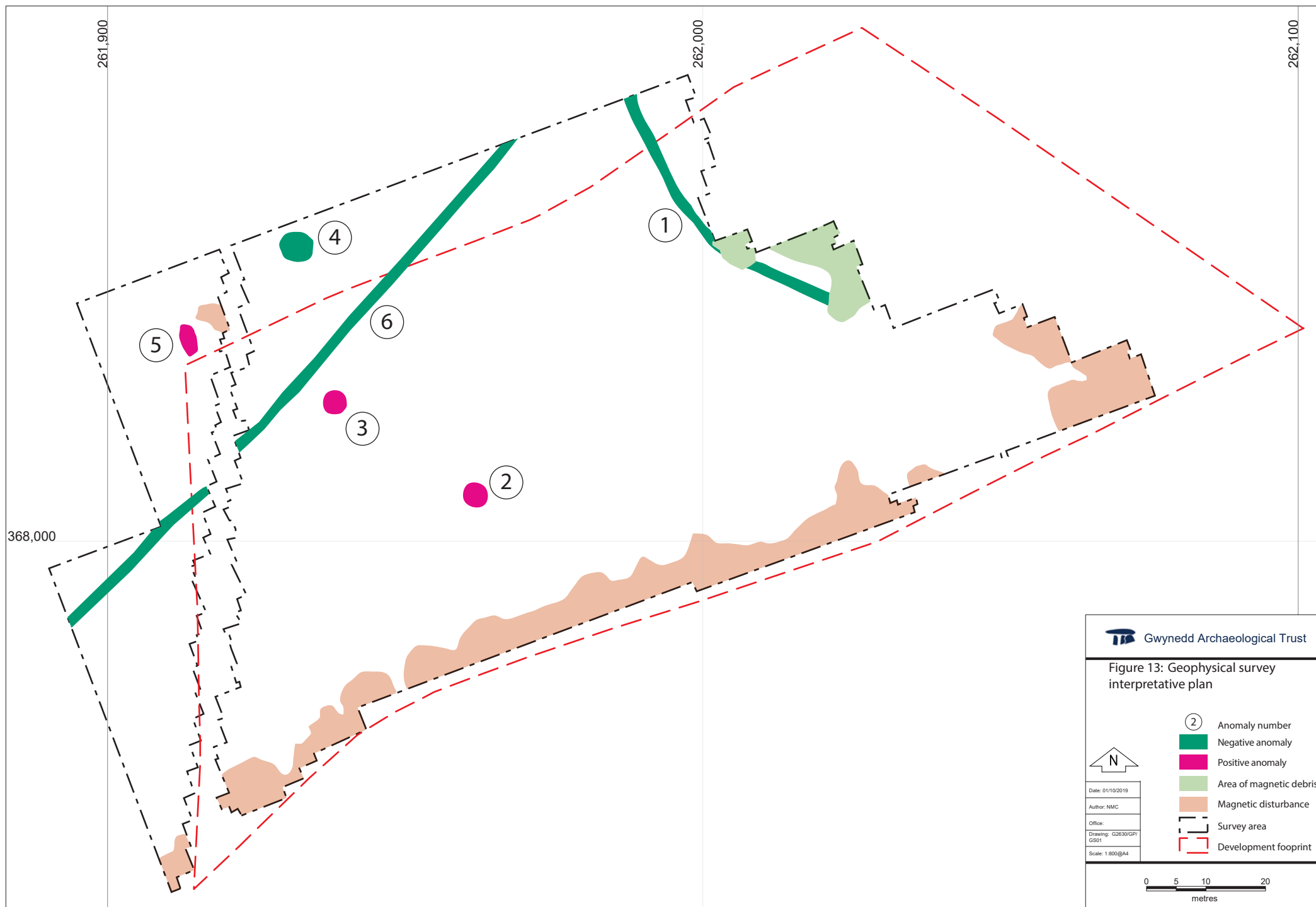


Figure 13: Geophysical survey interpretative plan

- ② Anomaly number
- Negative anomaly
- Positive anomaly
- Area of magnetic debris
- Magnetic disturbance
- Survey area
- Development footprint

Date: 01/10/2019
 Author: NMC
 Office:
 Drawing: G2630/GP/
 GS01
 Scale: 1:800@A4

0 5 10 20
 metres



Plate 1: General view of NW edge of site showing gated entrance; scale 1x1m; view from S
(archive reference: G2630_001).



Plate 2: Detail of drystone wall on western boundary of development; scale 1x1m; view from W
(archive reference: G2630_002).



Plate 3: General view across development area; scale not used; view from NW (archive reference: G2630_003).



Plate 4: View along western hedge bank; scale not used; view from S (archive reference: G2630_004).



Plate 5: View across development area towards housing and beyond; scale not used; view from SW (archive reference: G2630_005).



Plate 6: Rocky outcropping in southern area of field; scale 1x1m; view from SW (archive reference: G2630_006).



Plate 7: View of irregular stones, possibly the remains of a relicit field boundary A; scale 1x1m; view from W (archive reference: G2630_007).



Plate 8: View of irregular stones, possibly the remains of a relicit field boundary A; scale 1x1m; view from SE (archive reference: G2630_008).



Plate 9: View of possible round house remnant with enclosure behind C; scale 1x1m; view from N (archive reference: G2630_009).



Plate 10: View of possible feature C; scale 1x1m; view from NE (archive reference: G2630_010).



Plate 11: View of stones forming part of possible feature; scale 1x1m; view from W (archive reference: G2630_011).



Plate 12: View of boundary wall B showing the eastern side partially obscured with brambles and possible roundhouse C to the rear; scale 1x1m; view from SW (archive reference: G2630_012).



Plate 13: General view showing depression (poss. arch.) and denuded drystone wall beyond A; scale 1x1m; view from SSW (archive reference: G2630_013).



Plate 14: View of public footpath across the boggy ground showing possible Roundhouse 1 and enclosures, dry ground and platform beyond; scale not used; view from NE (archive reference: G2630_014).

APPENDIX I

Reproduction of Gwynedd Archaeological Trust written scheme of investigation

LLWYN BLEDDYN ROAD RACHUB (G2630)

WRITTEN SCHEME OF INVESTIGATION FOR
ARCHAEOLOGICAL ASSESSMENT & EVALUATION
(GEOPHYSICAL SURVEY)

Prepared for CARTREFI CYMUNEDOL GWYNEDD Cyf.

August 2019



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name

Signature

Date

LLWYN BLEDDYN ROAD RACHUB (G2630)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL ASSESSMENT & EVALUATION (GEOPHYSICAL SURVEY)

Prepared for *Cartrefi Cymunedol Gwynedd Cyf.*, August 2019

CONTENTS

| | | |
|-------|---|----|
| 1 | INTRODUCTION | 6 |
| 1.1 | Monitoring Arrangements | 7 |
| 1.2 | Historic Environment Record | 8 |
| 2 | ARCHAEOLOGICAL AND HISTORICAL BACKGROUND..... | 9 |
| 3 | METHODOLOGY..... | 10 |
| 3.1 | Assessment (Desktop Study)..... | 10 |
| 3.2 | Walkover Survey | 11 |
| 3.3 | Geophysical Survey..... | 12 |
| 3.3.1 | Summary | 12 |
| 3.3.2 | Instrumentation | 12 |
| 3.3.3 | Data Collection..... | 13 |
| 3.3.4 | Data Processing..... | 13 |
| 3.3.5 | Aims..... | 14 |
| 3.4 | Gazetteer | 15 |
| 3.5 | Data processing and report compilation..... | 18 |
| 4 | PERSONNEL..... | 20 |
| 5 | INSURANCE..... | 21 |
| 5.1 | Public/Products Liability..... | 21 |
| 5.2 | Employers Liability..... | 21 |
| 5.3 | Professional Indemnity | 21 |
| 6 | SOURCES CONSULTED | 22 |
| | Figure 01 | 23 |
| | Reproduction of Ainsley Gommon Architects Drawing No. 001 Revision B, denoting development area targeted for assessment and evaluation..... | 23 |
| | Figure 02..... | 24 |
| | Reproduction of Ainsley Gommon Architects Drawing No. 003 Revision D, denoting development proposals. | 24 |
| | Figure 03..... | 25 |

| | |
|---|----|
| Reproduction of Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889. Scale 1:5000 @A4. | 25 |
| Figure 04 | 26 |
| Reproduction of Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900. Scale 1:5000 @A4. | 26 |
| Figure 05 | 27 |
| Reproduction of Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914. Scale 1:5000 @A4. | 27 |

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by Cartrefi Cymunedol Gwynedd Cyf. to prepare a written scheme of investigation for an archaeological assessment and evaluation (geophysical survey) in advance of a proposed residential development on land near Llwyn Bleddyn Road, Rachub, Gwynedd (NGR SH61986802; postcode: LL57 3EF; Figure 01). The development area measures 1.2ha and is located within a field of improved open pasture at the western end of Rachub. The residential development is located at the southern end of a large triangular shaped field and will include 30No house plots, along with associated access and amenities, as indicated on Figure 02.

The assessment will be undertaken from August 2019 and will conform to the following guidelines:

- *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 1.1* (The Welsh Archaeological Trusts, 2018);
- *Guidelines for digital archives* (Royal Commission on Ancient and Historic Monuments of Wales, 2015);
- *Management of Archaeological Projects* (English Heritage, 1991);
- *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England, 2015); and
- *Standard and Guidance for Historic Environment Desk-Based Assessment* (Chartered Institute for Archaeologists, 2014).

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

1.1 Monitoring Arrangements

The archaeological mitigation will be monitored by the Gwynedd Archaeological Planning Service (GAPS); the content of this WSI and all subsequent reporting by GAT must be approved by GAPS prior to final issue.

The GAPS Archaeologist will need to be informed of the project timetable and of the subsequent progress and findings. The curator contact details are: 01248370926.

1.2 Historic Environment Record

In line with the GAT Environment Record (HER) requirements, the HER will be contacted at the onset of the project to ensure that any data arising is formatted in a manner suitable for accession to the HER and follows the guidance set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (The Welsh Archaeological Trusts, 2018). In line with this guidance, all submitted reporting will need to include the equivalent of a non-technical summary in Welsh and English at the front of the report combined with short bilingual summaries of the principal Historic Assets recorded during the event. These requirements are mandatory. The GAT HER enquiry number is GATHER1166 and the event primary reference number is 45473.

The GAT HER will also be responsible for supplying Primary Reference Numbers (PRN) for new assets identified and recorded.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A brief examination of the regional Historic Environment Record demonstrates that the assessment area within an area of known archaeological activity, with two sites located within the field designated for development:

- The site of a cockpit is (Primary Reference Number 3674) located at NGR SH62006800 at the southern end of the field within the development footprint; and
- An enclosed field system (Primary Reference Number 5891) comprising lines of boulders, assumed to be the remains of wall foundations, located alongside a small stream, within an area of low-lying land at NGR SH62006810, located to the immediate northwest of the development area.

In terms of post-medieval land use and development, an examination of the Ordnance Survey First to Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheet of the area (Sheets XX.2 and XX.6; 1889, 1900 and 1914 respectively; cf. Figures 03 to 05) shows the development area within an enclosed field that matches the current boundaries. A stream, footpath and dispersed wooded area are located along the northwest boundary, which are still present, with the remainder of the field, as now, represented as open pasture. The plot is located at the western end of Rachub, with the main settlement located to the immediate east; this layout has not fundamentally changed, beyond two recent housing estates to the south and northeast of the development site.

GAT undertook an archaeological assessment in advance of the construction of the housing estate northeast of the development site (GAT Report 807), followed by a watching brief during construction (GAT Report 1226). Information from these reports will be consulted during the current assessment and evaluation.

The development is located within the Registered Historic Landscape of Ogwen Valley (Gw10) and the Historic Landscape Characterisation area designated as Fieldscape around Llanllechid. There are scheduled monuments in the vicinity of the development site, including the Coed Uchaf Hut Group (Scheduled Monument CN176; NGR SH61606840), located 310m to the northwest of the proposed development site and Hut Circles West of Corbri (Scheduled Monument CN287; NGR SH61606840), located 700m to the north of the proposed development site.

3 METHODOLOGY

3.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage....Significance is to be judged in a local, regional, national or international context as appropriate” (ClfA 2014, 4).

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

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) will be examined for information concerning the study area, defined as the highlighted plot in Figure 01 and the immediate environs. This will include an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and any secondary information held within the HER. All identified features will be mapped, described and added to a gazetteer of sites and the relative importance of any sites defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be checked for sites additional to the HER;
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be examined for potential features;
4. On-line catalogue search of the National Library of Wales (Penglais Rd, Aberystwyth SY23 3BU);
5. Archive data, including primary and secondary sources, historic maps and estate maps will be examined at the regional archives (Gwasanaeth Archifau Gwynedd, Cyngor Gwynedd, Caernarfon LL55 1SH). The examination of the archive data will include historic mapping including the local tithe map and schedule;
6. Light Detection and Ranging (LiDAR) data will be examined from the Lle Geo-Portal at <http://lle.gov.wales/home> for information on potential surface features using digital terrain modelling and digital surface modelling;

3.2 Walkover Survey

A walkover survey will be undertaken that will incorporate the assessment area, defined as the highlighted plot in Figure 01 and the immediate environs (if accessible). All known and new archaeological features on the ground will be located and described them on GAT pro-formas. The sites will then be added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology will be estimated and defined.

A photographic record will be maintained in RAW format using a digital SLR set to maximum resolution (Nikon D3000; resolution: 3,872 × 2,592 [10.2 effective megapixels]) and photographic metadata table will be completed and included in the report. Photographic images will be archived in TIFF format; the archive numbering system will start from G2630_001. A handheld GPS unit will also be used during the walkover survey

3.3 Geophysical Survey

3.3.1 Summary

The geophysical survey will be undertaken by GAT staff and will incorporate the assessment area, defined as the highlighted plot in Figure 01 and will be carried out in a series of 20m grids, which will be tied into the Ordnance Survey grid using a Trimble R8 high precision GPS system. The survey will be conducted using a Bartington Grad 601-2 dual fluxgate gradiometer with a 1.0m traverse interval and a 0.25m sample interval.

3.3.2 Instrumentation

The Bartington Grad 601-2 dual fluxgate gradiometer uses a pair of Grad-01-100 sensors. These are high stability fluxgate gradient sensors with a 1.0m separation between the sensing elements, giving a strong response to deeper anomalies. The instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetized iron oxides which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil, therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent thermo-remnant magnetic field upon cooling. This material can also get spread into the soil leading to a more generalized magnetic enhancement around settlement sites. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil or high levels of natural background "noise" (interference consisting of random signals produced by material within the soil). In some cases, there may be little variation between the topsoil and subsoil resulting in undetectable features. The Bartington Grad 601 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 500mm apart. Their cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation, the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output. The gradiometer can detect anomalies down

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

3.3.3 Data Collection

The gradiometer includes an on-board data-logger. Readings are taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval is 1.0m and readings are logged at intervals of 0.25m along each traverse. Marked guide ropes are used to ensure high positional accuracy during the high resolution survey. The data is transferred from the data-logger to a computer where it is compiled and processed using ArchaeoSurveyor2 software. The data is presented as a grey scale plot where data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed. This is supplemented by an interpretation diagram showing the main feature of the survey with reference numbers linking the anomalies to descriptions in the written report. It should be noted that the interpretation is based on the examination of the shape, scale and intensity of the anomaly and comparison to features found in previous surveys and excavations etc. In some cases the shape of an anomaly is sufficient to allow a definite interpretation e.g. a Roman fort. In other cases all that can be provided is the most likely interpretation. The survey will often detect several overlying phases of archaeological remains and it is not usually possible to distinguish between them. Weak and poorly defined anomalies are most susceptible to misinterpretation due to the propensity of the human brain to define shapes and patterns in random background "noise". An assessment of the confidence of the interpretation is given in the text.

3.3.4 Data Processing

The data is presented with a minimum of processing although corrections are made to compensate for instrument drift and other data collection inconsistencies. High readings caused by stray pieces of iron, fences, etc. are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce similar readings. The data on some 'noisy' or very complex sites can benefit from 'smoothing'. Grey-scale plots are always somewhat pixellated due to the resolution of the

survey. This at times makes it difficult to see less obvious anomalies. The readings in the plots can therefore be interpolated thus producing more but smaller pixels and a small amount of smoothing based on a low pass filter can be applied. This reduces the perceived effects of background noise thus making anomalies easier to see. Any further processing is noted in relation to the individual plot.

3.3.5 Aims

The report will include a discussion of the grey scale plot and an interpretation of the any anomalies identified; these anomalies will be presented as either positive or negative, suggesting whether they could be cut features (ditches, pits etc.), or built sub-surface features (e.g., banks). Figures will be included for the grey scale plot and for the anomaly interpretation. The results of the geophysical survey will be used to inform further recommendations for archaeological evaluation and/or mitigation (if relevant).

3.4 Gazetteer

A gazetteer will be compiled for any existing and newly identified sites within the assessment area, based on information sourced from the desk based assessment and walkover; the gazetteer will be prepared in the following format and will include:

| | |
|---|--|
| Feature Number | |
| Site name | |
| PRN number | |
| Grid reference | |
| Period | |
| Site type | |
| Assessment category | |
| Description | |
| Impact | |
| Recommendation for further assessment/evaluation | |
| Recommendation for mitigatory measures | |

The following categories will be used to define the assessment category of the archaeological asset:

Category A - Sites of National Importance.

Scheduled 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.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

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 asset, 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 an asset affecting its overall integrity. Assets 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 an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

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

3.5 Data processing and report compilation

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

1. Front cover;
 2. Inner cover;
 3. Figures and Plates List;
 4. Non-technical summary (Welsh/English);
 5. Introduction;
 6. Methodology;
 - i. Desk-based assessment;
 - ii. Walkover survey;
 - iii. Geophysical survey;
 7. Results;
 - a. Desk based assessment;
 - i. Location and geological summary;
 - ii. Statutory and non-statutory designations;
 - iii. Environmental remains and soil morphology;
 - iv. Historical and archaeological background;
 - v. Cartographic evidence;
 - vi. Artefact potential;
 - vii. Aerial photographs and LiDAR;
 - b. Walkover survey;
 - c. Geophysical survey
 - d. Gazetteer of features;
 8. Conclusions and recommendations;
 - a. Conclusion;
 - b. Table of sites and recommendations;
 9. Acknowledgements;
 10. Bibliography;
 - a. Primary sources;
 - b. Secondary sources;
 11. Figures; inc.:
 - location plan;
 - historic mapping;
 - location plan with identified features;
 - grey scale plot;
 - anomaly identification and interpretation;
 12. Appendix I (approved written scheme of investigation);
 13. Appendix II (Sites listed on GAT Historic Environment Record);
 14. Appendix III (Definition of mitigation terms);
 15. Appendix IV (Photographic metadata - walkover survey);
- Back cover.

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.

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. The archaeological assessment/evaluation outlined in this written scheme of investigation will be submitted in draft format in September 2019; a final report will be submitted to the Historic Environment within six months of submitting the draft report (March 2020).

The following dissemination will apply:

- A digital report(s) will be provided to the client/consultant and GAPS (draft report then final report);
- A paper report plus a digital report will be provided to the regional Historic Environment Record, Gwynedd Archaeological Trust; this will be submitted within six months of project completion (final report only), along with any relevant, digital information such as the project database and photographs. All digital datasets submitted will conform to the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1); and
- A digital report and archive (including photographic and drawn) data will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata.

4 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section. The assessment will be completed by a Project Archaeologist who will have responsibility for completing compiling the gazetteer, preparing the site archive, liaising with GAPS and *Cartrefi Cymunedol Gwynedd Cyf.* and preparing the draft report and final report. The geophysical survey will be undertaken by a team of Project Archaeologists, who will have responsibility for arranging site access. The survey results will be incorporated into the assessment report and included in the gazetteer. The project manager will be responsible for reviewing and approving the report prior to submission.

5 INSURANCE

5.1 Public/Products Liability

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability

INSURER Aviva Insurance Limited

POLICY TYPE Public Liability

POLICY NUMBER 24765101CHC/UN/000375

EXPIRY DATE 21/06/2020

5.2 Employers Liability

Limit of Indemnity- £10,000,000 any one occurrence.

The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.

INSURER Aviva Insurance Limited

POLICY TYPE Employers Liability

POLICY NUMBER 24765101 CHC / UN/000375

EXPIRY DATE 21/06/2020

5.3 Professional Indemnity

Limit of Indemnity- £5,000,000 in respect of each and every claim

INSURER Hiscox Insurance Company Limited

POLICY TYPE Professional Indemnity

POLICY NUMBER 9446015

EXPIRY DATE 22/07/2020

6 SOURCES CONSULTED

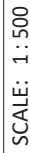
1. English Heritage, 1991, Management of Archaeological Projects
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3. Evans, R., 2009. Land Adjacent to Bron Arfon, Llanllechid Archaeological Desk Based Assessment (G2087). Gwynedd Archaeological Trust Report No. 807.
4. Evans, R., 2015. Bron Arfon, Llanllechid Archaeological Desk Watching Brief (G2087). Gwynedd Archaeological Trust Report No. 1226.
5. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1)
6. Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889.
7. Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900.
8. Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914.
9. Royal Commission on Ancient and Historic Monuments of Wales 2015 *Guidelines for digital archives*
10. Standard and Guidance for Archaeological Geophysical Survey (Chartered Institute for Archaeologists, 2014).
11. Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014).

FIGURE 01

Reproduction of Ainsley Gommon Architects Drawing No. 001 Revision B, denoting development area targeted for assessment and evaluation.

FIGURE 02

Reproduction of Ainsley Gommon Architects Drawing No. 003 Revision D, denoting development proposals.



VISUAL SCALE 1:500 @ A2

PROJECT
Maes Bleddyn, Rachub
for CCG

DRAWING TITLE
**PLANNING - PROPOSED SITE
PLAN**

| | | | |
|-----------|------------|-------|---------|
| SCALE | DATE | DRAWN | CHECKED |
| 1:500 @A2 | 15.05.2018 | AL | SV |

| DRAWING STATUS | | PLANNING | |
|----------------|------------|----------|--|
| JOB No | DRAWING No | REVISION | |
| C973 | 003 | D | |

FIGURE 03

Reproduction of Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889. Scale 1:5000 @A4.

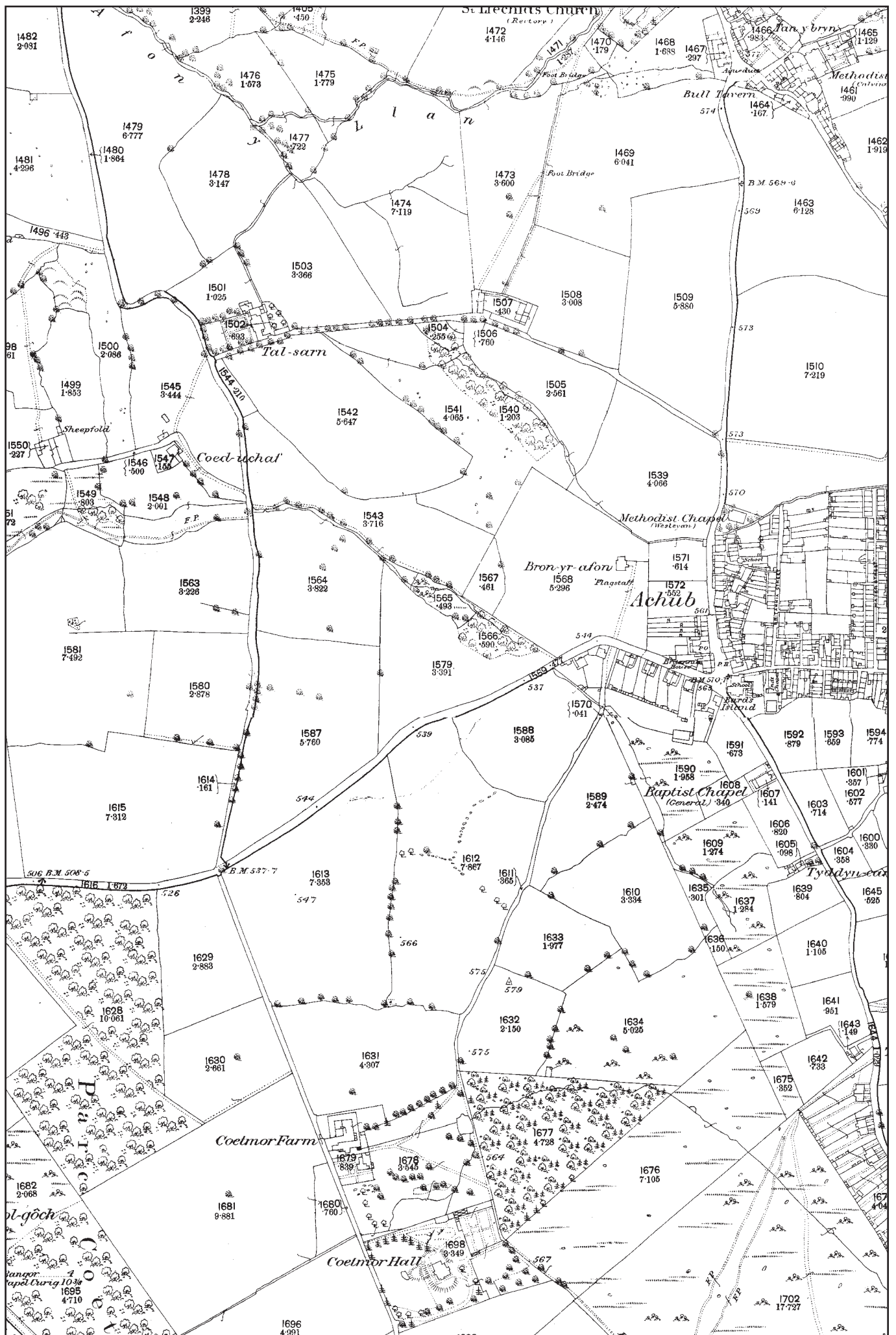


FIGURE 03: Reproduction of Ordnance Survey First Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1889. Scale 1:5000 @A4.

FIGURE 04

Reproduction of Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900. Scale 1:5000 @A4.



FIGURE 04 Reproduction of Ordnance Survey Second Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1900. Scale 1:5000 @A4.

FIGURE 05

Reproduction of Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914. Scale 1:5000 @A4.

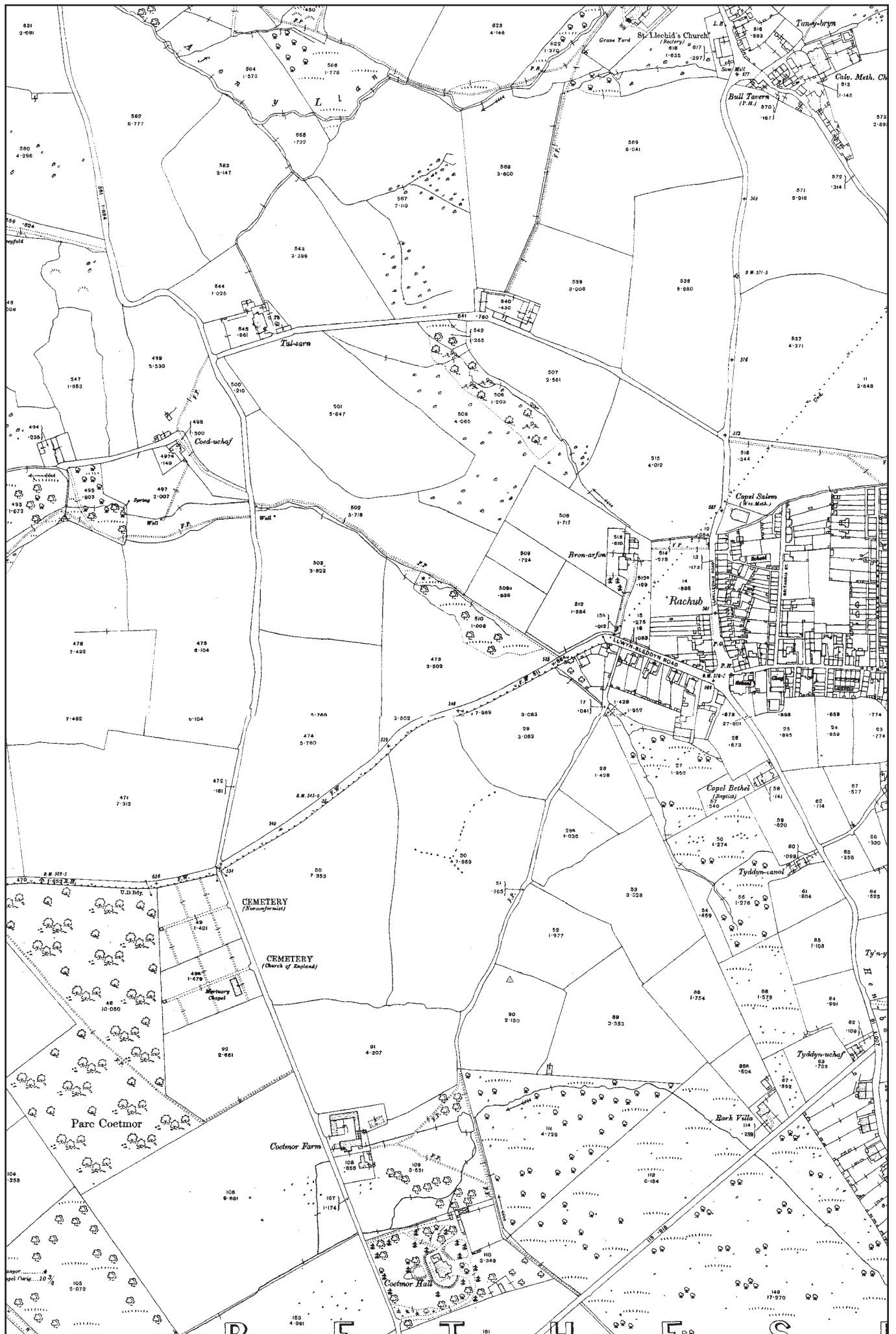


FIGURE 05 Reproduction of Ordnance Survey Third Edition Ordnance Survey 1-inch to 25-mile County Series Map Sheets XX.2 and XX.6; 1914. Scale 1:5000 @A4.

APPENDIX II

Gwynedd Archaeological Trust photographic metadata

| PHOTO RECORD NUMBER | DESCRIPTION | VIEW FROM | SCALE(S) | REASON FOR PHOTO | CREATOR OF DIGITAL PHOTO | DATE OF CREATION OF DIGITAL PHOTO | ORIGINATING ORGANISATION | PLATES |
|---------------------------|---|--------------|----------|---------------------------|--------------------------------|--|------------------------------|--------|
| G2630_001 | General view of NW edge of site showing gated entrance | NW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_002 | General view of NW edge of site showing gated entrance | S | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 01 |
| G2630_003 | View of junction inbetween field boundaries NW of development area | SSW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_004 | General view of western drystone wall and hedgerow at development boundar | W | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_005 | Detail of drystone wall on western boundary of development | W | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 02 |
| G2630_006 | View of NW corner junction of field showing gate pier and drystone wall | NNW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_007 | General view across development area | NW | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 03 |
| G2630_008 | View along western hedge bank | S | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 04 |
| G2630_009 | View across development area towards housing and beyond | SW | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 05 |

| PHOTO RECORD NUMBER | DESCRIPTION | VIEW FROM | SCALE(S) | REASON FOR PHOTO | CREATOR OF DIGITAL PHOTO | DATE OF CREATION OF DIGITAL PHOTO | ORIGINATING ORGANISATION | PLATES |
|---------------------------|---|--------------|----------|---------------------------|--------------------------------|--|------------------------------|--------|
| G2630_010 | Rocky outcropping in southern area of field | SW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 06 |
| G2630_011 | View of irregular stones, possibly the remains of a relicit field boundary A | W | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 07 |
| G2630_012 | View of irregular stones, possibly the remains of a relicit field boundary A | SE | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 08 |
| G2630_013 | General view showing depression (poss. arch.) and denuded drystone wall beyond A | SSW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 13 |
| G2630_014 | General view of possible enclosure and possible drystone wall in boggy area to east B | S | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_015 | View of stones with possible feature in boggy area close to the development area C | W | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_016 | View of possible round house remnant with enclosure behind C | N | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 09 |
| G2630_017 | View of possible round house remnant with enclosure behind C | SSE | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_018 | View of possible feature C | NE | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 10 |

| PHOTO RECORD NUMBER | DESCRIPTION | VIEW FROM | SCALE(S) | REASON FOR PHOTO | CREATOR OF DIGITAL PHOTO | DATE OF CREATION OF DIGITAL PHOTO | ORIGINATING ORGANISATION | PLATES |
|---------------------|---|-----------|----------|---------------------------|--------------------------|-----------------------------------|------------------------------|--------|
| G2630_019 | View of stones in feature C, and includes the adjacent steram | NE | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_020 | View of stones forming part of possible feature | W | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 11 |
| G2630_021 | View of two lardge boulders disturbed hut possibly with feature C | N | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_022 | Possible enclosure noundary runnih N-S across the west of C | E | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_023 | View of drystone enclosure wall B | W | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_024 | View of boundary wall B showing the eastern side partially obscured with brambles and poss. round house C to the rear | SW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 12 |
| G2630_025 | View of boundary wall B from the higher dry ground to the west | NW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_026 | General view across field | SW | 1x1m | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_027 | General view across field | NE | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |

| PHOTO RECORD NUMBER | DESCRIPTION | VIEW FROM | SCALE(S) | REASON FOR PHOTO | CREATOR OF DIGITAL PHOTO | DATE OF CREATION OF DIGITAL PHOTO | ORIGINATING ORGANISATION | PLATES |
|---------------------------|---|--------------|----------|------------------------------|--------------------------------|--|------------------------------------|--------|
| G2630_028 | General view across field | NW | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_029 | General view across field | W | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_030 | View of possible prehistoric activity with Moel Faban in back ground | W | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | |
| G2630_031 | View of public footpath across the boggy ground showing possible Roundhouse 1 and enclosures, dry ground and platform beyond | NE | not used | Archaeological Assessment | Bethan Jones | 25/03/2019 | Gwynedd Archaeological Trust | 14 |

APPENDIX III

Sites Listed on the Gwynedd HER within 500m of the Study Area

Site on the Gwynedd HER within 500m of the Development Area

| PRN | Site_Name | Description | Period | Status | Status_Grade | Status_Ref | NGR |
|-------|---------------------------------------|--|---------------|-----------------|--------------|------------|--------------|
| 63242 | Barn at Coetmor Farm | Rubble stone long barn with slate half-hipped roof. Large barn entry to left of centre with slate slab lintel. Three vent loops to left at upper level, two below. Pig-sties attached at left angle are listed with other outbuildings. | Post Medieval | Listed Building | II | 18398 | SH6187967545 |
| 30446 | Boundary Wall, Bryn Arfon | SH6215 6805 to SH6209 6803. Drystone wall, up to 1.5m high, although damaged in places. It forms the boundary to the paddock attached to Bron Arfon farm and dates from the 1870s. (Evans 2009) | Post Medieval | | | | SH62156805 |
| 3674 | Cock Pit, Llanllechid | The outdoor pit was a simple affair, generally a circular space of ground, level and covered with short grass, enclosed in a broad wall about a foot high. The ground where the spectators sat or stood sloped down towards the enclosure. Pits were often sit | Unknown | | | | SH62006800 |
| 12070 | Coed Uchaf Farmhouse, Llanllechid | 17th century. Stoney S wing. Thick walls of large boulders. Massive Square chimney. Int Hewn purlins and central trusses. Massive carved beam over wide fire. | Post Medieval | Listed Building | II | 3670 | SH6172068250 |
| 30489 | Enclosures, Possible, W of Bryn Arfon | Aerial photograph RAF 107 CPE/UK1996 (fig.7) suggests the possibility of enclosures and/or relict field systems similar to those sites observed to the surrounding unimproved land e.g. PRN 5891. (Evans, 2009) | Unknown | | | | SH62026818 |
| 30448 | Field Boundary, NW of Bryn Arfon | A field boundary present on the Penrhyn 1855 map (Penrhyn 2218), and part of the field system associated with Cefn Bedw farm. | Post Medieval | | | | SH61966820 |

Site on the Gwynedd HER within 500m of the Development Area

| PRN | Site_Name | Description | Period | Status | Status_Grade | Status_Ref | NGR |
|-------|--|--|---------------|-----------------|--------------|------------|--------------|
| 58494 | Field Boundary, Remains of, Llanllechid | What appear as wall foundations, but are more likely to be the remains of a raised trackway, are visible south of a small stream and below and parallel to the remains of a ruined field boundary. | Post Medieval | | | | SH62096825 |
| 5891 | Field System, Llanllechid | A strip of low-lying ground forming a narrow valley through which runs a small stream, almost dry when visited. Within the low-lying ground are a series of stone walls, mostly visible as single lines of boulders. | Prehistoric | | | | SH62006810 |
| 296 | Hut Group, Cae Llwyn Grydd, Llanllechid | Hut group, Cae-Llywn-Grydd, on level ground at a height of 600ft above OD. The fragmentary remains of a number of huts possibly circular, occupying a roughly circular area about 60ft in diameter. | Prehistoric | | | | SH62436822 |
| 298 | Hut Platform, W of Cae Llwyn Grydd | Long hut, W of Cae-Llwyn-Grydd on level ground at 500ft above OD. 52ft long from NE to SW and 15ft wide, divided by a cross-wall 24ft from the SW end. The walls are 3-4ft thick, faced with large boulders. | Medieval | | | | SH61956831 |
| 299 | Long Hut, S of Tal y Sarn | Hut 45ft long from NW to SE and 17ft wide. The walls are 3ft thick, faced on both sides with orthostats. The external corners are rounded slightly. | Medieval | | | | SH62026818 |
| 63243 | Outbuildings in farm-court at Coetmor Farm | Rubble stone ranges with slate roofs. E side pigsties attached to corner of barn, and stable, N side cow-house and W side tall open-bay loose-boxes for cattle with walled yards in front. | Post Medieval | Listed Building | II | 18399 | SH6187067572 |
| 70307 | Salem Methodist Chapel, Ffordd Llanllechid, Rachub | | Post Medieval | | | | SH62286818 |

Site on the Gwynedd HER within 500m of the Development Area

| PRN | Site_Name | Description | Period | Status | Status_Grade | Status_ Ref | NGR |
|------------|----------------------------------|---|---------------|---------------|---------------------|------------------------|------------|
| 30447 | Slate and Wire Fence, Bryn Arfon | 'Penrhyn' style slate and wire fencing that divides the paddock into three sub-divisions. It must date from between 1889 and 1900 as the paddock is not sub-divided on the 1st edition OS map but is on the 2nd edition. (Evans 2009) | Post Medieval | | | | SH62166808 |
| 58495 | Trackway, Talysarn | SH62256826 - SH61786835. A trackway running approximately east-west past the two settlements of Talysarn. The east part of this track is shown on the 1765 map as the principal route to the farm of Talysarn. | Post Medieval | | | | SH62256826 |

APPENDIX IV

Categories of importance

Category A - Sites of National Importance.

Scheduled 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. In this report several sites of unknown potential have been allocated to this category.



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